Projektförslag

MVK 2016-17

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   KTH, ABE
2. *Multilateral Peace Operations Database*
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3. *The tour*
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             Bundling
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             Corite
48. *Realistic Street Rendering in a Virtual Reality Walkthrough for Therapy and Urban Design*
             KTH & KI
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             Whitelines
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             Playitfair
51. *Effortless shopping*
             Klic
52. *Momentmania*
             Stagecast

Multimodal Transportation Performance Certificate (MTPC) online

Description of your company/organization/market segment

The division for Urban and Regional Studies (Department of Planning and Environment) at the School for Architecture and Built Environment (ABE) is engaged in planning, public policy and sustainability issues.

What's the project about?

There is an ongoing project about developing Multimodal Transportation Performance Certificate (MTPC) (transportdeklaration in Swedish) at KTH Royal Institute of Technology. In this project we compare different methods to evaluate how the built environment (bebyggelsen) influences travel choices (how easy it is to drive, walk, cycle and use public transportation) in order to develop a model to evaluate multimodality in Swedish cities. Multimodality is defined as ability to travel with a choice of different transportation modes. In the next stage of the project we would like to make a web application (website and mobile app) which will automatically analyze built environments (bebyggelse) in Swedish cities and declare how easy it is to travel by more energy efficient transportation systems (walk, cycle and use public transportation).
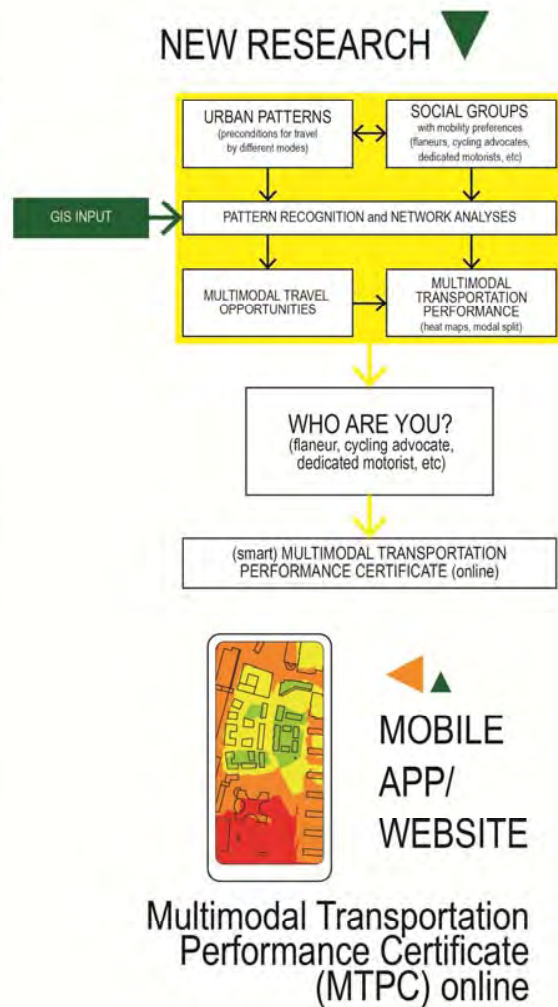
There is much research about how people travel and how the built environments affect mobility (so-called D-variables, devised by Prof. Robert Cervero). In the Multimodal Transportation Performance Certificate (MTPC) project at KTH Royal Institute of Technology we look more in detail at websites and web based navigation services (Walk Score, Google Maps, Bing, Maps, etc.); environmental certification systems; web application for traffic (Trafikalstring https://applikation.trafikverket.se/trafikalstring/), etc.

Leadership in Energy and Environmental Design (LEED) is a green building certification system which uses built environment and location factors which influence travel (compact development, mix use, distance to transit, etc.) in order to evaluate sustainability of buildings and neighborhoods. Walk Score also uses D-variables (Design as intersection density) to calculate walk, bike and transit scores for buildings and cities in the USA. Each score is followed by description (89 for example describe areas which are walkable, bikable or transit-friendly).

With MTPC we are trying to developed a hybrid which will combine the best of LEED (comprehensiveness), Walk Score (web presentation and visualization) and the Swedish tradition in traffic planning (Swedish context, knowledge in how the Swedish built environments affect mobility). In Sweden there is no app or website like Walk Score. The information about multimodal transportation alternatives is often partial (Google Maps for example shows multimodal travel alternatives in Stockholm, but maybe not in every small city) or scattered (SL app for public transportation, Google Maps for driving directions, etc.).

The goal is to develop a smart app and website (Walk Score gives fixed score for everyone) which will figure out the mobility needs and preferences of the users. Some people love bikes and they would like bike-biased evaluation (e.g. customized cycling advocates' MTPC). Some people cannot bike or drive and they care about other transportation modes (for example public transportation). Then the smart application should put higher weight on public transportation.

Which are the goals/results/deliverables?
MTPC website and mobile app

Any expected prerequisites?
No

Which technologies/platform they'll work with
www, Android, iOS

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Project Proposal KTH – Software Engineering (DD1393)

Customer: Stockholm International Peace Research Institute (SIPRI)

SIPRI was founded in 1966 by the Swedish Parliament to be an independent and global resource on data and analysis for international decision makers in the field of armaments, disarmament and international security. SIPRI's vision is a world in which sources of insecurity are identified and understood, conflicts are prevented or resolved, and peace is sustained.

   SIPRI is regularly ranked among the most respected and influential think tanks worldwide. Thanks to our well-founded reputation as a source of unbiased and authoritative data and information, SIPRI is a reference point for many different kinds of people and institutions— diplomats, politicians, journalists, scholars, the military, students, governments and ordinary citizens. All of them can trust SIPRI's data and analysis on armed conflicts and military spending, on nuclear forces and arms control, on the arms trade and export controls, and on conflict management and peace operations. In 2015, the SIPRI website recorded more than 1.7 million unique page views, and SIPRI was quoted in over 16 000 stories in 96 countries. The total readership of SIPRI's media outlets was estimated to be over 100 million people.

SIPRI's Multilateral Peace Operations Database

SIPRI's Multilateral Peace Operations Database is one of the key data sets in SIPRI's data portfolio, and the most comprehensive source of reliable and objective statistics on multilateral peace operations (i.e. military and/or civilian operations in (post-) conflict areas conducted by international organizations or coalitions of states to preserve or promote peace, such as UN peacekeeping operations and the NATO operation in Afghanistan) that is freely available to the global public. It has the potential to become the undisputed global go-to source for quantitative *and* qualitative information on all multilateral peace and crisis management operations, the organizations or coalitions that conduct them, and the countries that participate in them. We think that we can achieve this by constructing a new, modern, flexible, resilient, and user-friendly online database.

Point of departure

Most of SIPRI's data on peace operations is currently stored in a MySQL database on the SIPRI server. There is a back-end interface that allows SIPRI researchers to enter and edit data, but not for the full range of variables. In addition, the interface is not user-friendly and very slow, which makes entering new data into the database a tedious and unnecessarily complicated process. The database has a very basic and out-dated front-end, which allows end-users to perform a limited number of basic search queries and display basic tables. It is not possible to visualize data from the database. SIPRI is seeking to rebuild its Multilateral Peace Operations database from scratch, including a new back-end and front-end. This project will serve as a pilot for the construction of new databases for its data on military expenditure, global arms transfers, and nuclear weapons inventories.

Expected outcomes

▪ *A functioning, flexible and resilient back-end*

The project members should create a new database to store securely all SIPRI data on multilateral peace operations. The database should be flexible in the sense that it should be possible to add new variables and categories at a later stage in order to allow SIPRI to expand the database further in the future.

▪ *A sustainable, efficient, and user-friendly interface for data entry and editing*

The project members should develop a functional interface for internal use by SIPRI researchers for entering and editing data in the database. All data is entered at the *mission-year* level. Every *mission-year* entry (>1500 at present) has several variables and multiple layers. It is important that all data at the mission-year level can be entered in a simple and quick way.

▪ *A modern, functioning and flexible front-end*

The project members should create a functional front-end, consisting of three modules. The first module should enable users to perform a range of different search queries in order to display data at the *mission-year* level. The second module should enable users to display data at the *contributing country-year* level. The third module should function as an encyclopaedia where users can find text descriptions about individual missions in the style of a wiki-page. Users of the first two modules must be able to export the data results of their search queries into excel spread sheets. Preferably, all data results of search queries should also be visualized in different manners, allowing users to create interactive graphics based on their selections.

▪ *Data transfer from the old MySQL database to the newly constructed database*

Following the construction of a new database, the project members should write the necessary scripts in order to transfer all data from the existing MySQL database to the newly constructed database.

Requirements

SIPRI will provide the project team with a detailed document that outlines the requirements for all elements of the database. A dedicated SIPRI researcher will be available throughout the process to provide continuous guidance and feedback as appropriate, and as to help simulate a professional employee-customer relationship. Meanwhile the Project members are given great creative freedom and ownership over the end product. They are free to choose the methods and programmes that they think are most suitable. They may choose to present SIPRI with different options or choose a single design that they think is best. The most important overarching customer requirements of the end product are that it is functional, flexible, user-friendly, sustainable and easy to maintain. Along with the end product, the team members should deliver a detailed description of all coding that can serve as a manual for other programmers to understand the underlying infrastructure of the database and make modifications or reparations when necessary. If SIPRI is convinced by the end product, it intends to make the database available online and give due credit to the engineers that have designed it.

Do you want to work with Virtual Reality? Rayvr is currently building av VR-platform for sharing VR-experiences that entertain, educate and enlighten. We are focusing on music/concerts, sports, destinations, exhibitions, museums, fashion, theatre and adventure.

Rayvr is founded by a senior team with extensive experience from the media industry. We share a passion about immersive storytelling and a strong belief that Virtual and Mixed Reality (VR/MR) has the power to change and enhance people's lives more than any other medium to date. We want to drive the market and let more people discover and explore the true potential of this new technology.

Welcome to **"the tour"**!

Background

We want to make physical events and destinations accessible to more people using Virtual Reality as our enabling medium. We believe the experiences should be an immersive mix of videos, photos, sound and graphics and bring a feeling of "Wow - it feels like I am really there!".

A VR-experience can be everything from a short video to a advanced interactive experience but we believe that with some basic functionality in a toolbox we could have a solution that would fit many projects when we want to bring existing or new museums or exhibitions into our VR world.

With this project we want to **make a tool for creating online VR tours aimed for museums and exhibitions.**

Challenge

We want you to build a standardized system for creating and managing tour experiences. We want to remove the need of coding and bespoke solutions for every tour. The publishing procedure should be managed in a web browser and the creator adds the content as photos, video, sound tracks and other information and connects it to a digital VR version. Either with navigation, a timeline approach or some sort of user interaction.

Goal

Create a solution so a producer can make ten tours in the same amount of time a developer could do one.

Technologies

We believe in the power of open source and the opportunity to "stand on the shoulder of giants". The end user apps are based on Unity and we will decide on the platform for the backend and API together with the team building "The Tour". We want it to be modular, scalable, easy to develop and hosted in the cloud (we love Heroku!).

"What's in it for me?"

We have a long background in developing digital products for the media industry such as web sites, mobile apps and TV-apps. We will run this project with the same approach so you will learn how to iterate fast, building prototypes, collecting feedback and create value from early on. You have to apply many parts of developing a product regarding methodology and technical challenges and expectations: CRUD, API, storing metadata, managing assets, building a browser interface for administration and display the end result in a VR environment. Since VR is a very modern and still immature technology you will have the opportunity to learn more and get experience of something that will play a big role in the future.

Why Rayvr?

Rayvr is a young company founded in 2016 based in Stockholm focusing on Virtual, Augmented and Mixed Reality. If you are interested in working with VR, this is the place to be.

Contact and questions

Co-founder & CPO Per Åström, per.astrom@rayvr.com, 070-6762320

Web: http://www.rayvr.com
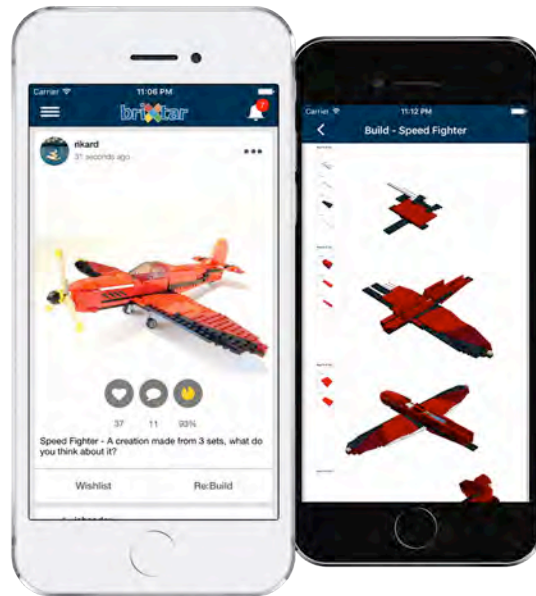Twitter: @RayvrGo
Instagram: RayvrGo
Facebook: https://facebook.com/RayvrGo

En social digital plattform för alla som bygger med LEGO®

Bakgrund

*Det finns ca 400 miljoner människor som aktivt bygger med LEGO® idag, **MEN** det finns inget bra sätt för dem att dela sina kreationer/skapelser. BriXtars vision är att bli världens första dedikerade sociala plattform som förenar alla som bygger med LEGO®.*

Företaget

Bolaget är en Startup som grundades för ett och ett halvt år sedan och består idag av ett team om fem personer. De två grundarna har mångårig erfarenhet från finansbranschen som rådgivare till framgångsrika entreprenörer. Teamet kompletteras med två erfarna utvecklare, backend och frontend samt en jurist. BriXtar har utvecklat en första betaversion för plattformen i iOS och för webben som under hösten 2016 börjat testas på en fokusgrupp. Under sommaren 2017 planeras en bred lansering av plattformen i Norden och Tyskland.

Problem

1. Priset är viktigt vid köp av LEGO®
2. Vi köper nya klossar och bygger upp stora LEGO® högar istället för att återanvända befintliga klossar.
3. Det finns inget enkelt och användarvänligt sätt att förena duktiga LEGO® byggare med nyfikna barn.

Lösning

En social digital plattform där alla som bygger med LEGO® kan:

1. Spara pengar
2. Återanvända sitt befintliga LEGO®
3. Dela sina skapelser

Produkten

På BriXtar hittar du nya byggsatser (MOCs) med manualer som kreativa byggare av LEGO® har skapat och som du kan bygga själv. Här finns något att bygga för alla! Välj från topplistan, svårighetsgrad eller det som intresserar just dig! På ett enkelt sätt registrerar du dina legobitar för att se nya inspirerande byggsatser som du kan skapa. Har du klossarna hemma, kan du återanvända dem. Saknar du vissa, kan du köpa till dem. Du spar pengar, bygger mer hållbart och kan bygga fler byggsatser med befintliga klossar. Eller varför inte testa att skapa egna byggsatser som du delar med dig av till dina vänner? Dessutom kan du vara med i olika tävlingar, utmana andra och mycket mer.
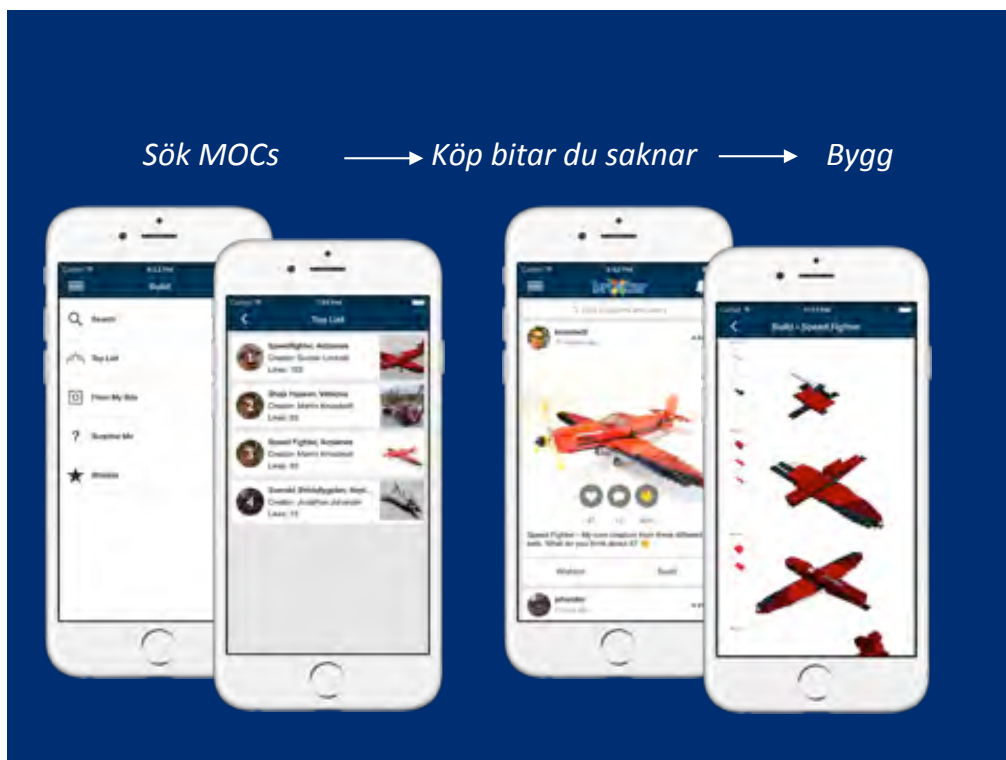
Mer om BriXtar

- BriXtar är sedan ett år med i inkubatorn Bizmaker och sedan sommaren 2016 ett av deras spetsbolag www.bizmaker.se.
- BriXtar erhöll våren 2016 bidrag från ALMI för juridisk utredning.
- Samarbete med Umeå Universitet under våren 2016 kring utveckling av fotogrammetri.
- Mer info om BriXtar finns på officiell Facebook sida.

Projektbeskrivning

- Utveckling av en responsiv webbtjänst som replikerar och utökar funktionaliteten från den befintliga iOS-appen i webbformat utifrån befintlig kravspec.
- Utveckling av en Android-version av den befintliga iOS-appen.

Arbetet kommer att genomföras i nära samarbeta med våra erfarna utvecklare.

Mål

Målet är att BriXtar i slutet på terminen ska vara redo för en bred lansering och därmed utifrån kravspecen ha en färdig:

- Responsiv hemsida
- App i Android

Förkunskaper

Vi ser gärna att du har ett genuint intresse för programmering och att du programmerat en del. Även all tidigare relation med Lego är ett plus. Projektet omfattar två delar

1. Webbaserad lösning
2. Native lösning

För den webbaserade delen är det fritt fram att välja ramverk att jobba med. Förslagvis används ett av dem större mer använda ramverken, AngularJS eller React. För native-delen är det lite mer strikt. Vi vill skriva appen i Java och utvecklingsmiljön är då Android Studio. Det finns ett färdigt API att hämta och skicka data till. Förslagvis delar gruppen om tio personer in sig i två team á 5 personer där ena teamet jobbar med Android-appen och andra teamet jobbar med den webbaserade lösningen. Angående design så finns det en färdig iOS-app att utgå ifrån, men här kan det ges fria händer vid intresse.

Möjligheter

För rätt personer kan det ges möjlighet att till hösten 2017 ansluta till BriXtar teamet då vi avser att anställa ytterligare utvecklare i samband med utlandsetablering.

Kontaktuppgifter

Martin Krosstedt, CEO
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Rikard Platus, CTO
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3D interactions with Google Tango

More to see, more to discover

Tango lets you see more of your world. Hold up your phone, and watch virtual objects and information appear on top of your surroundings. No matter where you are, there's always a richer, deeper experience to engage with, explore and enjoy.

Background

Tango developed by Google is technique using a set of sensors integrated into an Android tablet, coupled with some sophisticated software, enabling the device to recognize its surroundings. Using this technology the tablet is able to use motion tracking, depth sensing and a concept google calls area learning. Area learning in particular shows promise for the fairly complicated problem of indoor positioning and navigation.

Last year DING challanged KTH to solve the problem of indoor positioning - mission acomplished! Now we are taking it to the next level.

The next level - Project description

Using Tango technology and the Unity game engine, we will create virtual objects and display information on top of your surroundings. The object should be able to be modified and moved in real time.

As a student you will be part of the whole development process from start to finish. The project group and DING will work closely together using agile methodologies to take this project to the next level.

Requirements
- Programming knowledge, C#

Challenges
- Connecting hardware and software
- Connecting data from the real world into software
- Learning new programming techniques with Unity

Available resources
- Project Tango dev-kit, hardware and software
- Industry expertise in Augmented Reality, Virtual Reality and Unity

Other cool stuff
- DING is founded by app developers from KTH.
- The company is looking for talents for extra and full time work and sees this project as a way to get in contact with great people.

Contact information and supervisor
DING develops software for large corporations down to small start ups. We use our experience to help our customers from the first idea to a complete product combining the latest technologies with the greatest design. In our team we have a broad set of skills and a focus on applications for iOS, Android and Web, including technologies as Augmented Reality and iBeacons.

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Designingenjörerna Sverige AB
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117 33 Stockholm
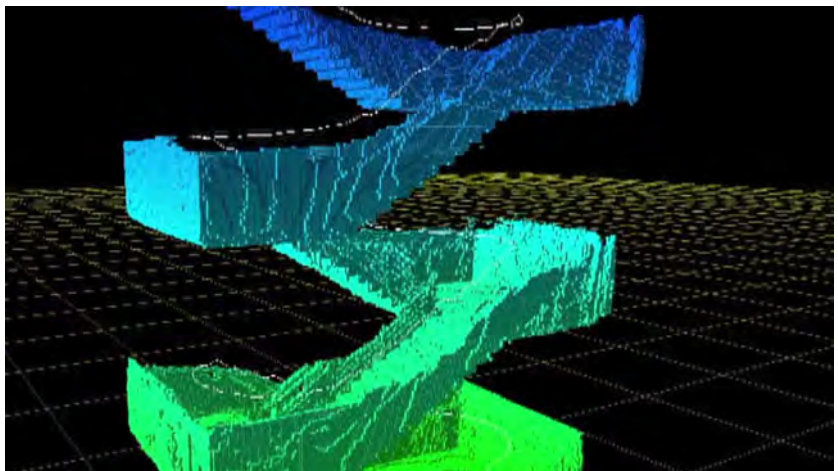
DING

Background

Pricerunner and Prisjakt are two services most of us use before making an online purchase. And why shouldn't we? With just a few clicks, you are able to find the best price, and save as much money as possible. However, those are old news, and it is time to step things up.

Woila is a new start-up which aim to leverage the services of Pricerunner/Prisjakt, combined with the simple idea of Klarna Payments, to offer a new way for customers to interact with E-commerce companies. Our solution is simple, frictionless and easy to love. Woila will be offered to the entire consumer market, and we will also establish relationships with companies to enable them to create better offers for their customers.
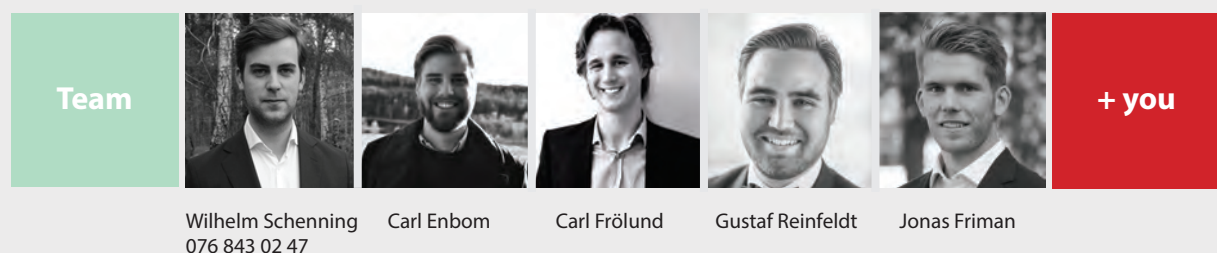
What we can offer you

If you choose to pursue our project, you will be given the opportunity to work on something unique and exciting. Currently, we are developing Woila together with a student from KTH as a simple, mostly manual, prototype. In order to release a scalable product however, automation of almost every process is needed. This will require an advanced and stable technical solution, including machine learning and AI. Taking Woila from the manual product it is today, to an automatic service designed to serve the whole consumer market, is a challenge, and how to solve this is entirely up to you. Are you in?

The idea has been pitched to Erik Dahlqvist, founder of Motivactr, who participated 2015-2016 in MVK. He loved the idea and is now acting as an advisor. Erik has encouraged us to patent steps of the solution – something Motivactr has done – and if that is possible... well, that's good news for you as well ;-)

Technical capabilities needed

Exact use of what programming languages to use can be discussed. Examples:

- Machine learning/ AI
- Rest API
- Java
- Python
- mySQL or equivalent DB-language
- HTML/ CSS

Team

Wilhelm Schenning
076 843 02 47

Carl Enbom

Carl Frölund

Gustaf Reinfeldt

Jonas Friman

+ you

AIRMEE
Powering Urban Logistics

The company

Over 50% of the world's population live in urban areas and that gives us huge flows of people and packages in highly condensed areas.

What if we have a technical solution that will change the way logistics operate and flow in a city?

Airmee is an IT startup in transportation and logistics that revolutionizes how people and packages move in urban areas. We have developed world leading technology that optimizes urban transportation and logistics. We are now working towards establishing ourselves in city after city globally in a fast pace. Our team consists of entrepreneurs, developers and researchers from SSE and KTH.

The Project

E-commerce deliveries are today a huge problem with slow delivery times, lack of information, and bad service. By integrating into e-commerce platforms consumers will be able to select Airmee as their shipping company at the checkout page. An Airmee courier will then pickup the product in the nearest physical store and deliver it to the consumer. Airmee deliveries gives the consumer unmatched convenience, flexibility and transparency at a low cost.

It is difficult to integrate into various e-commerce platforms because of the many different types of APIs that provide the functionality behind the scenes of each webshop, as well as the different types of data that are collected and broadcasted by the webshop APIs. This project aims to solve these problems by implementing a middleware to easily connect webshops to the services provided by Airmee.

The proposed process is straightforward: 1) obtain the metadata needed from the webshop API, 2) send the metadata to the Airmee API for validation, 3) display / hide the Airmee delivery option on the checkout page based on the Airmee API response, 4) react to the user input and 5) provide info to the users regarding the next steps of the delivery. To do this, you will interact with different generations of webshop APIs and identify the common and specific parts for the APIs, and provide a solution that is robust to different APIs.

We believe that you have:
- experience HTML and CSS
- experience with writing and debugging Javascript
- basic knowledge of test driven development
- basic understanding on how to manage RESTful asynchronous API calls
- knowledge / willingness to to learn basic PHP

Contact
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Powering Urban Logistics

The company

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This project is about providing a flawless onboarding experience for new retailers that decide to use Airmee services. There are two main types of retailers that we work with: retailers that already have a webshop and can integrate directly with Airmee, and retailers that do not have a webshop for which we provide a simple webshop for. Since retailers can have multiple physical stores and delivery points, one of the key aspects of onboarding is simplicity. You will have three main responsibilities. First, design and implement a friendly web UI for retailers to specify the number of physical stores, delivery points, working hours and details in a friendly way. Second, design and implement an easy to deploy webshop integrated with the Airmee API (it can rely on any existing technology, e.g., Tictail or Woocommerce) that can be used by retailers who do not have a webshop. Third, design and build a database to store the specifics of the webshop and retailer information.

We believe that you have:
- experience with HTML, CSS and Javascript
- experience with SQL and relational databases
- basic knowledge of test driven development
- basic know-hows of full stack development

Contact
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Optisk mönsterigenkänning av hockeypuck och kvantifiering av skottprecision i ishockey via mobiltelefonvideo

Detta är ett projekt från Gymnastik- och idrottshögskolan (GIH) i Stockholm i samverkan med Högskolan Dalarna och Dala Sports Academy. Syftet med dessa enheter vid respektive högskola är bl a att verka för prestationsutveckling i olika idrotter genom innovation av tester och träningsmetoder. Det kunskapsområde som vi behärskar är idrotts- och hälsovetenskap men den teknologiska kompetensen saknas i regel. Det är inom detta kunskapsområde kompetens från KTH kan spela stor roll för att bestämma, beräkna, mediera och kommunicera test- och träningsresultat.

Vad handlar detta projekt om? Vilka är problemen/möjligheterna?

När det gäller prestationsutveckling i hockey är det av mycket stor betydelse att kunna kartlägga olika spelegenskaper som t ex förmågan att utföra dragskott och slagskott. Detta är två centrala komponenter vid målchanser.

Undertecknad och medarbetare har utvecklat ett skottprecisionstest för handledsskott och slagskott i hockey och i detta test gäller det för spelaren att växelvis (i given ordning) träffa olika punkter på en träffyta (se Figur 1; 1-5). Hela förloppet i varje skott videofilmas så att hela skottet kan analyseras i efterhand. Totalt genomför varje spelare 50-100 skott per test i en följd med ett skott var 15:e sekund (styrning av test via ljudtimer). Detta fortgår i en följd tills alla skott filmats och i efterhand har precisionen i hur pucken träffar olika träffpunkter registrerats. Med hjälp av ett 2-dimensionellt koordinatsystem som finns i bild har kvantifiering skett genom bestämning av x- och y-koordinaten följt av en beräkning av resultanten. Allt detta har hittills genomförts manuellt och detta manuella inslag är mycket tidskrävande. Kvantifiering av en spelare som genomför ett test tar flera timmar i anspråk för tabellering samt grafiskt och numeriskt återgivning. En automatisering av denna process skulle underlätta hanteringen och minska tidsåtgången för tränare eller spelare avsevärt. Filmning av varje skott med en mobiltelefonkamera samt möjlighet att optiskt och spatialt identifiera var pucken träffar målytan torde kunna möjliggöra en automatisering av denna process. Detta samt resultat i en "App" skulle kunna ge stort värde och stor användning bland spelare och tränare i ishockey. Vidare har detta potentialen att kunna bli en produkt som hjälper ishockeyspelare att utveckla sin skottprecision.

Vilka är leverablerna?

I Figur 2 visas en manuellt framtagen träffbild med fem "lokala träffbilder", en för varje målpunkt (se målpunkterna i figur 1). Spridningen som punkterna uppvisar kring målpunkterna ger viktig information om vilka delar av målburens målyta där spelaren har bra respektive

mindre bra skottprecision. Utöver detta och information om tid och plats samt spelar-ID etc är det intressant att även erhålla numerisk information som t ex genomsnittlig resulterande avvikelse från respektive målpunkt inklusive spridningsmått, antal träffar mitt i prick etc.

Figur 1. Bild av en spelare som skjuter handledsskott på en målyta. Under varje röd siffra visas den punkt som skall träffas. Ordningen på skotten i varje omgång om fem skott kan t ex vara: 1 – 4 – 2 - 5 - 3. Samma ordning upprepas med hjälp av en timer och ljudsignaler i efterföljande omgångar tills testet är genomfört.

Skottprecision
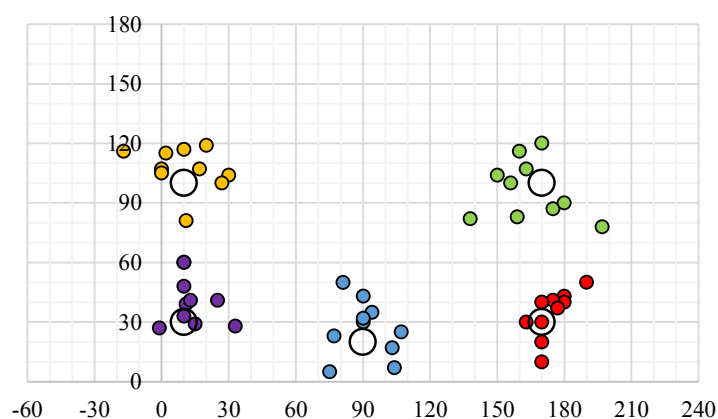
Figur 2. Figuren visar resultat i form av "lokala träffbilder" för en spelare som har siktat på punkterna som visas i figur 1.

Teknologi & förkunskaper

Förutom programmeringskompetens avseende applikationer kräver detta projekt även kompetens i optisk identifiering av objekt som uppträder i videobilder. En svart puck mot en vit bakgrund med kända avstånd mellan markörpunkter torde vara möjlig att identifiera på videobilder och positionsbestämma. Vidare behövs kompetens om hur videoinformation kan tas i anspråk för resultatanalys on-line eller off-line.

Kontaktuppgifter

Johnny Nilsson, prof. Idrotts- och hälsovetenskap

Gymnastik- och idrottshögskolan

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Projektbeskrivning Software Enginering

Prototyp: Visualization Tool on Funding Opportunities

1. Beskrivning av ert företag/organisation/bransch
Ungefär 15-20 procent av forskargrupperna på KTH har en koppling – direkt eller indirekt – till life science-området. KTH Life Science Technology Platform har till uppgift att öka samverkan mellan dessa forskare på KTH. För den samverkan ska kunna ske krävs oftast att forskarna beviljas finansiering av ett nytt gemensamt forskningsprojekt.

2. Vad handlar projektet om?
Vi vill skapa en tjänst som visualiserar tillgängliga forskningsmedel inom life science. Att söka forskningsfinansiering är snårigt och kräver mycket kunskap, något som t ex unga forskare saknar. Därför vill vi erbjuda forskare inom life science en möjlighet att snabbt identifiera forskningsmedel som passar just deras förutsättningar och inriktning. Vi föreslår att påbörja utvecklingen enbart inom EU-finansieringsprogram Horizon 2020 (se här) och eventuellt utöka verktyget med andra finansiärer med hjälp av t.ex. Research Professional databas (se här). Förutom KTH-forskare är KTH Research Office (RO) en viktig målgrupp, då de sitter på kunskaper om och kontakter med forskningsfinansiärer, och är dem som kommer att uppdatera verktyget framöver.

3. Vilka är målen/leverablerna/resultaten?
Vår utgångspunkt är att tjänsten ska vara anpassad och visualisera de möjligheter som KTH:s forskare inom Life Science har; enbart textinformation tror vi minskar användbarheten. Vi vill ha en prototyp som utvecklats med målgruppen i centrum. Prototypen ska kunna användas som utgångpunkt för att färdigställa en fullt fungerande tjänst.

4. Eventuella lämpliga förkunskaper
En viktig del av projektet är användarupplevelser, visualisering och eventuellt kännedom av forskningsfinansiering. Även kunskaper i designmetodik, s k designthinking är en fördel; alternativt stort intresse för dessa kunskapsområden och metodiker.

5. Vilka teknologier etc de får arbeta med
Vi har inga synpunkter på utvecklingsmiljöer etc. Som exempel kan man använda sig av nyligen utvecklat verktyg på VIC mot Vinnova http://h2020viz.vinnova.se/. Det vi däremot förutsätter är att lösningen anpassas för att kunna användas i såväl fasta som mobila it-verktyg (datorer, läsplattor, mobiltelefoner etc).

6. Kontaktuppgifter

Beställare: Life Science Technology platform på KTH
https://www.kth.se/en/forskning/forskningsplattformar/lifescience

Kontaktperson: Lukas Käll, lukas.kall@scilifelab.se

Collaborative studying

Loredge is developing a digital platform for building and sharing knowledge across the globe. Real time collaboration is an important part of this tool which enables users to study together despite sitting at different geographical location. Designing and developing this collaborative studying functionality will be your challenge.

About Loredge

Loredge is an application for desktop, tablets, and mobile devices enabling students and scientists to study interactively with each other. The idea was born out of our own experience of how time consuming it is to read course material and scientific articles during classes at the university. Reading we all do alone and at the best we share our notes with each other afterwards. We want to change this and create a platform where students can read and study together. They can interact and collaborate with each other directly in the pdf while reading the text. When students can share their notes and annotations in the course material they study with each, the learning process becomes so much more effective. It will not even matter where your study buddies are - you can be in Stockholm while they are in Buenos Aries or Sydney- in other words Loredge is a digital platform for building and sharing knowledge across the globe.

Loredge's market is huge with university students all around the world. It is estimated to be over 250 millions students worldwide in less then 10 years. So image the power it would be if just a portion of these students would be able to communicate with each other regardless where they were studying.

We have developed an alpha version of Loredge that is already in use among a smaller group of KTH students. It is a very simple version of the platform including a pdf reader and annotation tools. The next step in developing Loredge is to enable users to share their notes and annotations in the same pdf. This is under development. But what is far more interesting and exciting is to be able to do this in real time including multiple users. That is what this real time collaboration project is all about.

Project description

Write a program where multiple people (at least three) can collaborate together. The project consists of two parts: a client and a server. On the client side the users can create text boxes which can be filled with text and be moved around. Any change that one user makes should be in real time made on the other participants clients too. Through colors and avatars it should be visible which user created what content. Users should be able to point at things in the workspace. Assume the users are not in the same location, but are talking together (e.g. via Skype).

This is Peter's screen, he is collaboration with Adam and Sara. He can in real time see what they annotate and write in the pdf. They can point out things in the pdf to each other with their pointers' positions that are shown with coloured arrows.
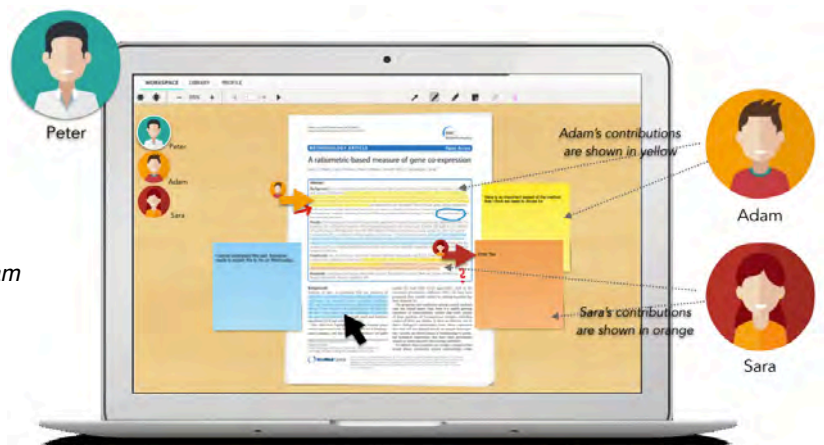
The focus lies on the real time collaboration and it's inherent challenges: All clients need to hold a consistent state even though at any time changes to the workspace can be made. Users might try to manipulate the same object at the same time. Varying amounts of delay come into play, but still there needs to be a smooth experience for all participants. Users can join or leave at anytime or even unexpectedly drop out.

Users also need to be able to create a minimal account, create new workspaces and browse which workspaces exists.

You will need full-duplex communication channels between the server and the clients, Websockets would be a good choice here. Further more user will send sensitive information through your platform, so think about security.

Not everything needs to be written from scratch, do your research, utilize existing technology and services, e.g. for authentication there is oAuth or OpenID, for avatars there is gravatar. But when using external services, design your software that you can always swap one service for another.

The client should be written with the Qt framework, which enables it to run on all major platforms Windows, Mac OS, Linux, iOS, Android and Windows Phone. The backend should be written in Python (e.g. Flask) or node.js (e.g. hapi.js) and should utilize Heroku, a PaaS (Platform as a service).

Deliverables
The final deliverables are two programs: a client and a backend. You should provide pre-build executables for at least Mac and Windows. The backend should be installed on a PaaS and be properly setup. Everything should be ready for testing for u and the deliverables need to include the source code to both as well and a description how to set it up and build it on our own.

Skills required
The team needs to consists of programmers and software architects. Realtime collaboration with multiple users inherits some tricky problems to solve – good software architecture is crucial. Further you need solid programming skills on Front- and backend and good ideas on how to make understandable UX/UI design.

Technologies you can/will use
Client: Qt Framework, QML, C++, JavaScript
Backend: websockets, node.js (hapi.js) or Python (Flask), Heruko
If you would like to use other technologies we can discuss it. When using additional libraries, be aware of how they are licensed, consider the project to be closed source.

Contact information
Project lead: Anna Abelin, anna@loredge.com, 0767 - 12 34 32
Technical lead: Philipp Engelhard, philipp@loredge.com, 0768 - 33 20 06

LOREDGE

Vector finger painting

Loredge is developing a digital platform for building and sharing knowledge across the globe. You will develop a radically improved drawing function enabling the user to experience drawing like the physical movement it is. Parts of your code will be opensourced.

About Loredge

Loredge is an application for desktop, tablets, and mobile devices enabling students and scientists to study interactively with each other. The idea was born out of our own experience of how time consuming it is to read course material and scientific articles during classes at the university. Reading we all do alone and at the best we share our notes with each other afterwards. We want to change this and create a platform where students can read and study together digitally. One important part of studying and annotating text is the annotation tools available for the user. Our challenge as a product developer is to make these annotation tools as good as the "real pens and pencils" so that students start to read digitally instead of in paper form as so many still do. When taking notes in Loredge it needs to feel authentic and intuitive but at the same time the digital advantage should be used so that the user get a much better experience than anything out there, paper or digital. That is the challenge!

Loredge's market is huge with university students all around the world. It is estimated to be over 250 millions students worldwide in less then 10 years. So image the power it would be if just a portion of these students would start reading and studying digitally enabling them to communicate with each other regardless where they were studying.

We have developed an alpha version of Loredge that is already in use among a smaller group of KTH students. It is a very simple version of the platform including a pdf reader and annotation tools. What this project is about is to design and implement a radically improved drawing functionality that simulates the physical behaviour of a drawing.

Project description

Write a vector based paint program where the user can draw freely with her fingers on her phone or tablet and additionally with a pen. As many properties as possible should be taken into account to make an as realistic stroke as possible, properties like speed or duration for a finger and additionally pressure or tilt for a pen input.

Besides the common properties like color and brush size, the user should be able to draw in different styles. One obligatory style is a plain, solid line. Other styles could imitate strokes of brushes or pens, styles of painters or drawing with patterns.
The focus lies on not the quantity of different strokes, but having a few stroke types that look very natural and aesthetically pleasing.
Since the program should be vector based one challenge will be finding a vector representation of these strokes, think SVG format. Investigate stroke styles that are representable in a vector format.

Typical functionality for a drawing program, like loading/saving drawings, changing the size of the canvas and zooming the canvas should be implemented.

The program should be written with the Qt framework, which enables it to run on all major platforms Windows, Mac OS, Linux, iOS, Android and Windows Phone. Make use of this flexibility and try to make it run on all your personal devices.

The Qt Framework does not support pen input from a touch device like the Surface or iPad Pro, but it is easy to write platform specific code that wraps calls to the native libraries from Apple or Microsoft. Part of the task is to write such a wrapper to access the pen input. Write this wrapper in such great code quality that you will at the end of the project proudly put it under your name as an open source project online, so that others can benefit from it.

For the time of development you will get a Surface/iPad Pro with a stylus from us.

Deliverables

The final deliverables is a pre-build executable on the device we provide you and one different OS of your choice. Everything should be ready for testing for us and the deliverables need to include the source code as well as and a description how to set it up and build it on our own. The wrapper should be a MIT licensed project in the end.

Skills required

The team needs to consists of programmers and software architects. You need solid programming skills on GUI programming and designing platform independent code. Have good ideas on how to make understandable UX/UI design. It would be very helpful to have someone with an artistic eye in the team and familiarise yourself with non-photorealistic rendering (NPR).

Technologies you can/will use

Qt Framework, QML, JavaScript, HTML5 Canvas, SVG, C++, Objective-C
If you would like to use other technologies then we can discuss that. When using additional libraries, be aware of how they are licensed, consider the project to be closed source.

Contact information

Project lead: Anna Abelin, anna@loredge.com, 0767 - 12 34 32
Technical lead: Philipp Engelhard, philipp@loredge.com, 0768 - 33 20 06

LOREDGE

Project description

MVK16/17 – Software development / Mjukvarukonstruktion
Project presentation date: **8 December** kl 13-15 i E1 (Stockholm)

Background – Impact Vision

http://www.impactvi.com

Impact Vision's mission is to build a more transparent and effective global food system, using hyperspectral imaging. Its a start up company, based in Stockholm and Silicon Valley. Our developed software platform provides information about quality and characteristics of different foods using image and machine learning techniques on hyperspectral images.

The project

Impact Vision existing analysis engine detects food quality attributes and stores them in a database. The project will extend the functionality with an API to be used by - for example – web and mobile applications.

To ensure the API works in a real context, the project will work closely with a second web-application team that will visualize and provide content to real users via a retailer e-shop.
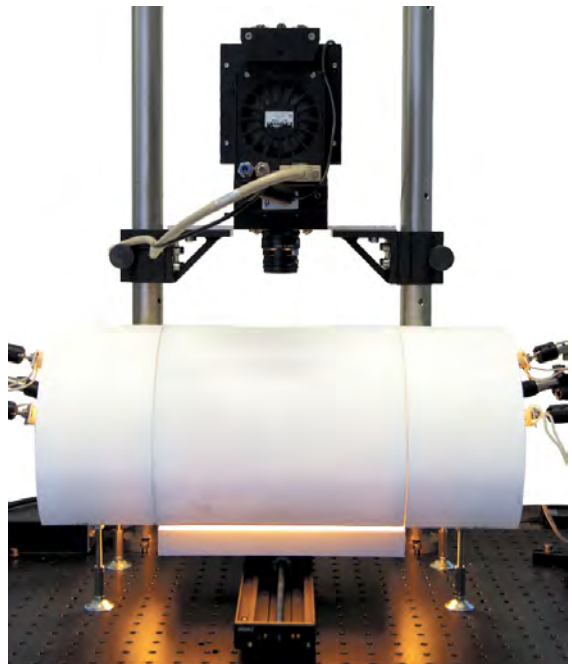
Target deliverables

- The project shall work with developers in Sweden & USA and reports to senior project leads.
- The team should assign their roles to deal with development, project lead, integrations, tests and communication.
- The work will be agile, adding features iteratively in collaboration with Impact Vision as a customer.
- Releases of the software are demoed to the lead every few weeks.
- After every release/demo, a new set of features for next releases are planned and scheduled.

The final delivery consists of:
- A developed API capable of delivering database content and image resources for a showcase e-shop with a set of critical features that will be defined during the start of the project.
- A high level design and documentation for API implementation.
- A demo for senior developers and potentially real customers.

Prerequisites

Experience in web application development and development of (REST) API:s are good to study up on. Experience programming in Python is a must, along with good general programming skills. We work in a global team, so most meetings takes place online, in different time zones and in

English with our teams stationed at NASA/Silcon Valley.

Technologies

All development for backend components are performed in Python, but students will be participating in selecting a preferred framework for API development, image resources and database integrations using only open source components.
We believe that FLASK, REST and SQLALCHEMY, S3 are core components in the solution, but this is also finally set at the start of the project.
All development is performed with Linux as a target system.

Contact

Erik Lönroth, Senior Computer Scientist, +46(0)704013684, erik@impactvi.com

Gustav Nipe, CTO, gustav@impactvi.com

PROJEKTIDÉ

Bakgrund

UR:s uppdrag är att göra program med utbildningsfokus, att skapa innehåll för dig som vill förstå världen. Vi vill underhålla, väcka nyfikenhet, ge aha-upplevelser och sätta saker och ting i sitt sammanhang. Du kan titta eller lyssna var du än befinner dig- i skolan, hemma i tv-soffan eller på bussen.

Problem

Eftersom vi är ett public service-företag jobbar vi mot breda målgrupper i alla olika åldrar och med mycket diversifierade behov och beteenden. För att kunna tillhandahålla rätt innehåll i rätt "device" vid rätt tidpunkt behöver vi göra en mängd olika analyser. Här är några exempel på användaranalyser som vi gör:

- Behovsanalyser baserade på djupintervjuer och observationer som sammanfattas i textbaserade dokument
- Trendbeskrivningar dokumenterade både som kvantitativa data och i text
- Kvantitativa data via NKI-mätningar, Google analytics, etc
- Användartester beskrivna i text eller med hjälp av data

Mängden data och olika typer av data skapar utmaningar när vi ska sammanställa och dra slutsatser kring hur vi ska utforma innehållet, välja distributiva kanaler med rätt designade interaktiva gränssnitt. Vi har därför stora utmaningar vad gäller att gå från datainsamling, analys och konkreta, praktiska beslut.

Projektidé

Att skapa en mjukvara som kan hantera såväl textbaserade analyser och kvantitativa data samt hjälpa oss dra slutsatser utifrån i förväg givna parametrar.

Kontakt

Susanne Samaras
Chef för Webbutveckling, UR
susanne.samaras at ur.se

Interaktiva skärmar vid entréer etapp 2

### CSC – Skolan för datavetenskap och kommunikation på KTH

CSC-skolan består av cirka 350 anställda och är placerade i tre olika byggnader på olika våningsplan inom Campus. Flertal studenter samt besökare såsom leverantörer, gäster eller andra partners besöker vår skola dagligen.

Ingången till skolan är via Servicecenter som är placerade på Lindstedtsvägen 3 plan 4, hit kan alla vända sig för att få hjälp eller hänvisning. Därför är det av stor vikt att skärmar vid entréer är r tydliga för de som behöver komma i kontakt med anställda inom skolan eller att de kan få hänvisning till Servicecenter för stöd och hjälp.

Projektbeskrivning

CSC genomför nu ett projekt som syftar till att skapa ett modernt sätt ge information, underlätta kommunikation och hänvisning för anställda, studenter samt besökare till skolan.

I nuläget har tre interaktiva skärmar monterats vid skolans tre huvudingångar, tack vare studenter från förra mjukvarukonstruktionskursen. Nu vill vi ta nästa steg och göra skärmarna fullt användbara och nå den efterfrågade funktionaliteteten som behöver utvecklas. Därför ser vi att detta projekt blir en nyckelfaktor att nå vårt nästa steg att kunna leverera ett system som kan komma att användas flera år framåt.
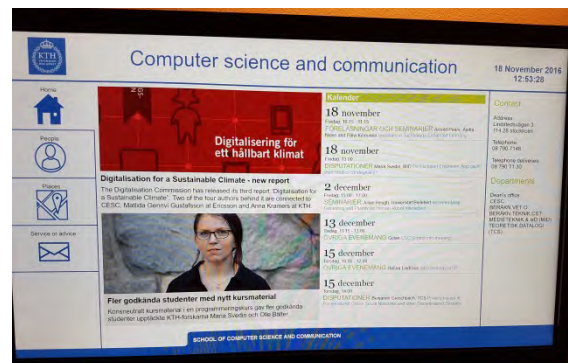
Våra nuvarande skärmar har väckt stort intresse hos flera skolor på KTH likaså den centrala IT-avdelningen. Genom att förverkliga nästa steg är vår förhoppning att fler kommer att haka på och använda systemet.

Syfte

Syftet med projektet är att uppnå snabba, moderna, tillgängliga och korrekta informationskanaler till skolans anställda, studenter och besökare.

I etapp två vill vi placera skärmar vid skolans övriga entréer på Lindstedtsvägen 3-5 (totalt ytterligare 5 platser).

Dessa skärmar syftar till att:

- lyfta ut kommunikationen till en kanal som finns integrerad i den fysiska miljön och därmed göra den tillgängligare
- underlätta för besökare att få korrekt och uppdaterad kontaktinformation, kartor, nyheter samt möjlighetatt skicka in felanmälningar
- effektivisera informationshanteringen, göra informationsflödet snabbare och mer direkt

Skyltarna kan te.x. visa receptionens öppettider, puffar för nyheter, välkommen, kalenderhändelser och akutinformation, exempel: "hissen LV3 felanmäld, åter igång ca 16.00".

Om en besökare vill söka upp en person, om var den sitter ellertelefonnummer, klickar den på den interaktiva skärmen. En symbol visar tydligt var du söker efter personal och får fram kontaktinformationen för den man söker.

Systemet kan också erbjuda specialiserade kartor och ger möjlighet att skicka meddelande direkt till Servicecenter. Se bilaga 1 för fler och mer detaljerade användarscenarion.

Projektet interagerar med redan befintliga system för webpublicering och databaser med information om personal m.m. så som:

- Polopoly
- KontaktAdmin/Sök anställd
- KTH Places
- Kontaktformulär som är valbar till funktioner
- SmartSign

Mål

Projektmål 1: Utveckla tjänsterna, bland annat interaktiva kalenderhändelser, förbättrade personallistor över de olika avdelningarna, interaktiva kartor m.m.

Projektmål 2: Säkerställa tillgänglighet drift övervakning och säkerhet

Projektmål 3: Driftsättning implementering

Tidsplan

Hela projektet är planerat att genomföras från november 2016 till juni 2017 inklusive lansering.

Kontaktuppgifter:

Projektledare - Daniel Vare vare@kth.se Skolan för datavetenskap och kommunikation

Servicechef - Sara Johansson sarah@kth.se Skolan för datavetenskap och kommunikation

Bilaga 1

Interaktiva skärmar entré

Nedan följer scenarion för nuvarande och kommande skärmar.

Scenario 1 – Välkommen till receptionen på skolan – Besökare/Student

För att finna skolans reception, framgår det på den befintliga informationsskärmen på entréplanet vid skolans besöksadresser. När en besökare eller student går till plan 4, ser de en informationsskylt utanför en liten glasdörr på väggen till höger, där det står välkommen till Servicecenter. Besökare, studenter och leveranser är välkomna in till receptionen för personlig hjälp eller hänvisning.

I korridoren precis bredvid receptionsdisken på väggen innanför skalskyddet sitter en interaktiv skärm. På skylten framgår receptionens öppettider, kontaktvägar samt att du som besökare/student kan söka efter medarbetare på skolan och KTH. På skärmen visas ex. puffar för nyheter, välkommen, kalenderhändelser och akutinformation, exempel: "hissen LV3 felanmäld, åter igång ca 16.00". På skärmen finns även aktuella händelser och om beskaren klickar på någon av dessa ska mer information komma upp ex. med tid, plats, karta och beskrivning.

Om du vill söka upp en person ex. var den sitter, telefonnummer m.m. klickar du på interaktiva skärmen, En symbol visar tydligt var du söker personal. Du kan då skriva in på skärmen namnet på personen du söker och klicka för att få fram mer kontaktuppgifter om denne. Eller få fram generella kontaktvägar till respektive avdelningen ex föreståndare. Besökaren kan även enkelt få fram listor med kontaktuppgifter för samtliga anställda på en viss avdelning.

Besökaren kan också enkelt få fram kartor över KTH och söka efter lokaler på denna. Exempelvis var en viss föreläsningsal ligger och få fram hur den ligger i förhålland till den plats besökaren befinner sig på. Optimalt får även besökaren instruktioner på hur den ska tas sig på enklaste sätt mellan platserna.

Anställda och besökare kan också registrera sitt ärende via skärmen. De kan enkelt klicka på en ikon för att öppna en vy som möjliggör att de kan skicka sitt ärende till service.

Scenario 2 – Jag behöver kontakta Servicecenter (Medarbetare)

Jag som medarbetare på skolan vet var vår reception finns, oavsett vilken byggnad som jag sitter i. Jag går till plan 4 och kan få direkt och personlig service när Servicecenter är på plats.

I korridoren precis bredvid receptionsdisken, på väggen sitter en interaktiv skärm innanför skalskyddet. Där framgår receptionens öppettider, kontaktvägar. Jag kan söka på medarbetare på skolan och KTH och jag kan registrera in mitt ärende till service. I och med att jag direkt kan skriva in mitt ärende, får jag in min fråga oavsett om det är många besökare i receptionen eller om det är utanför kontorstid och Servicecenter inte är på plats.

Scenario 3 – Leveranser till andra byggnader än huvudbyggnaden (Budfirmor)

Ett bud/chaufför kommer med paket till avsedd leveransadress, går in i entrén och via interaktiva skärmen framgår avdelningarna som sitter i byggnaden.

Två entréer är berörda i det här scenariot; en entré är ganska liten där skärmen kommer att vara placerad på väggen direkt till vänster om glasdörren och det är lite dagsljus inne i entrén. Den andra entrén är stor men inte så högt i tak. Den skärmen kommer att sitta på en vägg mittemot glasdörrarna som budet kommer in via.

Båda skärmarna sitter placerad i öppna entréer utanför skalskydd där det vistas många medarbetare och studenter.

Budet går fram till skärmen och ser skolnamnet och vilka avdelningar som finns i den här byggnaden. Klickar på symbolen som är tydlig för att veta att här kontaktar budet mottagaren. Budet skriver in mottagarens namn och får fram dennes kontaktuppgifter för att kunna lämna sitt paket. Om budet inte får något svar från beställaren, framgår tydlig på interaktiva skärmen hur och att de ska kontakta receptionen för mottagande av paketleveransen.

OMNIZENS

VISUALIZING THE WORLD OF KNOWLEDGE IN 3D/VR

Omnizens is a Swedish startup developing a global service for individuals wanting more overview and control when exploring information and knowledge. We want you to design an interaction concept and 3D or Virtual Reality application for Omnizens.

Is the promise of the Information Age delivered upon for You? Do You believe there is knowledge out there you are missing out on? Do You believe traditional search engines and online encyclopedia might not be the last stop for how we access and leverage the world of information and knowledge?

Omnizens is based on the <u>mission</u> to empower anyone to make sense of the world of information, and usher in a new era in which anyone can utilize and learn from the collective knowledge of mankind.

- We focus on connecting and *making sense of information and knowledge* already available.
- We believe in the *power of context* to enable understanding from overview, visual learning, and new insights.
- We focus on *empowering the user*, inspiring and enabling any individual to explore knowledge in an open as well as focused search mode.
- We aggregate and merge multi-source, multi-language data into a *semantic graph* of globally objective information.

An Omnizen is anyone having been empowered to explore the world of knowledge on her own terms.

Our vision is that one day, millions of global users will use Omnizens just as frequently and naturally as they use traditional search engines or online dictionaries today; Omnizens aspire to become the information platform for a new era, *the Era of Context*.

✂ Project description

The Omnizens concept and platform include, enable, and is perfect for visual learning. As connections (relations) between information is the cornerstone of our concept, displaying such relations fits the depth and position ability of 3D perfectly.

What we would like You to do, is:

1. Define a 3D interaction concept based on the Omnizens data and overall concept and mission.
2. Parallel with the interaction design, identify which of a web 3D or Virtual Reality application best match the interaction concept, and can also be developed within the time frame of the project.
3. Decide upon and develop the designed application, using the API as provided by the Omnizens team to query data.

The project shall be performed with an agile approach and we expect weekly or bi-weekly meetings/sprint reviews in which the ideas and later development of the KTH team are aligned with the insights into the core concepts of and back-end knowledge about Omnizens.

Overall expected work process:

1. The KTH team is provided with an introduction to the Omnizens background, mission, core concepts, as well as a technical insight into the platform.
2. An overall plan is defined by the KTH team and aligned with the Omnizens team.
3. Interaction concepts are explored by the KTH team and iterated with the Omnizens team as to ensure that the concepts of Omnizens are aligned with, the data is best utilized, and that there is a balance between potential and "doability" within the given time frame of the project.
4. The overall choice between web 3D and Virtual Reality is made together.
5. An agile development approach, to be designed and managed by the KTH team with the Omnizens team as "customer" and participating in sprint reviews.
6. Technical alignment workshops, between 3D application and the Omnizens platform, are set up on demand.

We have decided to submit a quite open project proposal. This is due to us firmly believing that we should, and want to, engage You – young, talented students – within what might become an Omnizens core user group of a new online generation wanting to access, understand, and explore information and knowledge on their own terms, in a creative way.

📈 Expected results

The goal with the project is to build a working application which uses the overall Omnizens use cases of searching for, displaying in context, viewing details of, and exploring between information topics.

We expect:

- To be able to learn about, and in an agile collaboration between the Omnizens and KTH team, continuously decide and tune visual concept for viewing and exploring Omnizens information.
- To be able to utilize the developed application to be launched as an alfa prototype. Deployed in our production environment and made available for global users alongside the rollout of the Omnizens web and mobile application.
- Our hope is that engaging a group of creative and talented students will optimize our chances of finding the key to a unique user interaction concept and application.
- Designing a concept for, and developing an application leveraging the Omnizens data and concept by use of 3D/VR, which we hope will display in a very concrete way the potential of Omnizens to become the information and knowledge service in an era of new user experience technologies.

🎓 Prerequisites

- Omnizens AB will retain all rights to the results; concepts as well as code.
- Students retain a right to use the result in their presentation, CV, or other forms of communication/documentation relating to further the students individual career.

💨 Technologies

A JSON API will be made available to the project team for retrieving Omnizens information.

Technologies for implementing a prototype will depend on the interaction concept, and will be selected by the project team together with the Omnizens team (possible candidates could be WebGL, DirectX, Google VR SDK).

The usage of frameworks using open source licensing like MIT License, Apache Licence, LGPL will be the preferred choice where applicable.

ⓘ About the company

Omnizens AB (Emvico AB) is a Swedish startup founded October 2014. The (3) founders previously worked as Chief Architect, Senior Lead Developer, respectively Head of Strategy and Innovation at Sigma.

A first version of Omnizens.com was deployed for small scale beta tests in September 2016 and will most likely be opened for public use in a few markets early 2017. One user group targeted specifically will be within education.

In October 2016, Omnizens was accepted to the Microsoft Azure BizSpark Plus program, entailing practically free use of cloud based infrastructure for three years. The Omnizens team will during the first half of 2017 work with extensive data parsing and crawling as to leverage the data model and logic of the Omnizens platform but also add new important features to the core application.

✉ Contact information

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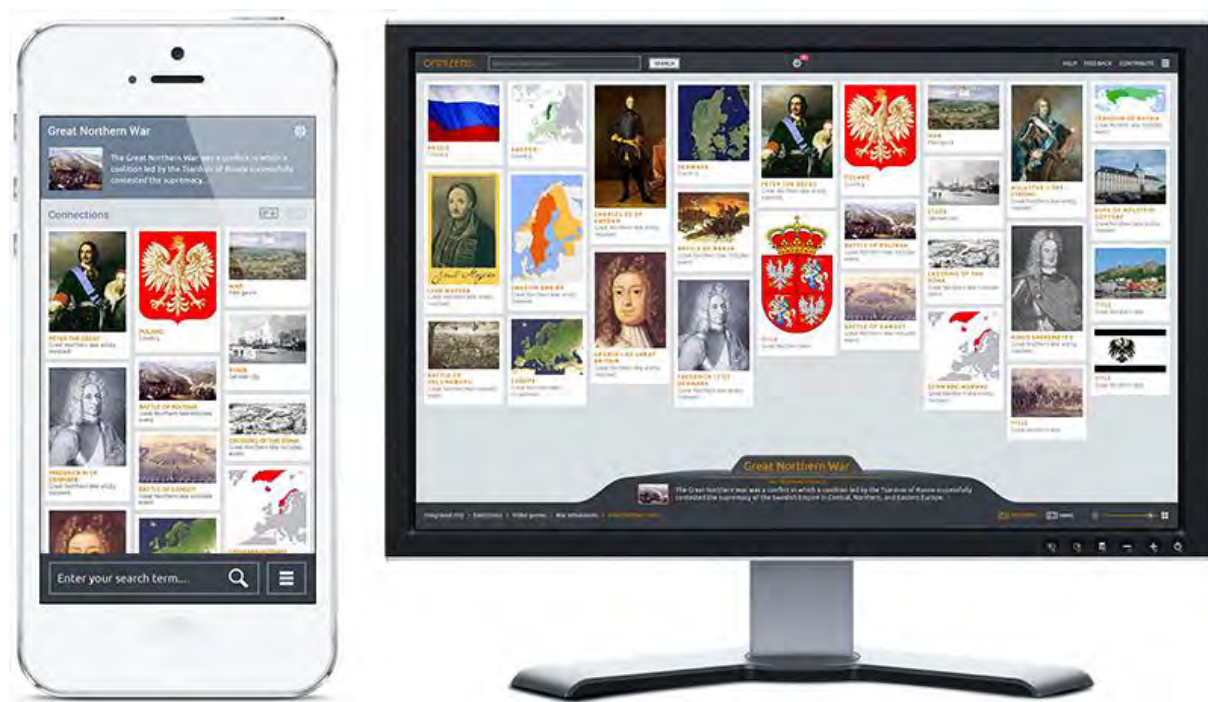
Behandling av bilder från UAV:er och viltkameror

Geografiska informationsbyrån

Geografiska informationsbyrån är experter på geografisk information. Vi arbetar med *innovation*, *analys* och *produktion* av geografiska beslutsunderlag.

Världsnaturfonden WWF arbetar med naturvård globalt och är engagerade mot tjuvjakt, avskogning, överfiske m.m.

Spacemetric utvecklar programvaror för geometrisk bearbetning- och tillgängliggörande av data från satellit och flygburna sensorer, med uppdrag åt bland annat ESA, NASA och försvaret.

Problemställning

Världsnaturfonden (WWF) har ett stort antal UAV:er (drönare) och viltkameror aktiva i Östafrika, framför allt i Tanzania och Rwanda. Stora mängder data samlas in och mycket av den blir inte analyserad. Tillsammans handlar det om flera hundra tusen drönarbilder och upp emot en halv miljö bilder från kamerafällor. Projektet skall leda till en effektivare hantering av bilddata, till snabba beslutsvägar från identifierade tjuvjägare till att larm skapas. För viltkameror är det också viktigt att kunna identifiera de djurarter som avbildas.

Mål

Målet är ett stöd för larm vid identifiering av tjuvjägare på drönarbilder med en processkedja från att drönaren skickas upp till att ortokorrigerad flygbild skickas till polis eller militär tillsammans med en ortomosaik för bästa möjliga kartbakgrund och markorientering.

Identifiering av tjuvjägare i bilder från kamerafällor och artidentifiering i bilder från kamerafällor. Med machine-learning och bildanalys skall möjlighet en att gå igenom hela materialet öka och hastigheten på larm accelereras.

Lämpliga förkunskaper

Förkunskaper inom bildanalys, big-data hantering, machine-learning, API-anrop och app-utveckling.

GEOGRAFISKA INFORMATIONSBYRÅN

Teknologier

Georeferering, metadatahantering och databashantering görs med Keystone server som är utvecklat av Spacemetric i Sollentuna. Keystone är utvecklat för att hantera och georeferera stora mängder data, ursprungligen från satelliter men också från andra sensorer.

Utveckling skall alltså göras mot Keystones API och den funktionalitet som Keystone har för geografiska analyser och bildhantering skall användas.

Kontaktuppgifter

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www.geografiskainformationsbyran.se

GEOGRAFISKA INFORMATIONSBYRÅN

Pantifi

Bakgrund

Söker du en intressant utmaning och vill jobba med framtidens teknik? Pantifi är en startup från KTH som arbetar med The Internet of Things och har som mål att bli en ledande aktör inom uppkopplade enheter för automatisering av hemmet. Internet of Things växer otroligt snabbt och är tveklöst framtiden. Målet är att skapa ett ekosystem av uppkopplade produkter som kommunicerar med varandra och automatiserar vardagen. Vi har ett nära samarbete med bland annat KTH Innovation och jobbar just nu på en första uppkopplad produkt som nästa år ska ut och säljas på marknaden. Vi arbetar nu med att ta fram slutgiltig prototyp inför en kommande crowdfunding-kampanj och söker nu duktiga utvecklare som kan ta fram en applikation till mobilen för att kunna presentera relevant information och för att kunna styra enheten från mobilen.

Projektbeskrivning

Vi håller nu på för fullt med den slutgiltiga fysiska prototypen och behöver en app för trådlös styrning av denna. I prototypen har vi valt att använda oss av en Rasberry Pi med sensorer för WiFi och Bluetooth och även olika sensorer för mätning av bland annat luftkvalitet. Parkopplingen kommer att ske över Bluetooth och sedan ska styrningen av enheten ske över WiFi. Produkten kommer att mäta luftkvaliteten i omgivningen med hjälp av olika sensorer och det är er uppgift att skapa en app som presenterar all data på ett enkelt och överskådligt sätt.

Det förväntade resultatet är alltså en app till iOS och/eller Android som kan parkopplas med enheten över Bluetooth, kan styra den över WiFi och som på ett snyggt sätt kan presentera luftkvaliteten och annan relevant information i mobilen. Det ligger ett stort fokus på enkelhet och användarvänlighet och en oteknisk person ska kunna använda appen utan

problem. Vi har önskemål och krav men för att göra projektet roligt och intressant för er så ger vi er fria händer och en stor möjlighet att påverka både utseendet och tillvägagångssättet för att lösa detta problem.

Detta projekt blandar arbete med både hårdvara och mjukvara och låter er komma i kontakt med spännande områden som bland annat Internet of Things, DIY (Do it yourself), programmering av mikrodatorer som Rasberry Pi och programmering av appar (Swift, Objective-C, Java) mm.
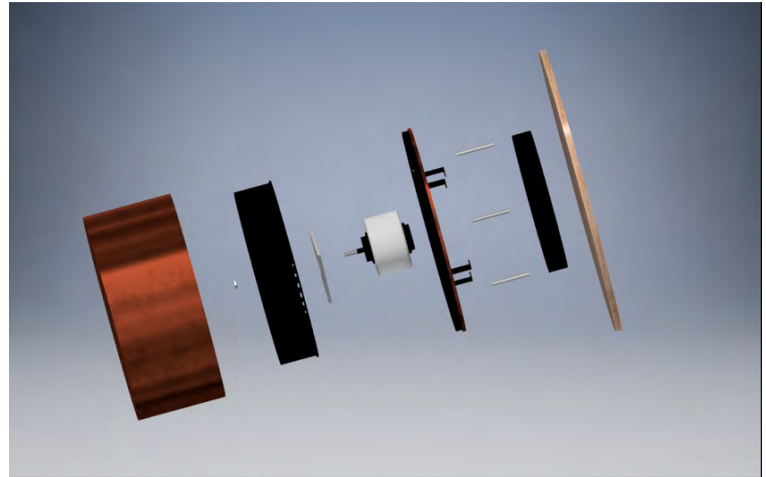
Efter projektet

Då vi är ett så pass nystartat företag så har vi stort behov av ny personal och vid ett väl utfört arbete finns det mycket stora möjligheter att få jobba vidare med oss. Vi har många och stora planer för framtiden och det är planerat att lansera ett flertal nya produkter efter lanseringen av denna första produkt nästa år. För att få en uppfattning om vad vi faktiskt gör så kan ni kolla närmare på konkurrenter som Withings, Netatmo och Nest. Om ni vill arbeta med liknande produkter så har ni kommit helt rätt. Vid önskemål så kan vi även lämna ett arbetsintyg som ni kan visa upp för framtida arbetsgivare.

Kontaktuppgifter

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Engagemangsindikatorn

Axakon Consulting

Axakon är en modern konsultfirma där unga topptalanger hjälper företag med digitala förändringsprojekt. En firma där vi matchar talangnytta med kundnytta och där personligt och ansvarsfullt ledarskap är en del av den dagliga verksamheten och varje individs utveckling är viktig. Vi har en kultur där var och en utmanas i en kreativ, föränderlig miljö där målet är att alltid ligga i framkant och skapa maximal nytta genom den ultimata kombinationen av topptalanger och mentorskap.

Projektets bakgrund

En utmaning ute på företag idag är att en stor del av de anställda är omotiverade när de går till jobbet. Det finns en påtaglig skillnad i prestation mellan anställda som är motiverade och engagerade i sitt arbete och de som inte är det. Därför försöker många företag idag att mäta sina anställdas engagemang. Detta sker ofta genom att de anställda får fylla i formulär med papper och penna, vilket kräver mycket arbete och gör att det tar tid innan de ansvariga får resultaten och eventuellt kan åtgärda problem.

Genom Axakons Engagemangsindikator kan de anställda visa hur de mår utan att det blir ett tidskrävande störningsmoment, så att de enkelt kan ge mer precisa svar och med högre frekvens än traditionella metoder. Detta möjliggör för företagen att snabbt kunna reagera när deras anställda mår dåligt på jobbet och åtgärda detta.

Mål med projektet

Målet med detta projekt är att lägga till funktionalitet till den nuvarande versionen av Engagemangsindikatorn. Funktionaliteten ska möjliggöra att ledare blir notifierade när deras team börjar må dåligt, lyfta kategori som ligger bakom det dalade engagemanget samt föreslå åtgärder som stöttar ledaren i sitt ledarskap. Implementationen ska kännas modern, vara interaktiv, användarvänlig och genomsyras av enkelhet. För övrigt bestäms implementationen av gruppen.

Vad vi kan erbjuda

Vi kommer att agera beställare och tillhandahålla kontaktpersoner som både kan svara på frågor från det tekniska perspektivet och businessperspektivet. Vi kommer även ha möjlighet att, efter era behov, medverka som styrgrupp/referensgrupp för projektet.

Vilka teknologier ni kommer att få arbeta med

- JavaScript
- Docker
- Node.js
- React.js
- MongoDB
- Coffee-script

Kontaktuppgifter

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MY GLOBAL CITY Mobile App Project

Have you ever dreamed exploring every single country of the world? Wouldn't it be amazing - to explore all the different cultures, flavors and beauties, including meeting all the different types of people?

What about "travelling without travelling" and exploring the world with My Global City and My Global City team?
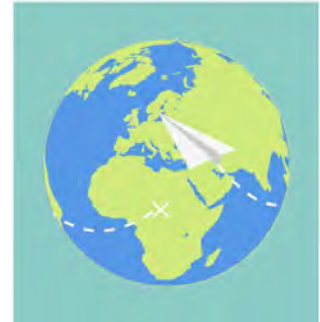
Background

My Global City is an award-winning early stage startup company with a global mission: To connect the world within multicultural cities. Prized as the "Best Business Idea" at Venture Cup competition 2016 and currently nominated at the Stockholm Innovation 2016, we were part at the SSES Campus and STING. Today, we are supported by KTH Innovation and SSES. Under the winter 2016/2017, we will build our platform, which will be initially available in the Swedish market, and we are looking for a group of enthusiastic software engineering students and designers to join our journey!
You can read more about us at www.myglobalcity.com.

Project Scope and Objectives

We are looking for a group of driven developers which want to join us, developing the first mobile version of our app. Are you a globally-minded, driven, ambitious student with a passion for change and that really want to join an early stage startup team? Then you should join us in the mission of promoting and connecting the different cultures of the world! As a project member, you have the possibility to have a great impact on the development of our platform.

The goal of the project is to create the hottest app in town. The first version of My Global City mobile app with includes a gamification feature, which will allow the users to book different types of activities and get rewards. The attention on details are important, in order to create a flawless and beautifully designed UI. This version should be ready to launch and test as a proof-of concept with a select group of users by the end of the project.

The application will contain two parts:
1. Backend, based on rest API. We are open to discussing and guide which technology you can use.
2. Front end, Mobile app. We prefer Ionic framework but we are open to discussing other options like native IOS & Andriod client etc.

Deliverables

In order to develop My Global City mobile app (iOS and/ or Andriod), the selected project members will need to:

- Collaborate with My Global City team and agree with the specifications for the app
- During 8 weeks the team will develop a basic version of the mobile app. The main functionalities are included:
  Search engine of based on existing database.
- Create gamification feature.
- Create user login, to manage user profile.
- By the end of the project (March 2017) to launch at Apple-store/ Google Play.

You will be working on following tasks:
- Build interactive GUI and front end layer of the app in Ionic framework.
- Build 'Rest' based backend API to perform all functional operations.
- Create database schema.

We will guide the student team through the project, providing the necessary support for the completion of the project.

Ownership and rights

You will be credited as the authors of the library, but all code and material that you will produce will be copyrighted and owned by My Global City AB.

Rewards and Future Opportunities

By joining this project you will have a real chance to join permanently our winning journey, becoming part of our team. If the project is successful, and you have the right competencles and personality, there might be possibilities for internships and/ or to provide part-time jobs or joining us as a co-founder. We will also be able to provide reference letters for future employers.

Contact

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FINT
MOBILE PAY

Fint is a recently launched start-up, born within KTH innovation. It will provide mobile financial services globally. More specifically, Fint will focus on Mobile to Business and low value transactions. P2P transactions are also expected to be included at a further stage.

The early launching of the services will take place nationally in about a year time. International reach will follow in the upcoming years.

THE PROJECT

We are building an infrastructure that will enable low value financial transactions between users and merchants by requiring nothing but a phone and internet connection.

Due to the early stage development phase, the aim is to have a working prototype that enables virtual transactions between the user app and the business' software.

Fint encourages the students to feel absolute freedom to express ideas and improvements to the process, technology or the product itself.

The students will experience a real working experience in a start-up environment by attending regular meeting with the company founder, taking part in product presentation and relations with investors.

We provide:

- Interesting and challenging project
    - Real development of a service **from scratch**
    - Suggest improvements / Get to **shape the product**
- **Develop new technologies**, never applied in the field before
- Lead the **way into the start-up world** and open a door to **future collaboration** with us.

GOALS

The objective of the work is to build the basic architecture from scratch and have a working prototype. A two sided architecture is to be developed. From the merchant's interface, the software should interact with the actual sales' software and produce an output signal. The customer's app will have to capture that and enable a transaction to the merchant's virtual account.

PREREQUISITES

The students should be able to write a technical development document for the entire development for the following :

- System infrastructure requirements;

- High-level system architecture (technology stack, databases, interfaces, protocols);

- System architecture and integration with third parties.

- Model-view-controllers

- Expected traffic in transactions per month (performance) and the plans for the first year;

- Store business and consumer details e.g. credit card data

- Interface maps

- Wireframes

- Unique UI/UX design,

- Implementation of pre-fab SDK. finance modules etc.

WHICH TECHNOLOGIES/PLATFORMS WILL THEY WORK WITH?

The students have the possibility to choose the latest technologies they feel confortable with in order to develop the following

- Front end development based on agreed UX/UI design & wireframes with GUI based on reactive design that works on web, mobile, tablets.

- A unified backend development based on any of JavaEE, JSF, SQL and/or Oracle or relevant prefabricated fintech modules that match the requirements.

- Integration of front end with backend and of whole solution with third parties like Visa/MasterCard, banks and financial institutions, Oracle, IBM, Salesforce, Risk and Analytics components, etc

- Finally testing and release of solution

CONTACT

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actimore

Project App

Actimore är ett företag där vi underlättar planering och genomförande av roliga gruppaktiviteter. Vi har byggt en webbplattform där vi kombinerar traditionell e-handel med doodle-liknande funktionalitet för att underlätta för grupper av vänner att hitta på saker tillsammans.

Vi behöver er hjälp att lansera vår första app!

Vår plattform består idag av en web-app byggd på moderna ramverk som vi planerar att lansera i början av nästa år. Vi vill utöka vår plattform och ta Actimore's funktionalitet till app-marknaden. Hos oss får ni möjligheten att med stor frihet arbeta för att wrappa vår webbsida till en app för både Android och iOS.

01
hitta ditt event

02
köp din plats
du reserverar samtidigt
platser för dina vänner

03
bjud in
dina vänner

04
ha kul
tillsammans

Huvudmål
1. Välj ramverk för app
2. Wrappa existerande webbsida till app för Android & iOS

Extra mål (Vid slutförande av huvudmål)
1. Integrera vår betalningslösning Stripe med deras native-version
2. Arbeta mot vårt egna API för att skapa "Mina bokningar"
3. Integrera "Mina bokningar" med Facebook-API
4. Skapa en prenumerationstjänst med push-notiser för valda aktiviteter

Teknik
- Valfritt ramverk för att skapa appen
- HTML5
- LESS
- Javascript (AngularJS)

Förutsättningar
- Frontend är byggd med HTML5, LESS, AngularJS
- Backend är byggd med Grails (Groovy & Java)
- RESTful API
- Koden hanteras på Github och hostas på AWS.
- Agilt arbetssätt med Trello

Förkunskapskrav
Generell programmeringsbakgrund. Dock kan erfarenhet från
webb/app-utveckling underlätta projektstarten.

Framtida möjligheter
Actimore söker alltid efter fler kompetenta utvecklare. Efter kursens slut finns det
goda möjligheter för den som visat stort intresse för Actimore att få arbeta med
oss för att tillsammans bygga Stockholms häftigaste startup.

Kontakt
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Sign Language Translator App
Project Proposal for MVK 16/17

Background

A two year long research project at the department for Speech, Music and Hearing at KTH has resulted in a real time sign language recognition system. The system uses a Kinect sensor as input device and can recognize 51 isolated signs from the Swedish Sign Language. Additionally, the project has produced a translation engine which converts the recognition result into text and displays it on the screen of a computer.

Project

The project has two main objectives. The first objective is to build a smartphone app which serves as a front-end for the recognition system. The second is to investigate different ways to bridge the recognition system with the front-end.

Goals

App

- Design - deeper investigation into fonts, colors, logos, etc. is a plus but not essential

    - Create a graphical user interface based on the desired functionality

- Functionality

    - Retrieve the video from the back smartphone camera
    - Establish connection with the back-end (based on the chosen way to bridge the two systems)
    - Send the video to the back-end and display the result from the recognition. The result can be presented as text on the smartphone screen but can be extended with a text-to-speech functionality

Bridge

- Local

  - Investigate how to deploy the back-end on the smartphone and use it locally

- Remote

  - Investigate efficient ways to transmit the video over wireless/cellular network to the back-end and use it remotely

Requirements

The students responsible for the bridge should be comfortable with writing and reading C/C++ code (the back-end). Experience with video compression is a plus. Knowledge of machine learning algorithms is also a plus. The students can choose the smartphone platform (iOS or Android).

Contact

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Background

The online grocery business is THE fastest growing ecommerce in the world, we are there for very glad and excited to present trolleey.se as the new Foodtech platform.

We are a team of 3 guys working dedicated with this project.

3 different persons with the same goal, we want to change a behavior for the consumers today and the way we shop grocerys.

Some KPI´s

What is Trolleey?

Have you ever been sitting in the couch and felt that you would like to get your groceries home in a few hours? Yes, we on Trolleey also felt that way, when we a year ago began to sketch out our idea. We want to make it easy to shop groceries online and have it delivered home.

Trolleey started with a vision to digitize the food market. Today we are close to launching a beta version of our service with a plan to scale up worldwide. We want to be a module that the local store at any time to be able to join and start selling online and get the groceries delivered to the customer, a bit like Foodora and Wolt makes for restaurants today.

Trolleey will in a few years be the platform that makes it easier for supermarkets to sell online and offer home delivery. We will collect all the shops on one site, both small players who have a small shop around the corner to the big ones like Mathem.se which today is the leader. On Trolleey.se you will be able to buy your items, compare prices, delivery times, sorting etc. and complete your purchase.

In this way we will be able to help small players to reach out to a larger mass and affect the environment positively.

Skills

Implement our E-commerce solution using best practice web techniques. Both fontend and backend. We are now in a phase where we are looking for our developer who could take Trolleey to the next level.

- We are looking for a full stack developer with a passion for creating smart solutions.
- We are working with JavaScript and MVVM and PHP.
- We want you to wanna join a startup in early stage where you and the team can make an impact on the business.
- You will be able to work together with a CTO with long experience in the business.
- You will not have a boss, you will have a leader that will guide and help you on the way.
- We are looking to hire or even give shares to you.

Project description

Trolleey.se is going to connect the grocery stores to Trolleey platform. We need to build this connection point.
We need to build a DB that collect and sort the API from the stores.
The collected data need to be presented on Trolleey in the best visual way.

Phase 1
You will work in a group together with a project leader, the mission is to take the early stage beta version to a complete beta version.
You will be working on setting the POS code right from the beginning, implementing security measures.
Phase 2
You will together with the team finalize the beta and take it to a proof of concept.
In this stage we will start to collect data and sort it. We will also do A-B test and UX test.
Phase 3
Collect data and analyze it.
Start to build Trolleey V.2.0
Market strategy and social media strategy will be set.
Phase 4
This is where we will make the release of the platform for the public and make a press lease.

Contact

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The Future of Mobile Soundbased Storytelling.

- A project for students interested in the media industry, digital storytelling, journalism, documentaries and mobile games.

ABOUT US

The Department of Media Studies at Stockholm university offers courses and programmes in journalism and digital storytelling.

In the first sub-project JMK cooperates with Kritiklabbet, an experimental platform at Bonnier Books, Swedens biggest publishing house, to create an interactive documentary about the underground scene of grafitti in Stockholm.

The second subproject is a locationbased documentary about the murder of Olof Palme, Swedens prime minister, in 1986.

We are inspired by high suspense radio storytelling, like Serial Season One, mobile games with locationbased functions, like Pokémon Go, and more traditional, conventional soundwalks and guides that tell the story of a historical place or urban space.

THE PROJECT

During winter and spring 2017 JMK will – in cooperation with Kritiklabbet – develop a guide/mobile app. We want to bring the audience to the urban areas where we have the most sensational grafitti in Stockholm – to make them do an interactive tour between the pieces.

The target audience is young, urban, interested in grafitti/street art and experiments with augmented reality.

The content will be produced by students from the Journalist program at JMK, Stockholm univeristy, and by Kritiklabbet, and is made up by interviews with grafitti painters and experts and by high suspense dramatized documentary storytelling.

The same mobile app/platform will be used in the second subproject, about the yet unsolved murder of Olof Palme, Swedens prime minister, in 1986.

We want to build an interactive soundwalk starting at Sveavägen, central Stockholm, which follows the tracks of the murderer in the police investigation, wiretapped telephone calls, witness accounts, and further, in the tracks of the many private investigators and their more or less far flung conspirational theories, and the echoes of the murder in Swedish literature and arts. Essentially, this is a story about Sweden and swedish society, not just about the murder of a statesman.

YOUR TASK

To develop and build a technical solution for locationbased sound in a mobile app, but also to investigate how the form of the content, the mechanics of storytelling, can be enhanced – in close cooperation with the content producers.

We want to expand the linear dramaturgy from A to B in the traditional guided tour, or radio documentary, with elements of interactivity and game mechanics.

We want to explore the interplay between user, code, physical surroundings and preproduced geotagged sound.

We want to create the mobile soundwalk/ locationbased radiodocumentary of the future.

The aim is to make a functional app to iOS or Android, for AppStore of Google Play.

CONTACT

Jesper Huor, teacher in Investigative Journalism and Digital storytelling at the Journalist program, Stockholm university. Author of three books, producer of prize winning radio documentaries.

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 0704176953

Svenskt kritiskt arkiv

Uppdragsgivaren
Arbetet kommer att ske på *Kritiklabbet* som är en oberoende experimentplattform under Bonnier Books, en takorganisation för ett stort antal företag inom bokbranschen både i och utanför Europa. Till koncernen hör bland annat Bonnierförlagen, Adlibris, Pocketshop och Book Beat. Kritiklabbet startade i september 2016 och experimenterar kring nya digitala och ekonomiska former för konst- och litteraturkritik. Det är beläget i Bonnierhuset på Sveavägen 56 i Stockholm.

Projektet
Uppdraget är att hjälpa till att utforma och bygga det wiki-baserade Svenskt kritiskt arkiv (SKA). Målet med SKA är att på en digital plattform samla tidigare publicerade kritiska texter (recensioner osv) för att skapa en överblick av den kritiska receptionen av verk, konstnärskap och institutioner. SKA använder ett wiki-format för största möjliga användarvänlighet, men vill också gå ett steg vidare genom att utveckla formatets former. SKA fungerar genom att den individuella skribenten (eller annan tredje part som äger upphovsrätten till texten) lägger upp sin text på arkivet. Texten ska tidigare ha publicerats i dagspress, tidskrift eller någon annan källa som av redaktören bedöms vara kvalitetsmässig. Den upplagda texten är den samma som den tidigare publicerade varianten, utan ändringar.

SKA kommer att vara en gratis tjänst och allmänheten inbjuds till att interagera med innehåll utom att förändra det. Detta sker genom att hyperlänka inom SKA, skapa kategorier och på andra sätt kurera materialet. SKA baserar sig på den franske teknikfilosofen Bernard Stieglers tankar om den "kontributiva ekonomin" som laborerar med skillnaden mellan konsument och producent och en ekonomi som inriktar sig på positiva externaliteter snarare än monetär vinning.

Uppdraget är att se hur långt det går att utveckla wikin, genom wikimedia eller annan lämplig wiki-plattform, till ett mer komplext instrument for publicering och arkivering. I ett första skede handlar det om att etablera en plattform som gör det möjligt att skapa auktoriserade bidragsgivare (skribenter och tredje parter) samt allmänna användare som har möjlighet att länka i materialet de auktoriserade användarna lägger ut. Ni kommer att få stor frihet att tillsammans med handledaren formulera ytterligare funktioner på den tekniska plattformen för användarna, som att skapa kategorier, diskussioner och så vidare. Vi siktar på att utveckla en ny wiki-modell som laborerar med möjliga top-down och bottom-up funktioner i samspel. Den kod som produceras genom projektet kommer att vara open source.

Mål och resultat
Målet är att färdigställa en enkel wiki-plattform som bildar ett skal för SKA. Här ska de mest grundläggande funktionerna finnas med. Användare med rätt att lägga ut material ska kunna separeras från de andra (allmänheten) och det ska finnas en fungerande funktion av hyperlänkning mellan texterna i SKA. Förhoppningen är också att framstegs har gjorts i ytterligare wiki-funktioner som möjligheten för användarna att skapa kategorier och andra "aktiva arkiveringstekniken" som gruppen kommer fram till.

Lämpliga förkunskaper
Det är givetvis bra om det finns en kunskap om hur ett wiki-format kodas, men det är också något som kan plockas upp under arbetes gång.
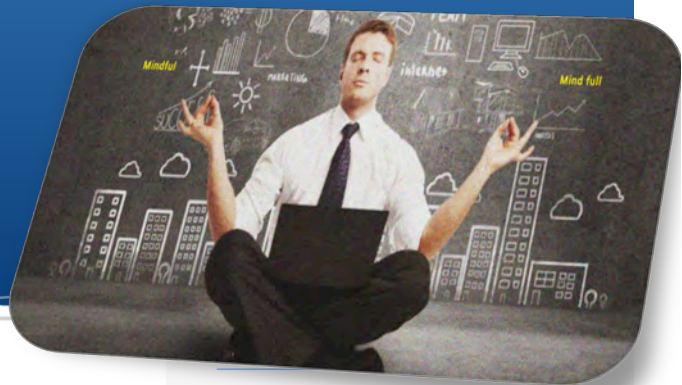
Kontaktuppgifter
Handledare Axel Andersson
axel@kritiklabbet.se
0765260937

Digital Mindfulness

Biosensing and AI Based Adaptive Mindful Breathing Device For Stress Reduction

This is a product design project focus on designing digital technology for mindfulness and mindful breathing

Background

77% of people regularly experience physical symptoms of stress according to the latest stress survey from American Institute of Stress. High levels of stress and information overload are increasingly contributing to the global burden of disease [1] at great societal costs. E.g., in Europe, the total costs of mental health disorders are estimated to be 240 billion euros per year [2], and globally the costs are most certainly much bigger. Alarmingly, stress occurring early in life can have long lasting and profound effects on mental and physical well-being for life [3]. There is therefore an urgent need for both preventive interventions aimed at reducing the adverse effects of stress, taking into account new effective treatment strategies.

Drawing on eastern meditative traditions, Mindfulness Based Stress Reduction (MBSR) [4] has been proven effective for reducing stress and anxiety, and is one of the currently most researched treatment packages [5]. MBSR is based on procedures to establish increased awareness of moment-to-moment experience and develop compassionate non-judgemental acceptance of oneself, others and encountered life situations. Mindful deep breathing is part of MBSR and has proved effective for relaxation.

During the past decade there has been a rapid increase of interactive applications for health and wellbeing.Yet little research has been done in the area of designing personal devices with digital technology for mindfulness-based stress reduction (MBSR). Moreover, many existing digital mindfulness applications are purely software based. There is room for further exploration of designs that make more use of bio sensing and atificial intelligence (AI) technologies. This project attempts to fill the gap by using the technology of human-computer interaction for personal stress management in everyday lives.

1. World Health Organization. Global action plan for the prevention and control of noncommunicable diseases 2013-2020.

2. OSHA, E. (2014). Report-Calculating the cost of work-related stress and psychosocial risks.

3. Lupien SJ, McEwen BS, Gunnar MR, Heim C. Effects of stress throughout the lifespan on the brain, behaviour and cognition. Nature Reviews Neuroscience. 2009 Jun 1;10(6):434-45.

4. Kabat Zinn J. Mindfulness based interventions in context: past, present, and future. Clinical psychology: Science and practice. 2003 Jun 1;10(2):144-56.

5. Chiesa A, Serretti A. Mindfulness-based stress reduction for stress management in healthy people: a review and meta-analysis. The journal of alternative and complementary medicine. 2009 May 1;15(5):593-600.

Project Description

This is a product design project focus on designing digital technology for mindfulness and mindful breathing. The aim is to design a device that can imitate human breath through breath sensors and AI adaptive system. The device can guide users for mindul breathing and enjoy the present experience of meditation. The modalities could be light, sound or other metaphorical displays. The goal is to explore how interactive visual and sound feedback could be used to support mindful and relaxing deep breathing so as to relief stress. The relationship and interaction between bodily and somatic functions regarding stress and mindfulness is concerned in this project.

Deliverables

The project objectives are twofold, which involve both the development of an AI based adaptive system and the interactive interface. The main deliverable will include:

 1) A prototype of breath sensing and AI based adaptive system
Explore existing bio-sensors to measure and analyze user's breath pattern
Build an AI based adaptive system for different breath patterns and stress reduction solutions

 2) Interface Design
The output of the adaptive system could be built on:
A physical device that can guide users to mindful breath through vapor, light and sound
A mobile app that support mindfulness practice and stress management
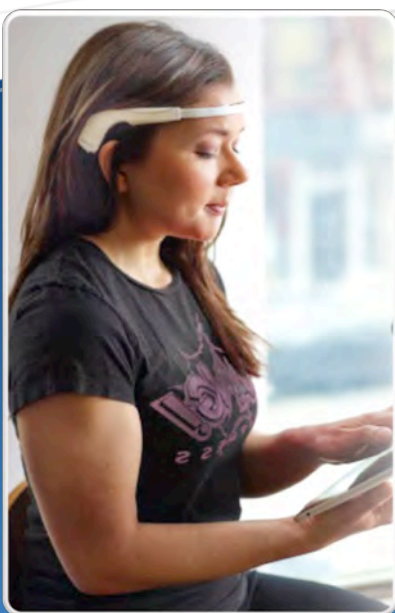
Contact Information

Tina Bin Zhu

YuHu

zhubin823@gmail.com

HÖG TID ATT DIGITALISERA BYGGINDUSTRIN

Framtiden behöver dig!

Smederna är mälardalens största enskilda stålbyggnadsföretag vars främsta mål är att alltid ligga i framkant vad gäller kvalité, arbetsmiljö och spetskompetens. Vi på Smederna är inte den vanliga "bysmeden", vi tillverkar inget om det inte finns en 3D-modell och modellerna vi behöver för tillverkning producerar vi givetvis själva. Det ger oss total kontroll och överblick på projekten.
Smederna klarar sig internt väl med detta, men krav från övrig byggindustri, beställare, kontrollorgan att följa gällande standarder och lagar gör att vissa dokument ska överlämnas och lagras.
Idag sker detta i pappersformat för att att ingen kommit längre, vi har möjligheterna att gå i frontlinjen för att förändra detta och du kan vara en nyckelperson!

Hur gör vi idag?

Upphandling/uppstart •	Över bord, skisser eller ritningar.
3D-modellering •	Från platta ritningar till 3D-modell.
Skär och såg •	CNC-styrda maskiner, filer från 3D-modell.
Tillverkning •	Utskrivna ritningar för att kunna signera egenkontroll. Ritningar görs i 3D-modellen.
Transport •	Utskrivna leveranslistor, försvinner lätt.
Montage •	Montörer använder 3D-modell på läsplatta, dock sker egenkontroll på papper.
Överlämnande •	Dokumentationen utförs och överlämnas i en fysisk pärm.

Hur går vi vidare och vad söker vi från er?

Smederna har bestämt sig för att helt frångå alla utskrivna papper från tillverkning till överlämnande och att låta varje anställd arbeta med PC, läsplatta eller mobil beroende på arbetsuppgift.

Ritningar och andra dokument kommer vi fortfarande använda för vår produktion men med inbyggda funktioner. Största skillnaden blir sättet vi lagrar och hanterar ritningarna och möjligheten att kunna bygga in gate-system. Varje länk i verksamheten ska kunna kontrollera att hen inte får ofullständiga komponenter av sin kollega.

Uppdraget består i att utforma en desktop- och android baserad prototyp med ett antal funktioner för att göra hela vår produktionskedja digital.
Användarvänliga funktioner för att kunna överföra information
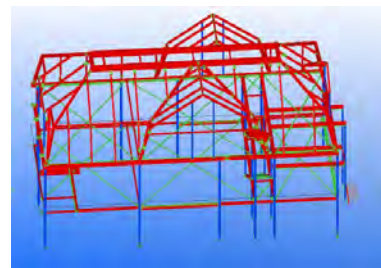
Överisiktsbild på Stålstomme modellerad i Tekla Structures.

Komplicerade skruvförband från modell ovan.

För att snabbt få en överblick av vår verksamhet, se den korta profilfilmen ni finner bakom QR-koden.

och överblicka projektets progress är en del av målet. Allt för att minimera hanteringen av papper och mail som utgör grund för kommunikationen idag.

Grundläggande för uppdraget:
• Godkännande av tillverkad komponent av tillverkare. På digital ritning.
• Kolli-innehåll vid transport. Leveransinformation och mottagare.
• Mottagandekontroll.
• Montagekontroll och avvikelser vid montage.
• Uppbyggnad av pärmar som överlämnas i fysiskt eller digitalt format till beställare.

Förkunskaper

Vi ställer inga direkta krav på särskilda språkkunskaper inom programmering.
De krav som ställs är engagemang, förmåga att kunna se helheten i större system och att vara nyfiken. Att vara en person som går ut i verkstaden för att ta reda på hur vi arbetar idag och tar det tillbaka till ritbordet är meriterande och den personlighet vi söker.

Vad erbjuder Smederna?

Vi på Smederna står till förfogande med ett verkligt problem där ni med tydliga ramar och mål får ett projekt att bygga en arkitektur över samt att ta fram en kravspecifikation kring.
Vi vet vad vi söker idag och finns tid över så djupdyker vi gärna i användargränssnitt och smarta funktioner för att effektivisera allt från leveranslistor till montagekontroll.

Smederna tillhandahåller även alla raw-data som kan tänkas behövas från 3D-modeller och ritningar, det finns även tid för dialog med de anställda som i slutändan ska använda produkten i sitt dagliga yrke.

Vi på Smederna tillgodoser även med en engagerad handledare, utrymme i våra lokaler, en levande arbetsplats där det digitala möter det stora och tunga samt en unik chans att arbeta med ett växande företag med stora och genomförbara mål. Är du rätt person får du följa med oss till nästa steg, för det här är bara början.

Karriärmässigt är detta framförallt en möjlighet att bidra till och i framtiden följa med på en revolutionerande resa för byggindustrin som bara börjat, en välmående bransch där rutinerna vi skapar inom en snar framtid kommer vara krav. Då vill ingen stå på ruta ett.

Smederna Sverige AB
Anställda: 107
Omsättning kr: 168milj.(2015)
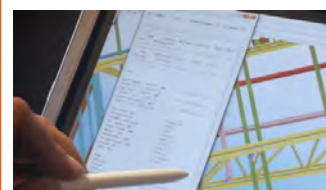Omsättning kg: ca 3.000ton
Grundat: 1991
Tekla-modellerare: 4st
CE-märkt produktion.
Adress: Tumba

Montör ute på arbetsplats.

Informationen finns där, ID, längder, vikter, placering etc.

Allt från smått till stort. Lastning för leverans.

Takkonstruktion

PS. Du som inte hittat rätt i livet kanske gör det hos oss som Smed.

Kontakt: Andreas Åkerblom   www.smederna.se
             andreas@smederna.se
             08-55 64 55 19

MORPHOLOGY

Hakan Lidbo/ Libido Music AB make music, art, interactive installations, apps, Virtual Reality, film and robots. In 2016, the company was the winner of the SKAPA Innovation award Stockholm, Creative Business Cup Sweden and European Ecsite Award. Libido Music AB has previously worked with students from KTH transforming a block in Kista into worlds biggest computer game and creating a backend control program for drone choreography. http://hakanlidbo.com, http://gotofuture.com,

Morphology is the vision of a platform for generative, interactive art and sounds for HTC Vive.

15% of what we see is actual input from our eyes. The remaining 85% is a 3D model genrerated in real time by the brain's previous knowledge what we have seen before. Optical illusions explore the phenomenas occuring when we play tricks on the brain and disturb it's pattern seeking properties.

The first project to be created with this new platform is about taking the kind of optical illusions we previously have seen in 2d, into VR. Using gestures and triggers from the hand controllers, the visitor can interact with the VR art.

There are very few art projects available in VR so the project has the potential to be globally shared and downloaded. Hakan Lidbo has previously been represented at some of the most prestigious festivals for media art like Ars Electronica (Linz) and File (Sao Paolo) and the first goal is to present the projects in this context, as a platform for communication and promotion. As a second step, the project will be launched on Steam.

If the students participating in this project have previous experience with VR it's good but not necessary. If needed, we will provide support from our network of developers.

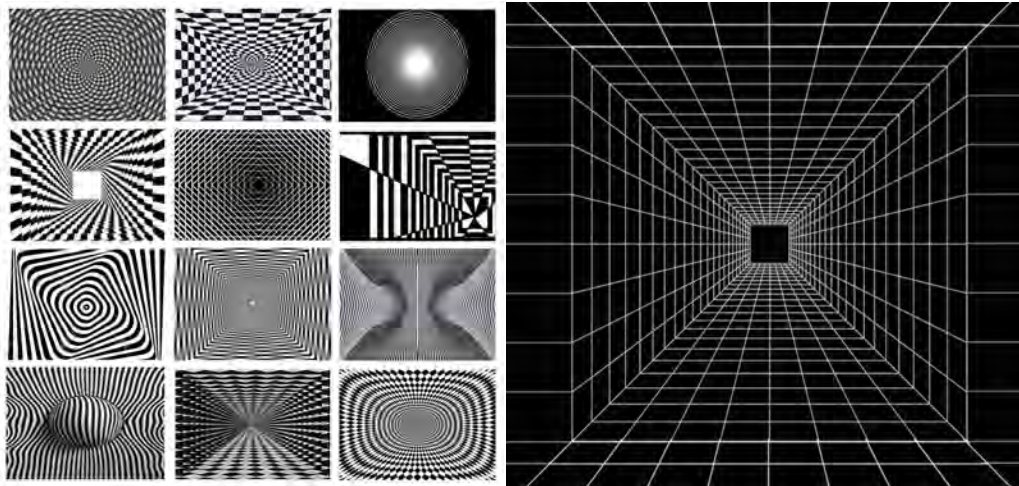The technologies we use are Web VR and/or Unity for HTC Vive.

An application for developing Morphology has been sent to Sweden's art Grants Committee and we're awaiting reply in December.

Håkan Lidbo
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Inspiration

Research

http://askabiologist.asu.edu/rods-and-cones
http://www.theatlantic.com/technology/archive/2012/08/pareidolia-a-bizarre-bug-of-the-human-mind-emerges-in-computers/260760/
http://persci.mit.edu/people/adelson/publications
https://www.sciencedaily.com/releases/2012/05/120501100037.html
http://www.nature.com/nrn/journal/v5/n3/box/nrn1348_BX1.html
http://www.sciencedirect.com/science/article/pii/S0042698996002556

Datum 20161118

Projekt förslag 1

Grim Creeper

Syftet med projektet

Projektet syftar till att visa hur ett verktyg för webcrawlning kan kombineras med ett verktyg för språklig- och kontextuell analys för att autonomt kunna söka av hemsidor och lokalisera information som kompletterar och fördjupar information som finns i en databas.

Mål:

En prototyp för ett webbverktyg som utifrån en databas självständigt kan ta fram kompletterande information på ett strukturerat sätt.

Bakgrund

Det finns sedan länge olika typer av webcrawlers som kan leta upp och samla in (skrapa) information som finns på websidor. Nackdelen med nuvarande lösningar är dock att de är relativt "råa" och kräver mycket manuell efterbearbetning för att ge användbara resultat.

Den information som vi är intresserade av att samla in är bolagsinformation som kan kopplas till ett bolag som förekommer i en databas. Primärt är vi intresserade av att kunna skapa länkar mellan bolag i form av ägarskap (koncernförhållanden), persongemenskap (genom samma ägare eller att samma personer agerar för bolagen), eller genom att bolag samarbetar.

Det vi vill att lösningen ska göra är att utifrån en databas med bolagsnamn och registreringsnummer:

1. leta reda på uppgifter där namnet eller numret förekommer,
2. tolka texten och sammanhanget (med hjälp av en regleluppsättning, ordlista och reguljära uttryck) för att bedöma om det är en transaktion som är intressant att analysera,
3. automatiskt poängsätta hur intressant informationen är utifrån det tolkade innehållet för att underlätta analysen

4. lagra den insamlade informationen så att den är strukturerad på ett sådant att den kan bearbetas och analyseras utan att ha en fast struktur
5. sammanställa informationen så att de olika informationsposterna kan presenteras med kopplingar till annan information

Björn Persson
Chef Indata och Utredningen
bjorn.persson@uc.se
Direkt: 08-58635129
Mobil: 076-5035129

Projektförslag 2
Öppna hemligheter

Hur kan vi använda blockchainteknik för att skapa förtroende för uppgifter som inte är öppna?

Bakgrund

Det finns ett stort problem med att kunna lita på uppgifter som identiteter, betyg eller intyg på nätet. Ett sätt att kunna komma till rätta med problemet med trovärdighet kan vara att använda tekniken blockchain. Det finns dock ett problem med blockchain och andra lösningar som bygger på open ledger, eftersom de kräver att uppgifter ska vara öppna. Många gånger finns det ett motstånd mot att lägga ut alla sina uppgifter så att de är fritt åtkomliga för alla, vilket gör att open ledger är problematiskt.

Mål med projektet

Praktiskt i en prototyp visa hur en lösning som bygger på öppenhet kan användas för att även skydda personlig information av privat natur.

Syfte med projektet

Syftet med projektet är att undersöka fördelar och nackdelar med en lösning för att skydda data samtidigt som det ska vara tillförlitligt för de som valts ut för att få åtkomst till den informationen. Det är även tänkt att fungera som ett test av hur blockchainteknik kan göras användarvänlig.

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Abios MVK Project Proposals

Abios was founded 4 years ago and spent the first time at the KTH Student Inc incubator. The company originally worked with consumer products such as a website, browser notification centre and app where users could follow esports matches and tournaments. Over time, however, Abios focus has shifted into a B2B data house, selling raw data and statistics about esports to other companies. As of today we at Abios power tens of millions of page views every month though our API. As a young company with a strong KTH tie we have lots of ideas for new project and products in our backlog that we hope you would like to dig into! And in the process maybe find a future colleague!

Below you'll find some projects that we believe will be both challenging and fun for you to develop.

Internal Services Monitoring GUI
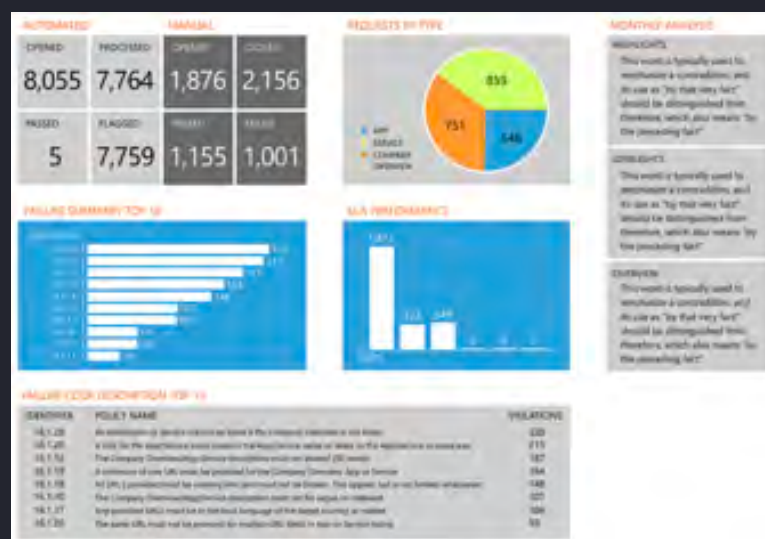
To be able to aggregate and manage all of our data and statistics we have multiple services running towards third party APIs, and other sourcing channels. These services are essential for Abios' product to function normally. Currently these services only write to logs on their local machines (cloud serveßnrs). As this infrastructure is growing bigger it is becoming more and more important for us get an overview of how the services are running, which is why we would like you to build a web based GUI that allow us get an overview of our systems.

In this project you'll be working directly with our infrastructure on Amazon AWS and modify our services as well as databases. The languages that are required for you as a group to be comfortable around are: Python 2.7, Go, MySQL, JS (React), HTML & CSS.
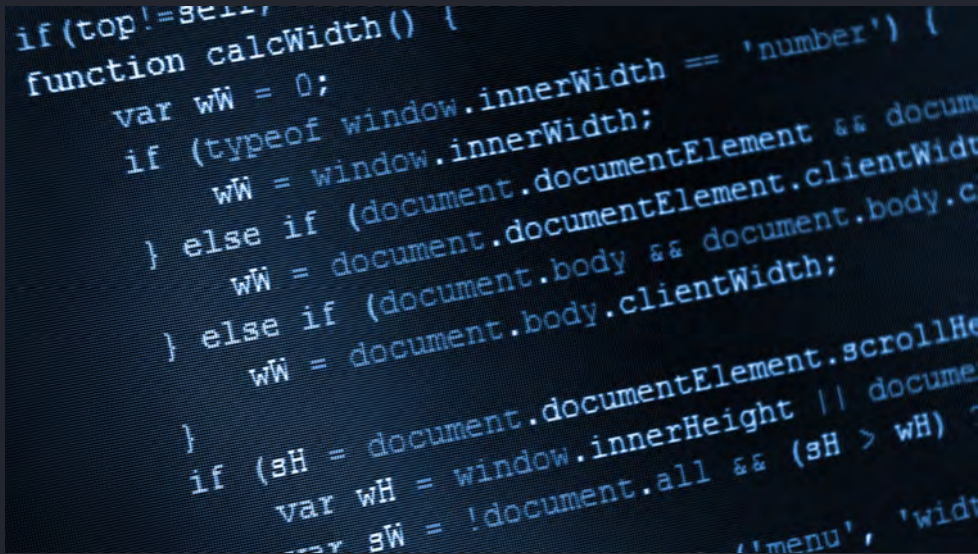
anton.janer@abiosgaming.com

Desktop Stream Viewer
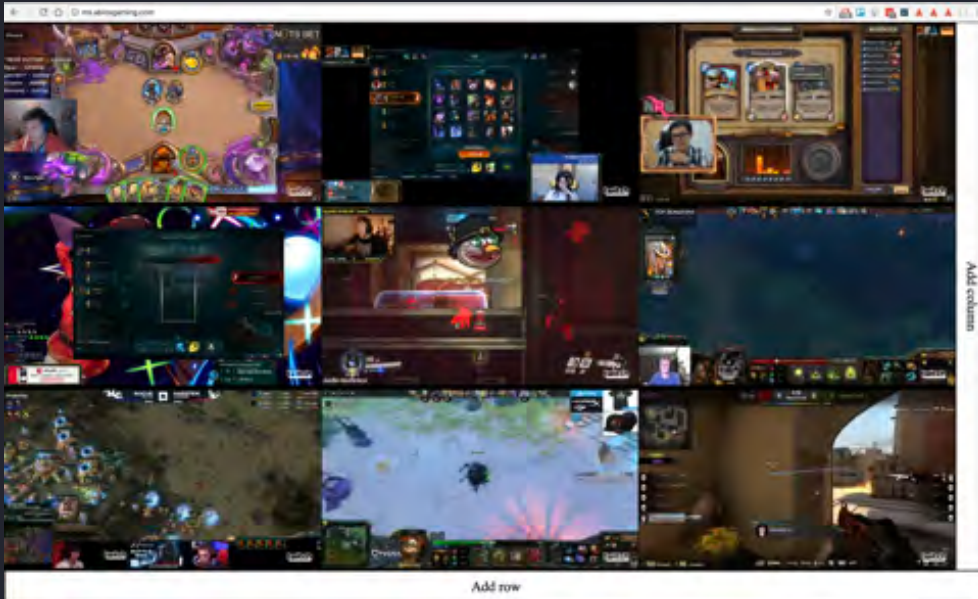
A big part of our business still revolves around watching streams, taking to tournament organisers etc to keep us up to date with events, matches and results. For stream watching we have developed a simple web tool that allows us to embed videos in a mosaic, enabling our team to watch multiple matches at the same time. However, there are two problems with this (1) when you are following a mosaic of matches it is easy to miss details and (2) web browsers crash or freeze with too heavy usage of ram and cpu intensive tasks. Therefore, we would like you to build a desktop program that runs more stable than our current browser app and also allows our editing team to rewind the streams up to 5 minutes if they miss something.

We are open to suggestions about how to approach this problem, but think that a good approach might be to use Electron (JS, HTML, CSS).

anton.janer@abiosgaming.com

Wrappers for our API

Our API customers are often fluent developers, but even so, it can take some time for them to get up and running from scratch with our API. We often get asked if we have wrappers or SDKs in different languages that would help the to get up and running more quickly, which we don't have. This is both an inconvenience for our customers as well as sometimes a cost for us, having to hand our discounts to customers during their development phase. We would therefore like you to develop lightweight, intuitive and functional wrappers for our API to help our customers get started. You can rest assured that these will be greatly appreciated and used in many interesting applications.

Language wise we are open to suggestions but are most interested in wrappers for the most commonly used web and phoneOS languages, namely:
- Go
- JS
- Python
- Java
- Swift

anton.janer@abiosgaming.com

Question answering chat bot

About Findwise

Findwise is a growing IT consultancy company, founded in 2005 by a team of experts from the enterprise search industry. The company currently employs about 100 people spread over our offices in Stockholm, Gothenburg, Copenhagen and Warsaw.

We aim to add business value for organizations where information is a priority by helping them to access, manage and act on information. Findability by Findwise is all about creating search solutions that maximize business value gained from search technology investments. We create search solutions for intranets, web, e-commerce and applications and make sure these are implemented to support and strengthen your business processes and help organizations reach their business goals.

Findwise is fully customer-oriented. At the same time, our ambition is to be the best workplace in the industry, capable of attracting and retaining the best talents.

The main objective of the project below is to be fun, but we may also use it as a demo of what our customers could do with their data, instead of just making it searchable. For this reason, we are also interested in a copy of the source code (i.e. you still own the code but we are allowed to use it as well).

Contact and supervisor

- **Name:** Simon Stenström
- **E-mail:** simon.stenstrom@findwise.com
- **Phone:** 073-616 35 34
- **Address:** Sveavägen 28-30 (Hötorget)

Tags

Large data quantity, question answering, search engine, artificial intelligence, relevance

Project description

There are so many forums out there where people answer each other's questions. Do we really still need people to do that? Aren't most questions answered already? For some topics it sure feels like all questions must have been answered by now. By eliminating the need for human interaction, your answer should be available way quicker!

The idea behind this project is to create a page where you state your question and get an automatic answer (within a specific area) automatically, by indexing questions and answers already written by others in a forum.

Project overview:

- Fetch questions and answers (I have a large batch of familjeliv.se data collected that can be used).
- Use elasticsearch or create your own search engine to index the questions and answers.

- Build a query analyzer that can help you create a query to your search engine by for example selecting the most important words, or comparing the entire question to questions in the index.
- Query your search engine and select the best answer available.
- Present answer in a web interface.

If you have time over, you may try to evaluate the answers and present a number on how certain you are of the answer.

If you want more information about Findwise or this project, contact Simon Stenström.

Generate song lyrics

About Findwise

Findwise is a growing IT consultancy company, founded in 2005 by a team of experts from the enterprise search industry. The company currently employs about 100 people spread over our offices in Stockholm, Gothenburg, Copenhagen and Warsaw.

We aim to add business value for organizations where information is a priority by helping them to access, manage and act on information. Findability by Findwise is all about creating search solutions that maximize business value gained from search technology investments. We create search solutions for intranets, web, e-commerce and applications and make sure these are implemented to support and strengthen your business processes and help organizations reach their business goals.

Findwise is fully customer-oriented. At the same time, our ambition is to be the best workplace in the industry, capable of attracting and retaining the best talents.

The main objective of the project below is to be fun, but we may also use it as a demo of what our customers could do with their data, instead of just making it searchable. For this reason, we are also interested in a copy of the source code (i.e. you still own the code but we are allowed to use it as well).

Contact and supervisor

- **Name:** Simon Stenström
- **E-mail:** simon.stenstrom@findwise.com
- **Phone:** 073-616 35 34
- **Address:** Sveavägen 28-30 (Hötorget)

Tags
Text generation, Turing test, music lyrics, artificial intelligence, gamification

Project description
Generating text from other texts, usually gives a fun result. But for song lyrics, the results may be good enough so that you can't see what is real and what is not. By extracting sentences (or parts of sentences) from real song lyrics and combining them in a smart way, new unique lyrics can be created.

The purpose of this project is to create a lyrics generator that manages to fool people that it is "real" - the Turing test for lyrics so to speak.

Project overview:

- Create a simple crawler for a specific lyrics page
    - Download the full source code for the lyrics start page
    - Identify the song links
    - Follow the links and download the source code for the lyrics pages
    - Identify the text on the pages

- Download and store the lyrics (together with some metadata about it such as song title, artist, genre etc. if you have the time)
- Extract sentences from the texts
- Combine the sentences, according to rules or machine learning techniques if you have the time
- Make it possible to filter on genre or artist if you have time
- Create a page where you present your lyrics next to a part of an original

Can your friends figure out which one is generated by your program?

For more information about Findwise or this project, contact Simon Stenström.

Graph visualization of KTH course dependencies

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Contact and supervisor

- **Name:** Simon Stenström
- **E-mail:** simon.stenstrom@findwise.com
- **Phone:** 073-616 35 34
- **Address:** Sveavägen 28-30 (Hötorget)

Tags
Dependency graph, visualization, KTH course pages, data structures

Project description

At KTH most students have the possibility to select some of the courses they want to have in their program. But it is difficult to get an overview of how different courses depend on each other.

The only way to get information about how courses depend on each other is to navigate the KTH website and manually look up course dependencies in a text field. The lack of a good overview causes difficulties for both students and student counsellors.

The aim of this project is to build a graph visualization of course dependencies, where it is possible to search for a course code and get a graph that show the course and all its dependencies.

Project overview:

- Create a simple crawler for crawling KTH course pages.
- Extract the course dependency field
- Specify a data-structure to represent different types of course dependencies.

- Parse the text in the course dependency field and translate it to a matching data structure.
- Save the course dependencies in a database or a search engine
- Query your database or search engine for courses and their dependencies.
- Create a visualization for the graph

Extract *relevant* text from html

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- **Name:** Simon Stenström
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Tags

Data quality, algorithms, large data quantities, automation, pattern detection

Project description

If you are indexing information of low quality, you can't expect your search solution to produce good results. One of the most common example of low quality content is html pages. The reason for this is that the pages contain a lot of boilerplate text (menus, footers etc. that doesn't change much between pages). If you index this text, all your pages will contain the words from the menus, and thereby mess up your relevance. When you're indexing a single site, this is handled by finding the main content div in the html, but if you want to index more than just one site, this gets tedious.

The goal of this project is to automatically locate the boilerplate parts of the pages, and remove them to be able the index clean data.

Project overview:

- Crawl a few different websites. News sites tend to be interesting since they have a lot of boiler plate information, but any page would do.
- Create an algorithm that detect the article on the page. This can be done in different ways:
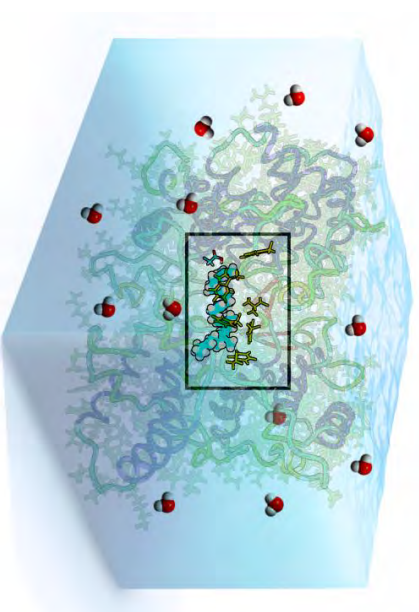
- o Measure the text/tag ratio and look for changes. This is probably where the article starts or stops.
  - o Within a site, compare different pages to each other and remove the parts that are to similar.
  - o Find the tag containing the most text on the page, then move up in the hierarchy until a number of percent (70%?) of all text is included.
- Create a program that takes a full html page as input and outputs the article without boilerplate using your algorithm.

If you want more information about Findwise or this project, contact Simon Stenström.

Mozaic

Coding and graphical interface implementation of an enzyme design program at SciLifeLab

Aim

The aim of this project is to develop an efficient code, which we refer to as "Mozaic", that will allow for the *in silico* design of enzymes and proteins in the computer. Linking this code to a graphical interface (right), will lead to an unprecedented generation of powerful biocatalysts with extended catalytic versatilities beyond nature's current capabilities.

Why?

The increase in the global population and recent floods, drought and extreme weather conditions associated with climate changes calls for novel concepts to develop green and circular manufacturing processes. For this purpose, enzymes, naturally occurring green biocatalysts, will play a key role in the mild generation of sustainable medicines, biomaterials and chemicals from renewable resources. Here, the rational design and engineering of proteins is instrumental to provide enzymes with an "arsenal" of new and industrially-relevant functions capable of replacing present-day harsh and petroleum-dependent chemical processes. This would significantly diminish our dependency on crude oil and reduce present emissions of CO_2 for the benefit of our climate and environment.

Through the in-house code "Mozaic", redesign of enzymes - nature's own catalysts - will be feasible even for non-experts.

How?

In this interdisciplinary project, you will be part of - and get significant support from - a young and dynamic research team. The generation of the "Mozaic"-code will be achieved based on globally unique research at KTH that takes the motion and dynamics of enzymes into account (right).

Programming will be performed in Python ,or analogous code, in close collaboration with leading scientists at KTH and at SciLifeLab at KI-campus in Solna. Implementation of the code will be through the user friendly GUI YASARA (www.yasara.org), a modelling suite that can be used even by non-experts. The code generated will be experimentally validated in the "real" design of enzymes for plastic recycling.

Expected results

Using the code developed herein, an accelerated biocatalytic green manufacturing of chemicals, pharmaceuticals, biofuels and monomeric building blocks is envisioned through the use of "designer enzymes" (right).
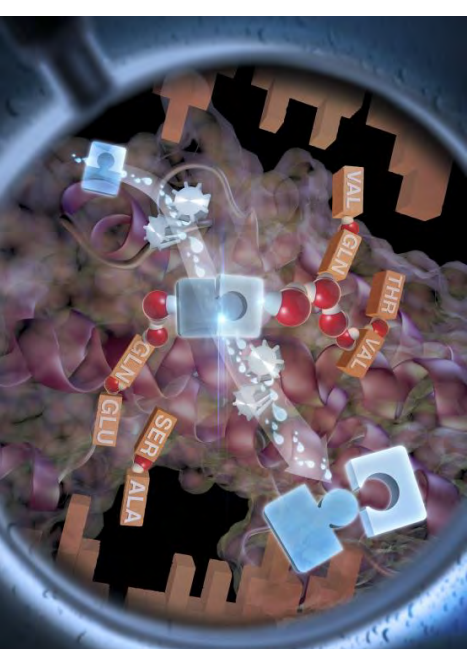
The Syrén lab is focused on understanding the impact of dynamics on enzyme function, in particular the role of water in promoting efficient activities.

Medicines

Sustainable fine chemicals

Novel *bioplastics*
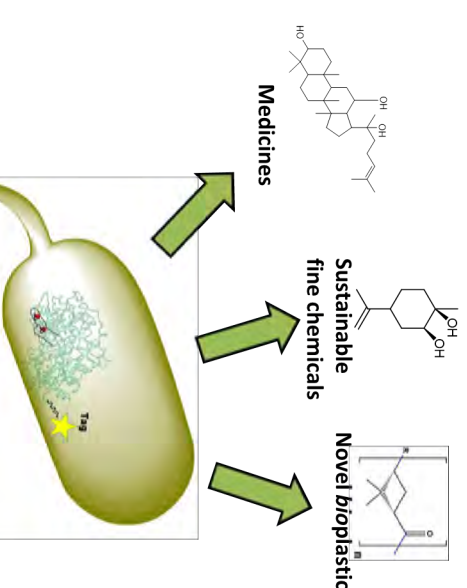
The Mozaic code will have a global impact by facilitating the design of proteins (structure inside the cell) for efficient generation of sustainable compounds.
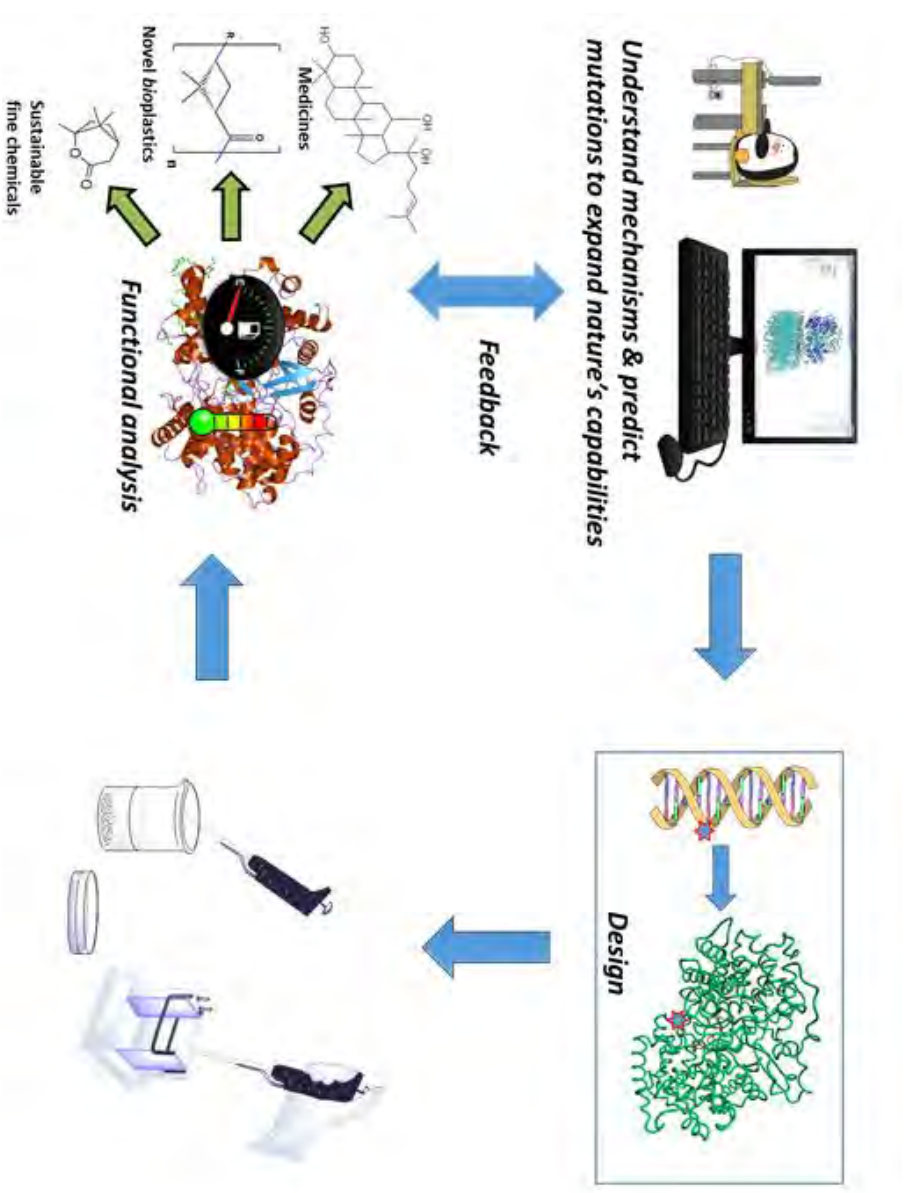
Contact

Syrén lab

www.syrenlab.com

@syrenlab

Per-Olof Syrén, Associate Profesor

per-olof.syren@biotech.kth.se

Understand mechanisms & predict mutations to expand nature's capabilities

Feedback

Functional analysis

Novel bioplastics

Medicines

Sustainable fine chemicals

Design

Global karta för startups och entreprenörer

Bakgrund

Idén uppkom under resor till olika städer och länder där vi försökte lokalisera startups och entreprenörer för att hitta likasinnade för en kopp kaffe eller spontanmöte. Men också för startups för att kunna hitta platser att jobba på och hyra tillfälliga platser. Vi ser det som en kombination av "Cafékartan" och "bokarum.se".

Företaget:

Tjänsten kommer att starta som ett projekt under idébärarens företag Constant Innovation, men knoppas av till eget bolag om det blir framgångsrikt.

Projektet:

Att skapa en första enkel webbtjänst (eller app) som gör det möjligt att lägga in co-workingspaces, hubbar och caféer där startups och entreprenörer samlas runtomkring i världen.

Mål:

Första version är en enkel webbsida / app i wikiformat där vem som helst kan lägga till och kommentera platser på en karta

Förkunskaper:

Inga särskilda, moderna webbteknologier och / eller motsv för appar är såklart önskvärt

Teknologier:

Se ovan

Kontakt

Donnie SC Lygonis, idébärare.
Donnie@kth.se

0708 33 00 90

The digital Service Book for your home

Background

myServiceHook (mySH) is an early start-up company launching a Service Book for your home.

We have here in the autumn had the pleasure of working with two groups of your fellow KTH's students from KID Co-operative IT-design and from DEL Computer Science, Business Management and are able to share the experience and deliveries from this work with you to enable you to get a flying start in this project.

Our vision is that mySH will be a global platform for house owners or tenants to keep track of all relevant matters for the home. mySH will be a value adder in connection with real estate transactions.

The beta versions will be launched in Sweden.

mySH is for everybody who has an address and wants to document relevant information and dialogues with stakeholders at ONE place.

In **version 2.0** mySH will also give you an income stream from being your own lead generator and give you rebate on insurances and mortgage. You benefit from keeping order in your virtual home and can easily transfer the Service Book in connection with a sale or get your new homes history and access to those who have serviced the home in the past, when you are buying a new home.

mySH will eliminate misunderstandings and limit otherwise costly conflicts and make you interaction with craftsmen and having them to document the work done

Later mySH versions might expand to service books for boats: *myServiceHook*/Boat or for bikes: *myServiceHook*/Bike etc. Thus there is a huge scalability both for the geographical expansion of mySH and back-office sharing of the ServiceHook concept.

Our legacy

We are co-founders of myhouse.dk (a Danish website) and of the Danish mortgage house BRF's apps: Bedste Bolig and Beste Lån (best home and best real estate loan).

.

Your Project

A user should be able to store documentations and events i.e for renovations, receipts and manuals mySH.

In **Version 1.0** the focus is on home owners and craftsmen.

Examples of User stories:

- As a house owner, I want a web platform where I can document maintenance/work of my house. It can be done by myself or the craftsman can be asked to document the work he has done.

- As a craftsman, I want a system to support my business, generate proper documentation for each house owner / customer.

- As a house owner, I want that each time a craftsman is maintaining something in my house or working on my house, mySH will automatically be updated by the craftsman. Using mySH will become as part of his normal routine.

- As a craftsman, I want a system to keep track of all my customer relations, being able to communicate with my customers in an efficient way.

- As a craftsman, I want a system to tell me when it is likely that my customers are going to need my services. This could be an early warning that it's time for renewal of the outdoor painting for a given customer. mySH will notify me when it is time and automatically approach the customer.

- As a house owner, I want mySH to be able to keep track of all my major purchases that is of value for an insurance case. This must be done in an easy and efficient way, maybe by scanning of barcodes. It also needs to keep track of if a new item is substituting an old item.

Objectives and deliverables

Develop the Version 1.0 in a beta version of the service book, that includes above mention user stories. Your might expand or limited the scope of your deliverables - if bright ideas comes up we are more than happy to take them in.

Mobile first strategy with a mobile Web framework.

Useful knowledge

Usability and "don't make me think" design of the ux has the highest priority.

Second priority is the duality in the site, the helping of a craftsman administration will drive the data for the house owner.

Third priority is a fully functional solution.

Available technologies

There exists no code at this point, there is a large freedom of choice if it is well argued.

A stack can be.
Backend rest services running on red hat, written in Java, using mySQL as data storage.
A mobile first Web Frontend written a mobile Javascript framework, an example is Ionic framework.

Ownership and Rights

You will be credited as the authors of the Service Book, but all code and material that you produce will be copyrighted and owned by myServiceHook

Contact information

Co-Founder and product owner.

Henrik Rådström   hr@norfalck.com   0706817070

Background

The Observational Health Data Sciences and Informatics (or OHDSI, pronounced "Odyssey") program is a multi-stakeholder, interdisciplinary collaborative to bring out the value of health data through large-scale analytics. All our solutions are open-source.

OHDSI has established an international network of researchers and observational health databases with a central coordinating center housed at Columbia University.

OHDSI Mission

To improve health, by empowering a community to collaboratively generate the evidence that promotes better health decisions and better care.

Project Description

The OHDSI program covers diverse project areas and could use assistance in any of them depending on interest and ability. Some specific examples include the following:

- Enhancement of Usagi mapping tool through improved underlying database relationships and structure which would greatly improve translation process

Usagi is a Java-based tool that allows users to map their data to the global standard concepts using a variety of natural language and relationship scoring models. One major area of development could be improving the "social life" of a concept (i.e. where it may fit in a hierarchy of concepts). This would allow improved and more flexible mappings to concepts as users convert their data.

Another possible improvement would be domain-specific tools for the translations. For example, it would be very helpful to make the tool more specific when dealing with common domains like pharmaceuticals, lab results, medical procedures, etc. A package tailored to a certain domain would be a great help for users.

- Creation of a web-based tool for tracking observational research literature

An interactive tool to query and sort new publications in certain categories (e.g. case-control, cohort) or with certain data sets (e.g. CPRD, Swedish registries) would be of tremendous use to the community. It would improve sharing of knowledge and ensure new information is rapidly being integrated into ongoing research.

- Development work with Largescale Adverse Events Related to Treatment Evidence Standardization (LAERTES) system, which integrates numerous sources of evidence to investigate the association of drugs and health.

Tracking drug safety is a major endeavor with the numerous unique systems collecting data worldwide. LAERTES aims to make it possible through data and data collection for practitioners to get reliable causal effects between drugs and health outcomes. The project has a measureable goal of thorough evidence-based assessment of the effect of 1000 active ingredients across 100 outcomes, which would be a major step forward for global understanding of drug safety and effectiveness.

Skills Desired

- Usagi is Java-based, so knowledge of Java is an advantage
- Work on the web-based tool would need some web development skills
- LAERTES could use database programming, as well as more general programming skills depending on area of interest

Contact Information

David Myers, Associate Director Real World Evidence, Janssen (dmyers22@its.jnj.com) or Johan Liwing, Director Real World Evidence, Janssen (jliwing@its.jnj.com).

Background
Health care and the pharmaceutical industry are currently going through a very rapid technological shift. This is driven by a more vide acceptance of computerized techniques and available of large amount of data. However, this available of data have not yet reach the patient. In the autumn 2016, an innovation framework that enables access to your own data in Swedish healthcare for patients was launched, www.hip.se. HIP SDK takes responsibility for all aspects of security to see that the requirements for retrieving data is met and done in a lawful manner.

Project description
The project aims to take advantage of this new opportunity and develop a patient centric mobile application. If successful this will bring insights to many Swedish patients about their own health and well-being.

Deliverables
At minimum, the team should develop a base secure mobile application for retrieving, visualising and printing the patient's own data using the API provided by hip.

In addition to the core application the team should develop one or several add-on services and modules such as, but not limited to:
- Search for available clinical trials where the patient will be eligible for inclusion
- Scan for unsuitable drug-drug interactions
- Build a social network and link patients that have the same disease
- Export own retrieved data to a research database
- Build a specific module for a specific disease, such as lung cancer, with more detailed information

Technologies
The project group are free to choose the technology they feel would be best suited to solve the problem. However, the database standard to store clinical information should have its base in the CDM5 from the OHDESI collaboration, http://www.ohdsi.org/

Janssen
Janssen is the pharmaceutical company of Johnson & Johnson. In Sweden, a small global hub is located in KI Science Park, Solna, where part of this work can be performed.

Caring for the world, one person at a time'... inspires and unites the people of Johnson & Johnson. We embrace research and science - bringing innovative ideas, products and services to advance the health and well-being of people. Employees of the Johnson & Johnson Family of Companies work with partners in health care to touch the lives of over a billion people every day, throughout the world.

Contacts
Johan Liwing   David Myers
jliwing@its.jnj.com   dmyers22@its.jnj.com

Smart City MultiSensor 2.0

KRAM/WEISSHAAR

Background

At Kram/Weisshaar we work with leading international partners to design and develop cutting-edge technologies that reimagine how people experience and interact with their environment and one another.

MultiSensor is a new smart city product integrating a networked motion-sensitive camera with public lighting, and offers a wide range of potential applications for use across public spaces. MultiSensor version 1.0 is currently being trialled in Kurtasch, Italy.

MultiSensor's realtime situational awareness allows for improved energy efficiency and reduced light pollution - automatically dimming lights on and off only when required.

Vision

When installed across a city, MultiSensor's motion-sensitive cameras have the potential to be intelligently networked so as to detect and relay a wide range of information to citizens - such as the available parking spaces to drivers, and thus reduce the congestion and air pollution of a city's streets.

Currently the smart city sector is dominated by large players and proprietary systems. In contrast, MultiSensor is designed to offer a secure and open platform, protecting citizens and allowing for new business and service opportunities to be built on top of the system.

Smart City MultiSensor 2.0

KRAM/WEISSHAAR

Project Goals

The goal for this project is to design and prototype version 2 of the MultiSensor Unit software - preparing for a next prototype at one of Europe's largest airports - working together with our team of designers, engineers and international production partners.
Travel to exotic locations in the South of Europe to test and optimise on site. Design a better future for our cities.

- Computer Vision: Improve motion detection for airport conditions, to better differentiate between airplanes, people, cars, bugs, trees, weather, shadows, etc.
- User Interface: Design and develop browser-based User-Interface software working in collaboration with Kram/Weisshaar design team
- Networking: Design and Develop Upgraded Mesh Networking Approach
- Computer Security: Design and Develop Security approach
- Pre-Visualisation: simulate airport conditions in 3d software to improve vision systems
- Community Collaboration: Design API for opening up the platform
- Virtual Reality: Explore possibilities for pre-visualising the installation of the system on site at an airport using off-the-shelf VR systems (Oculus Rift)

Technologies

Prior working experience with computer vision or embedded systems is welcome but not necessary.
Core technologies / Skills:
- Java
- Javascript (for UI and node.js for server-side)
- Raspberry PI
- Python
Technologies to be explored, time and skills-permitting:
- Virtual Reality visualisation using Oculus Rift

We will make our best effort to score 12 out of 12 in the Joel Test:
http://www.joelonsoftware.com/articles/fog0000000043.html

About Kram/Weisshaar

Kram/Weisshaar is an international, interdisciplinary office whose work redefines cutting edge design in tandem with high-end technological development. Based in Stockholm, Munich and London and working with leading industries, universities and cultural institutions worldwide (Audi, Prada, M.I.T., Royal College of Art, MoMA, etc.), our projects span from product design to software development, from robotics to installation design, from process design to architecture. Our work focusses on the vanishing line between the digital and the physical, always remaining committed to "redesigning design" (Arch+ magazine).

As a software engineer at Kram/Weisshaar you develop cutting-edge technologies that reimagine how people experience and interact with their environment and one another. Our ambitions reach far beyond user interface. Our fields of operation include Mass Customised Fashion and Furniture, Self-Driving High Performance Vehicles, Sharing Economy, Advanced Robotics, Internet of Things, Big Data, Virtual Reality, Augmented Reality, and Synthetic Biology. As a key member of a small, diverse and versatile team, you design, prototype, test, and deploy software solutions. We're inspired by and integrate concepts from nearly every area of computer science, including vision systems, artificial intelligence, embedded systems, game development, and high performance graphics. As a software engineer, you work as a part of our small interdisciplinary team and can switch projects as our work expands and evolves. Our team is quick to tackle new problems as we continue to push design and technology forward.
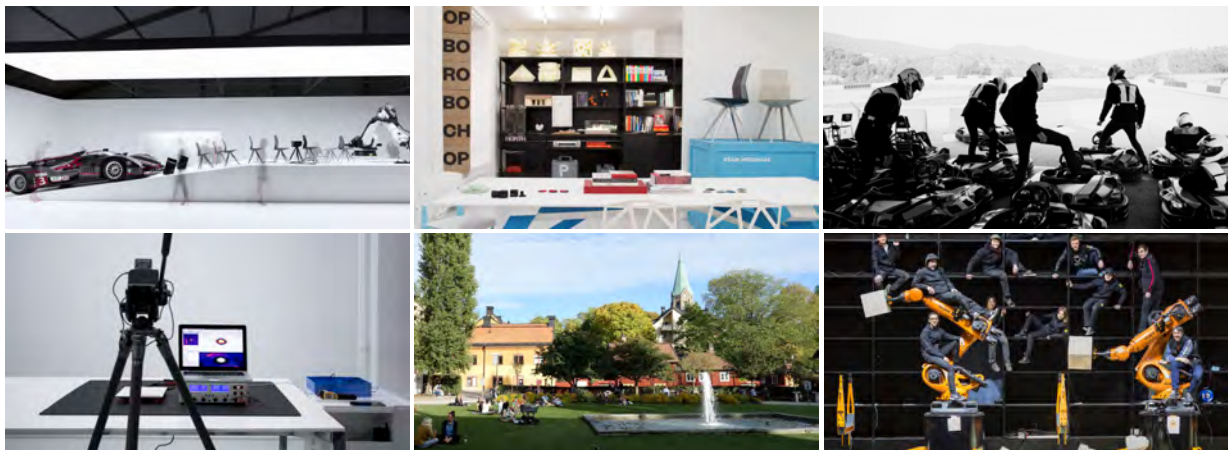
Our Stockholm office is a beautiful workspace based on Södermalm in a vibrant and picturesque neighbourhood. We use the best tools: laptops, workstations, tablets, displays and chairs. We are a highly skilled, diverse team and only work on cutting-edge, international projects of the highest quality.

Our work has been exhibited and experienced worldwide and can be found in the permanent collections of the Museum of Modern Art, New York, the Centre Pompidou, Paris and the Vitra Design Museum, Weil am Rhein.
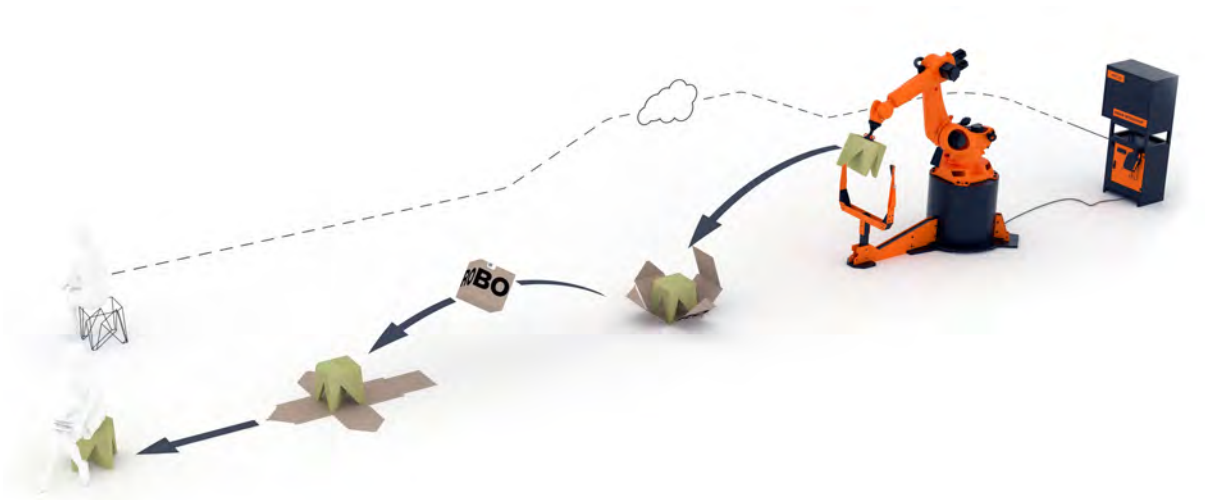
More information:
http://www.kramweisshaar.com/
https://talent.stackoverflow.com/company/kram-weisshaar

ROBOCHOP 2.0

KRAM/WEISSHAAR

Background

At Kram/Weisshaar we work with leading international partners to design and develop cutting-edge technologies that reimagine how people experience and interact with their environment and one another.

ROBOCHOP is an interactive factory that allows users to remotely command giant robotic arms to grab and sculpt products of their own design.

In its first version, ROBOCHOP served as the central exhibition of the 2015 CeBIT fair - the largest technology convention in Europe. During this event, internet users around the world as well as visitors on site were able to design and fabricate a piece of furniture in real time using a web application connected to the ROBOCHOP installation. ROBOCHOP produced 2,000 pieces during the week of operation. Once manufacturing was complete, each custom object was packaged and posted to the user anywhere in the world, entirely free of charge.

We are now developing the next version of this groundbreaking technology - preparing for the interactive manufacturing of an entirely new range of exciting products - with a new set of renowned international partners.

More projection information here: http://www.robochop.com
and try Robochop version 1 UI here: https://www.robochop.com/chop

Vision

ROBOCHOP envisions a not-so-distant future where intelligent systems empower anyone to directly engage with heavy industrial manufacturing technologies - capable of speed and precision far beyond that of contemporary 3d printing for example. It's a future in which the obstacles and intermediaries in the supply chain have been removed thanks to cloud manufacturing - and anyone can quickly design and produce the exact object they want.

ROBOCHOP 2.0

KRAM/WEISSHAAR

Project Goals

The goal for this project is to design and prototype version 2 of the ROBOCHOP User Interface software, working together with our team of designers, engineers and international production partners.

Essential:
- User Interface: Update and improve 3d User Interface software in collaboration with Kram/Weisshaar design team to allow for range of new customer products (see version 1 here: https://www.robochop.com/chop)

Additional:
- High Performance Graphics: Optimise Constructive Surface Geometry (CSG) Javascript library for performance
- Realtime Pre- Visualisation: Explore possibilities for improving realtime rendering of products before production within a user's browser
- Community Collaboration: Design a Javascript API. Our eventual goal for this project is to provide an API, to allow for an open source javascript programming library for 3d form creation syncronised with production.
- Machine Learning: Explore the possibility for allowing the system to learn from the designs input by users, to categorize design trends and provide for new design possibilities as a result of artificial intelligence in the system.
- Virtual Reality & Augmented Reality: Explore possibilities for pre-visualising the resulting product before production using off-the-shelf VR systems (Oculus Rift) as well as Augmented Reality (using mobile devices)

Technologies

Prior working experience with robotics is welcome but not necessary. Robotic engineers with years of experience will be part of the project team.

Core technologies / Skills:
- Javascript - for UI and node.js for server-side
- Objective C - for local control of tasks that are passed on to the robot production cell
Technologies to be explored, time and skills-permitting:
- Virtual Reality visualisation using Oculus Rift
- Augmented Reality using Mobile Devices

We will make our best effort to score 12 out of 12 in the Joel Test:
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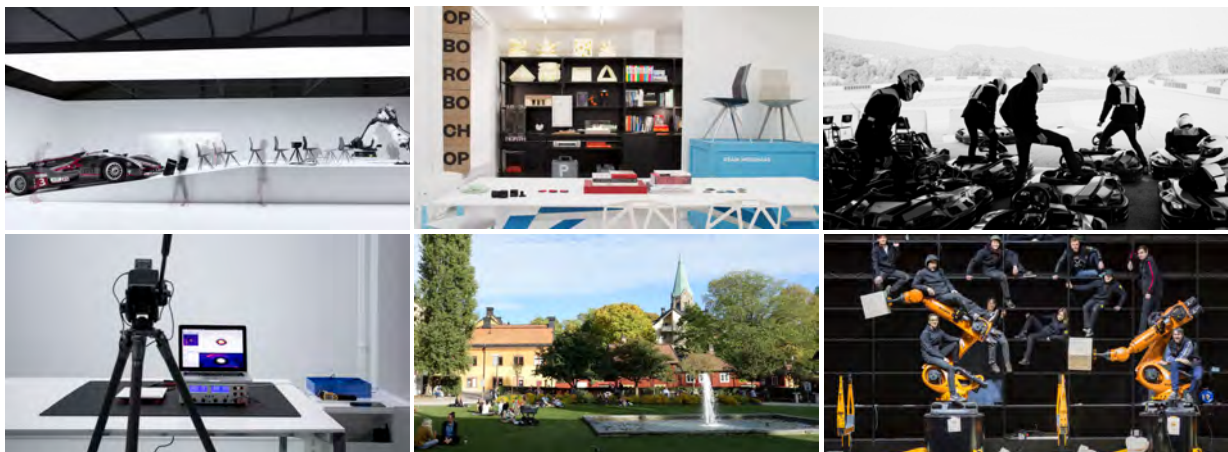
As a software engineer at Kram/Weisshaar you develop cutting-edge technologies that reimagine how people experience and interact with their environment and one another. Our ambitions reach far beyond user interface. Our fields of operation include Mass Customised Fashion and Furniture, Self-Driving High Performance Vehicles, Sharing Economy, Advanced Robotics, Internet of Things, Big Data, Virtual Reality, Augmented Reality, and Synthetic Biology. As a key member of a small, diverse and versatile team, you design, prototype, test, and deploy software solutions. We're inspired by and integrate concepts from nearly every area of computer science, including vision systems, artificial intelligence, embedded systems, game development, and high performance graphics. As a software engineer, you work as a part of our small interdisciplinary team and can switch projects as our work expands and evolves. Our team is quick to tackle new problems as we continue to push design and technology forward.

Our Stockholm office is a beautiful workspace based on Södermalm in a vibrant and picturesque neighbourhood. We use the best tools: laptops, workstations, tablets, displays and chairs. We are a highly skilled, diverse team and only work on cutting-edge, international projects of the highest quality.

Our work has been exhibited and experienced worldwide and can be found in the permanent collections of the Museum of Modern Art, New York, the Centre Pompidou, Paris and the Vitra Design Museum, Weil am Rhein.

More information:
http://www.kramweisshaar.com/
https://talent.stackoverflow.com/company/kram-weisshaar
http://www.robochop.com

Fashion quality virtual clothing experience

Minska returer och skapa en fantastisk kundupplevelse

Kommer kläderna du ska köpa passa? Både när du köper online och i butik är det ett problem för kunderna. Online finns idag ingen möjlighet att prova de kläder du är intresserad av vilket gör att det blir mycket returer. När du är i en butik så tycker många att det är besvärligt och tar tid att prova kläderna i provrummen. Det ger ingen extra positiv kundupplevelse och minskar försäljningen.

Uppsidan för att lösa fitting problemet är enormt stor både för kunderna och för H&M.

Scenario

Virtual fitting är en del av en hel virtuell fashion-upplevelse.

Där kunden kan scanna sin kropp, få den till en avatar med rätt mått, utseende och internt skelett. Kunden kan sedan välja digitala kläder (inte scannande utan 3D-modeller från mönsterritningarna) att sätta på sin avatar och få den och kläderna att röra sig med fashion quality. Det vill säga så bra kvalitet och utseende att kunderna kan både bli inspirerade och fatta rätt köpbeslut. Inga klippdockor.

Vi delar upp detta i följande delar:
* Body scan
* Avatar i dina mått och utseende med skelett
* Digitala kläder i 3D
* Kläder i rätt storlek påklädda Avataren
* Avatar med kläder i rörelse i fashion quality. Realtid, inte renderat.

Projektbeskrivning

Projektet kommer genomföras med H&M ITLABS som beställare, vi är en grupp som tar fram tekniska koncept för att hjälp verksamheten med innovation.

Beskrivning

Level 1: Ta fram en lösning, som går att konsumera i VR, för kläder som sitter med perfect fit på en avatar
Level 2: Kläder som rör sig naturligt på en avatar som ser ut och rör sig naturligt
Level 3: Skapa en lösning där användaren kan interagera med och känna kläderna
Bossfight: Kom med förslag, utmana oss!

Nyckelord
* Naturligt rörelsemönster
* Perfect fitting
* Fashion quality, blow our minds away
* Innovation – visa något ingen annan lyckats med
* Bättre med något litet med grym kvalitet, än tvärtom

Plattformar, teknik, språk är underordnat – vi vill skapa något fantastiskt.

Kontakt

Anders Hagström, anders.hagstrom@hm.com

LA
BS

High performance real-time bidding on a distributed system for VR games

About Advrty

Advrty is developing a revolutionary brand advertising platform for games and apps in Virtual & Augmented Realities.

At Advrty you get an opportunity to work in a fast-paced startup environment with an experienced team focused on the technologies and digital behaviors of tomorrow. We are located at Embassy, a new VR-focused business hub in the very heart of Stockholm city.

Project definition

The future is already here. Virtual, augmented and mixed reality will soon be common parts of our digital experiences and with this comes new possibilities for advertising. We are currently in the starting phases of developing our high performance ad server for VR games and apps and we want you to be part of this amazing establishment.

The project aims to connect virtual experiences with AI-driven advertising, presenting unique challenges in performance, precision, reliability, concurrency, databases, machine learning, logging, reporting and storage. Ad campaigns with multidimensional data will compete in real time; a winner is selected, logged and then sent to be loaded, displayed and recorded by the target game or app. A large number of transactions will be expected with several concurrent requests and impressions and serving users in different countries will require geo-distributed services.

If you want to work with the latest technologies, from VR to analytics and highly scalable distributed systems this project is for you!

Challenges

One of the challenges is handling the large number of requests sent to the ad server, each of which will affect state. It is however not efficient to rely on a regular transactional database for the state sharing across servers/processes. Instead a persistent server needs to be developed that can have its own state in fast storage and periodically synchronized to other servers/processes and persistent storage. The ad server could be built on a cloud based microservices architecture (e.g. Docker, Azure Service Fabric, Akka etc) with an actor model to become highly scalable and distributed.

The algorithm to match ad campaigns with ad requests sent by the applications needs to be developed. The game or app will provide rich metadata about the scene, application and user for every request sent to the server. Machine learning algorithms (Azure ML, R etc) and fuzzy logic could be used to calculate optimal matching between campaigns and requests and big data analytics could be used to further improve the relevance based on historical data and settings. Furthermore, some

data needs to be stored for each request for later processing. One future example of this is to be able to graph the performance for a particular ad campaign or application.

On the client side a scheme needs to be developed for preloading ads in a cache and notifying the server when they are interacted with.

All technical choices will be up to you, but we will be available for frequent mentoring, discussions and more detailed requirements.

Deliverables

This project calls for the development of at least two parts, a real-time bidding ad server and a 3D client made in Unity. Also performance testing of the server with an external framework would be recommended. Preferably the server is designed to be parallelized and demonstrated by running as multiple instances.

Prerequisites

Prerequisites for the group team:

- Interest in high performance systems and development
- Knowledge of cloud based microservices architecture
- 3D graphics knowledge
- Good programming skills and ability to learn new languages
- Good understanding of internet protocols and networking
- Interest in AI and fuzzy logic

Applicable technologies

- Some of the following: C#, C++, Java, JavaScript, SQL, Python
- Storage technologies (SQL, noSQL, time series db etc)
- Cloud based microservices architecture (Docker, Azure Service Fabric or Akka etc)
- Unity3D
- Load testing frameworks
- Machine learning algorithms (Azure ML, R)

Contact

Niklas Bakos, nb@advrty.com, 0703 66 96 46

Advrty AB
Tegelbacken 4A
SE-101 23 Stockholm
Sweden

Bundling – iOS & Android app

Projektförslag MVK 2016

Inledning och bakgrund

Ett barn växer och utvecklas snabbt vilket gör att kläder, leksaker och böcker snabbt blir för små eller tråkiga. Samtidigt är minskad masskonsumtion ett av FN:s globala hållbarhetsmål i Agenda 2030. Det finns inga alternativ till att äga alla barnens produkter och i takt med ökad digitalisering och delningsekonomins genomslag har vi sett en stor marknadslucka att fylla. Därför lanserade vi Bundling – Sveriges första delningstjänst för ekologiska barnprodukter – under sommaren 2016.

Bundling hyr ut leksaker, böcker och pussel istället för att sälja dem. Leveranserna sker i våra lådor och i samband med utleverans hämtas de gamla sakerna upp. De rengörs och hyrs därefter ut till nästa kund. Bundlings unika affärsmodell har fått stor uppmärksamhet och genomslag i media under hösten. Samtidigt säger flera kunder att de bokstavligen älskar vår tjänst.

Men vi har bara börjat och vill gärna ha med ett gäng av er KTH-studenter under vårens resa! Teamet bakom Bundling har erfarenhet från bland annat Airbnb, Square, Shopify och Microsoft och nu vill vi ta nästa steg för förbättrad användarupplevelse. Vill ni vara med oss och utveckla appen för det här unika konceptet som förändrar hur barnfamiljer konsumerar?
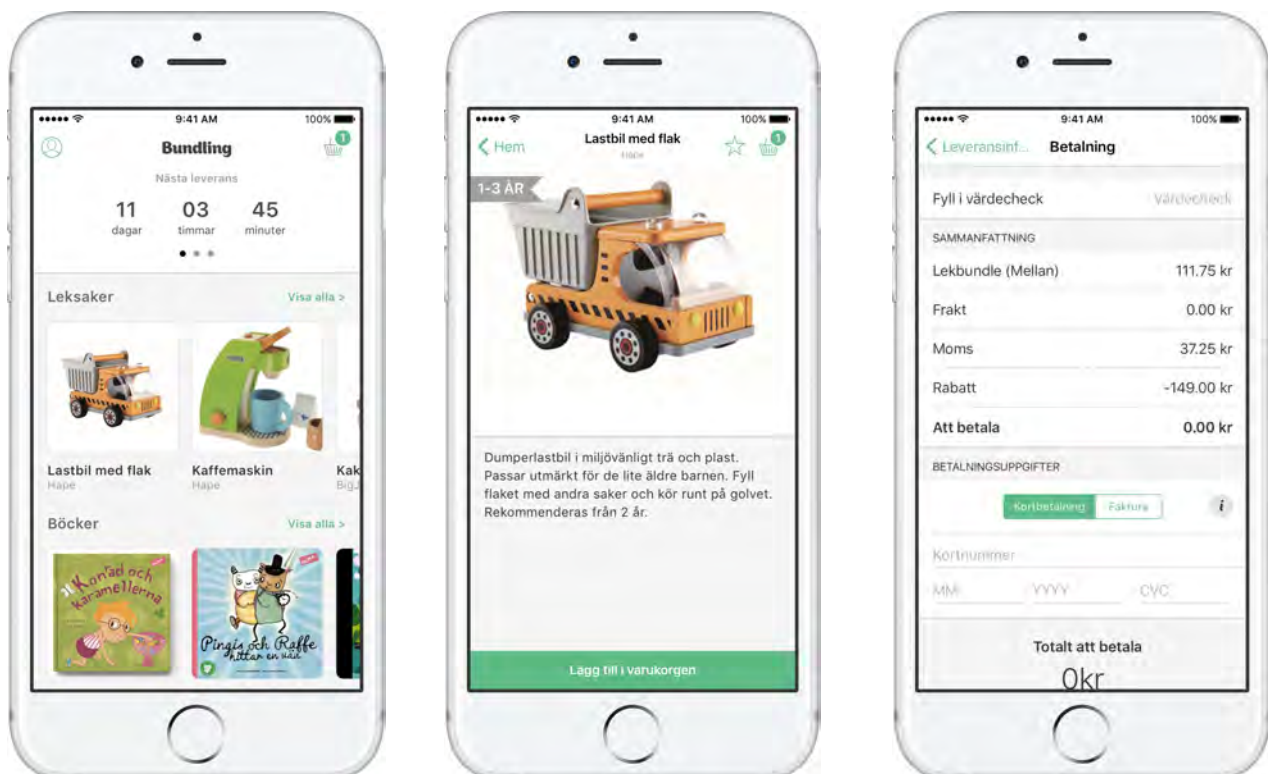
Projektförslag

Projektet innebär att från grunden utveckla Bundlings mobilapplikation. I appen ska nya kunder kunna läsa om oss och starta prenumerationer medan befintliga kunder ska kunna administrera sin prenumeration. Vi har tagit fram en prototyp, men projektgruppen har fria händer att komma med egna förslag och idéer. Till grund ligger Bundlings hemsida där all funktionalitet finns idag.

Projektgruppen kommer ha tillgång till handledning från teamet och vår CTO kommer ge er tillgång till information som behövs och hjälpa till med att göra era idéer till verklighet. Eftersom vi jobbar enligt Lean Startup kommer ni även ha möjlighet att verifiera och testa prototyper direkt mot utvalda kunder.

Mål

Det övergripande målet är att leverera en app som efter genomgång ska kunna **publiceras i antingen Google Play Store eller Apple Store**. Appen ska på samma sätt som hemsidan bidra till våra kunders **wow-upplevelse** och få dem att stanna kvar en lång tid framöver.

- Projektets specifika mål är att konvertera Bundlings hemsida till en app med samma struktur och funktionalitet.

Vid ytterligare intresse eller tid finns även möjlighet att utveckla:

- Pushnotifikationer inför byte, orderbekräftelser osv.

- Integration mot Facebook Messenger för kundsupport

- Datavisualisering av kundens prenumerationsdata på "Min Bundling"-sidan. Stora möjligheter för kreativa idéer!

Ett väl genomfört projekt kan leda till anställning och eventuellt delägarskap.

Utmaningar

- Detta projekt är omfattande. Därför krävs tydliga avgränsningar och uppdelningar i projektgruppen för effektiv projektledning.

- Förstå Bundlingkundens verkliga behov och sätta prioriteringarna utefter detta.

- Utformning av "Min Bundling"-sidan. Vi ser en stor potential att visualisera data på ett roligt och innovativt sätt. Därmed byggs även en användarresa som behåller kunderna en längre tid.

Tveka inte att höra av er vid frågor eller funderingar, ser fram emot att höra från er!

Kontaktperson

Christian Fickler
VD och grundare, Bundling AB
christian@bundling.se | +46 (0)70-000 90 30

Corite - music match making

We love music. In fact, most people do. In theory anyone can create a hit song. Just get a computer, add a beat and share it online. If you've already topped the charts, you can just do it again. So what's stopping you? Millions of producers, artists and writers create music every day all over the world, struggling to make it. The industry is still very closed and can only handle a selected few. It's a struggle to find the right cooperations that helps you develop if you don't have the right connections.

What Corite is

Corite is a matchmaking tool and social network for producers, writers, artists and other people interested in the creative process involved in making music. The service could be thought of as a combination of a modern mobile matchmaking services such as Tinder and an efficient communication tool, like Slack. The matchmaking function is video/audio based focusing on quickly getting started with the creative part of music making. All tools will be adapted to serve the specific needs of music creators, from communication features to music storage and sharing.
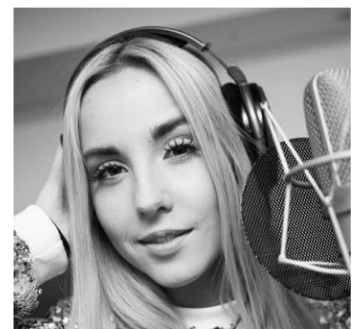
How it works

You share something about yourself. Something we can match against. You then browse, listen and watch the world of talented producers, artist and connect with the ones you like. If you're a writer looking for suggestions on your lyrics or if you're a producer looking for a voice, Corite will help you find them. There are people across the globe ready to help out, ranging from enthusiasts to the top of the crop professionals.

Start creating immediately online, or schedule sessions at your favorite studio location (ranging from enthusiasts with basic gear but tons of talent to fully featured studios). Get inspired by Corite songwriter's camps, competitions and challenges. Overtime you will build your global creative network and boost your own development.

With Corite you will simply make more great music!
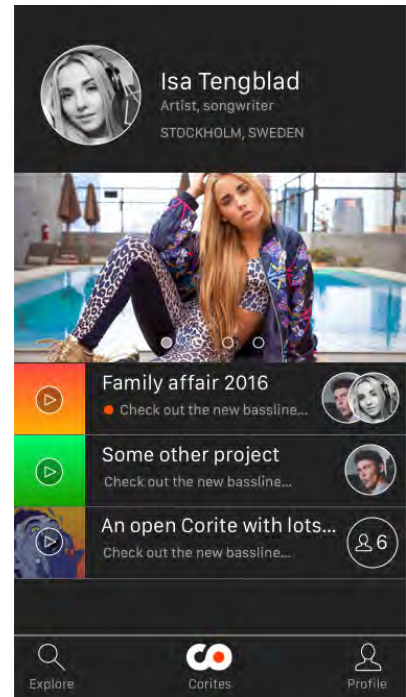
Tech driven industry - Sweden is leading

The Music industry is a very tech driven business these days. Scandinavia, and Sweden in particular, is a leading territory both when it comes to tech solutions such as Sweden's most famous unicorn Spotify or SoundCloud, but also from the creative perspective. Scandinavia is today, after US and UK, the third biggest music market. It's also by far the most technology developed, with a digital share of revenue of over 90%. The region also exports both music (producers and writers) and artists to the global market with increasing success. Therefore Sweden is the ideal launching ground for a social music platform like Corite.

The team

The Corite founders team consists of experienced professionals from the music and media industry previously behind several music product initiatives, such as the distribution platform www.spinnup.com, the playlist service www.digster.se. We've also driven transformation for MTG, including online video platform Viaplay, scaling YouTube network company Splay as well as turning MTG into the world's biggest content producer in e-Sports. Our CTO has long experience of cloud computing, peer to peer networks and streaming technologies.

What help we need

We are aiming to launch a first version of the service during Q1 2017 and need help in the development project from conceptualization to final product. As a student you will be part of the development team and work closely together with our Creative director and our Technical product manager to take the concept to from idea to market.

Main technical project challenges

The core tech of the service revolves around storing and sharing of video and audio. It will allow you to upload and sync files and to add ideas using audio and video recording. This puts high demand on seamless integration with current workflows, while being simple and intuitive.

Users (songwriters, producers, artists) will need to be able to keep track of versions, as the song will fork out in different creative directions in parallel.

The storing and sharing of files is a core feature and will potentially be integrated with de facto standards such as Soundcloud, Google Drive, Dropbox and possible other services.

For communication, the service will allow internal direct messaging and feedback tied to the media files. Ideally, the service will allow for broadcasting video from within the app (to allow people to join tutorials or get a behind the scenes view). Solur has developed a live video recording service together with Ericsson that may be used as a component.
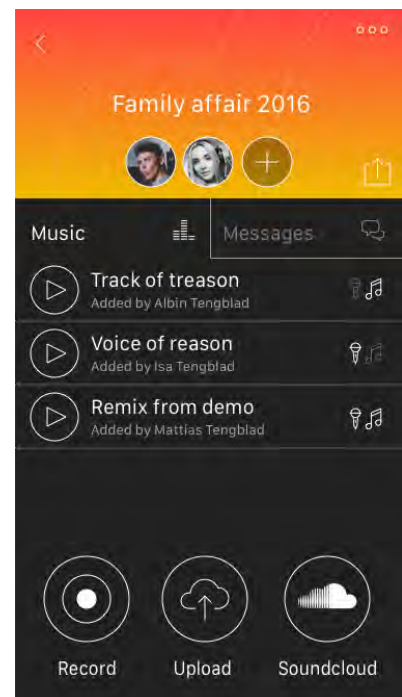
Payments

Corite will be integrated with a payment solution. Likely not part of the initial scope, evaluation and preparation for integrated a service such as Stripe Payments will be needed.

Other possible integrations

The music industry are full of exciting API's that can be used for a number of hacks. It ranges from Songkick for live event information to Gracenote for lyrics and Spotify API for audio

matching in the same vein as Shazam. This means that being creative as a developer in the music industry has never been more fun.

Contacts

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0762264989
Emil Angervall
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0708128070

The Corite founders team

MATTIAS TENGBLAD

Has over 15 years of unique management, business development and marketing experience from telecom and gaming (Svenska Spel) to music (Universal Music) and media (MTG). Industries that all have been through radical transformations into digital

NIKKI AMINI

Has long international experience from the music industry. As responsible for International promotion at Universal music London Nikki established a global network of label executives-managements, and artist like Justin Bieber. Currently jury member in TV4 - Idol 2016

EMIL ANGERVALL

Has 20 years experience as a designer and Creative Director focusing on brand building, marketing and online startups at MTG, Universal Music, tv production and digital agencies, co founding two of his own.

STEFAN HELLKVIST

Senior Researcher at Ericsson Research with 15 years of experience in fields such as Content Delivery Networks, Peer-to-peer networks, Cloud computing and streaming technologies.

Realistic Street Rendering in a Virtual Reality Walkthrough for Therapy and Urban Design

Figure 1: Prototype of a real-time 3D urban walkthrough rendered using the Unity 3D game engine (left). It allows a user to experience it through a virtual reality headset such as the HTC VIVE or Oculus Rift (right).

Description

Creating realistic virtual environments and their inhabitants is vital in modern computer games and films for automatically generating compelling environments without the need for large numbers of artists. Computer game series such as *Grand Theft Auto* and *Assassin's Creed* demonstrate some of the possibilities and progressions of these technologies, which also have potential for application to serious domains such as urban design and therapy.

This project will involve the use of core game technologies (procedural generation, computer graphics and animation, audio, game engines) to extend the capabilities of an existing prototype [1], with a special focus on improving the graphical realism of the simulation (see Figure 1). The motivation for these improvements relates to the interrelationship between graphical realism and immersiveness in VR: more realistic environments will enhance immersion and thus the consequent ability of the simulation to trigger experiences in as similar a manner as possible to the real world. This is an important requirement, since the simulator will be used in experiments relating to stress and well-being at KTH Royal Institute of Technology and Karolinska Institute.

Starting point

A substantial asset library is available as a starting point for the project, including a number of proprietary software components and models. These include the prototype street simulator (see Figures 1 and 2) and a crowd rendering, animation and collision avoidance system. All of the aforementioned have been developed in or are compatible with Unity 3D.

Objectives and deliverables

Suggestions for features extending the realism of the prototype include:

- Rendering of detailed buildings and virtual characters
- Rendering of roads and paths with varying dirt and litter levels
- Rendering of vegetation and other greenery
- Vehicles and traffic
- Enhanced rendering and lighting supported in Unity e.g. SSAO
- Graphical user interface plugin-in for scene set-up

The exact implementation features will be scoped according to group expertise and interests. The main deliverable is an enhanced street simulator in the form of a Unity project.

Figure 2: Image from existing prototype [1] demonstrating (left) a clean environment and (right) a similar environment with taller buildings and added graffiti and trees.

Useful knowledge

An interest in graphics programming and scripting (rendering, animation, AI), 3D graphics modelling and texturing (Blender/3DS MAX/Maya, etc), and/or game engines such as Unity 3D (http://www.unity3d.com) would be advantageous. Note that Unity 3D has been specifically chosen for this project due to its combination of power and ease of use for beginners.

Contact information

Christopher Peters, Computational Science and Technology (CST), KTH Royal Institute of Technology, chpeters@kth.se (*primary contact*). See: http://www.csc.kth.se/~chpeters/projects.html

References

[1] Oscar Friberg, "Investigating urban perception using procedural street generation and virtual reality", Master thesis, KTH, 2016

BACKGROUND

With the ambition to make the world more creative, Whitelines provide students and professionals all over the world with a new kind of writing paper. The concept is simple, dark lines distract, Whitelines don't. It is a fusion between the analogue and digital with our app Whitelines Link automatically scanning the paper, making the white lines disappear and improving your notes.

As a student participating in our project, you will be part of a fun, challenging and global journey.

OPPORTUNITY

Whitelines was founded in 2006 and is a company with entrepreneurial spirit. This fall, we are launching into the U.S. market and we are meeting an increased demand worldwide for improved and updated technology of our app Whitelines Link. We therefor invite you to a co-creating project.

As part of our team you will gain experience in a fast changing industry full of opportunities. This project is a valuable experience for future challenges and can possibly lead to employment after graduation.

PROJECT DESCRIPTION- CO CREATION WHITELINES LINK

Whitelines Link is an extraordinary scanning app that automatically scans and improves handwritten notes. The app is available for both iOS and Android and have users all over the world. Now, when the app is up and running there are many opportunities for improving it and adding new applications. Some ideas we had in mind is to make it suitable for teachers helping kids with their writing, engineers and developers improving concepts, garden planning and interior design. New features such as allowing co-creation of notes and drawings among users and interaction with each other are other thoughts.

Maybe you have another idea? Let us know!

DELIVERABLES IN ORDER OF PRIORITY

1. Functional prototype for iterative sketching (focus on image transformation/editing)

2. Database and tagging

3. App integration

4. UIX-improvements

TECHNOLOGIES & TEAM

As long as the goals are achieved, you are free to choose the technology yourself. Further information regarding the cooperation with our app developers will be presented at the oral presentation

Have you tried our app yourself? Otherwise, download and print free Whitelines paper at http://whitelines.se/link/print-papers/ and see for yourself how it all works.

WHITELINES-LINK®

Making your ideas digital

www.whitelines.se/link

INFORMATION & CONTACT

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Carl-Philippe Carr
Co-Founder & CEO
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WHITELINES

Playitfair - Management game

Company

Playitfair AB is a startup company with a projected steep growth curve in terms of market and employments during the coming years, in Sweden as well a globally. The company is a member of the first national game-incubator 2016 at STING as well as winner of the Bicky Entrepreneur Program 2016/2017 organized by KTH Innovation.

The business idea is to develop and provide online computer/smartphones-games, AR and VR - but not to the consumer-market for entertainment-games, but to corporates/organizations as a tool to develop its competencies. More specifically, it's positioned as an enabler of talent in organizations.

The founder is an experienced executive in the ICT-industry and also a researcher on organizations, specializing on talent management at the moment, so the content of the games are based on science on management.

Sweden has made a footprint on the global market of amusement games. The products from Playitfair AB is expected to repeat the success on a new market and new users – organization.

Playitfair intends to employ/engage the best software talents for the comping expansion and a collaboration with positive result can lead to a long-term relation and employment/assignments.

The project

The project is an assignment to design, develop and test a SW-development project with Playitfair as the orderer and in close collaboration with one of our clients (or a small group of clients with the same need).

The purpose of the project is to develop a pilot of a game that serves like an assessment tools in recruitment and selection of talents. The game introduces typical management challenges to candidates/talents, and their task is to

demonstrate their talent on problem-solving. Challenges can be in a variety of management fields, for example change management, business acumen, business strategy, diversity, etc.

The rules in the game are to be based on science on management, but can been kept simple. The critical factor of this project is to find a game/AR/VR-design/idea that attracts this target group of business/managers. The tone of the game shall be to use humor as an enabler for engagement – in a proper way.

The solution shall emphasize the narratives, the catch of a good story as incentive for the player, rather than competition/measurement. It shall be more explorative than normative (rather encourage the user to investigate different approaches, a learning-style, rather than right/wrong feedback).

Goals/Deliverables/Results

The expected result is a pilot on game/AR/VR-solution that can give Playitfair's clients an appetizer on the potential of using games in organizations.

Appropriate knowledge

How to create engagement in learning by using game/AR/VR-solutions.

How create the catch in this kind of solutions – game design (artistic skills).

Appropriate technologies

Decided by the SW-project: online games, AR, VR.

Contact details

Britta Nordin Forsberg, Founder of Playitfair AB

Britta.forsberg@playitfair.se

Mobile: +46-702-123314

We want to make online shopping effortless again.

Klic.

Name: Dajana Vlajic
E-mail: dajana@kth.se
Phone: +46 735 933 283

WHO

klic. is a fintech startup within, hell-bent on changing the way your purchase your ticket, cat and clothes. Anything you can find on the web, that is. Supported by KTH Innovation, klic . is developing a service to simplify the way you shop by removing all obstacles from your purchase decision to the payment. Shop it as you drop it... in your cart.

WHY

The online shopping process of today is relatively inefficient despite the fast and improving technological development, in terms of interfaces, payment processes, regulations and so on. Due to complex purchase processes and slow decision making, consumers abandon their shopping carts in 60 - 80 % of their purchases. We want to remove the obstacles in order to spend less time on technological issues, and go right from decision making to move.

WHAT & HOW

> Build a beta version or prototype of a software module that enables fast and efficient shopping.

> Design a user interface that replaces physical and psychological obstacles.

> Create a safe and robust information and content flow.
> > How could banking credentials be kept safe?
> > How should the database handle such information?

> Test against and a mock-up webshop and users.

> Advice and knowledge from KTH Innovation can be provided, for guidance of the technological development.

And the rest(API) is up to you.

Name: Dajana Vlajic
E-mail: dajana@kth.se
Phone: +46 735 933 283

01 Company Overview

Stagecast is a live interaction platform for concerts.

———

Within the past decade, the concert crowd turned into a sea of smartphones. We all love taking photos of our favorite shows. Not only are artists missing to reaping the benefits from this phenomenon, some even try to ban phones from venues entirely. Stagecast turns every phone in the audience into an interactive element of the light and sound show and thereby makes concerts more engaging and more profitable.

Stagecast is a live interaction platform for concerts. The Stegacast smarthone appliction functions as an interface for the audience to interact with the artists before, during and after the show, through what we call Stagecast Moments. Moments bring the concert experience to a new level: Rather than simply watching a show, the audience actively participates in the live event.

Moments are created utilizing a collaborative network of phones in the audience and are dividable into Stage Moments, Cast Moments and Message Moments. Stage Moments are incidents where the audience becomes part of the live show and can entail everything from synced colored displays to an extension of the artist's repertoire of instruments. During Cast Moments a unique, branded filter is added to whatever is seen through the built in camera while taking a picture. Finally, Message Moments are messages that simply pop up on the interface for the audience to view directly. Message moments can be pictures, messages or advertisements.

Stagecast is the beginning of the change the music industry is craving for. While relevant big market players (music labels and licensors) cry out against streaming services such as Spotify, new artists like KYGO show where the music industry is heading: Money is no longer to be made with an artist's content, but with their media attention as well as ability to fill concert venues. Stagecast caters to exactly this development. It helps artists financially leverage live shows in an experience enhancing, fruitful manner. Stagecast is a platform built on augmented reality and, like Snapchat, part of the "experience" rather than the "information" technology era.

Currently incubated at KTH Innovation, we are a team of nine dedicated people with diverse backgrounds. Stagecast is celebrating its first anniversary in December 2016 and was founded within the holy halls of the Royal Institute of Technology. We have a strong collaboration with Telia as well as Ericsson as we have been under the selected few for their SYB2017 accelerator program. We receive mentorship from Live Nation, Stockholm Vibe, Amplify Stockholm etc. and are in regular exchange with different artists from Sweden, such as Urban Cone, Cleo, Niki & The Dove or Kate Boy.

We are currently developing the beta version of our product and plan to launch in February 2017. Besides offering an exciting project for the course MVK, we also invite all members into our internal network of developers, where we announce free concerts, mingelings and hackathons. Further, we are on the hunt for a skilled Android developer to join our team long term.

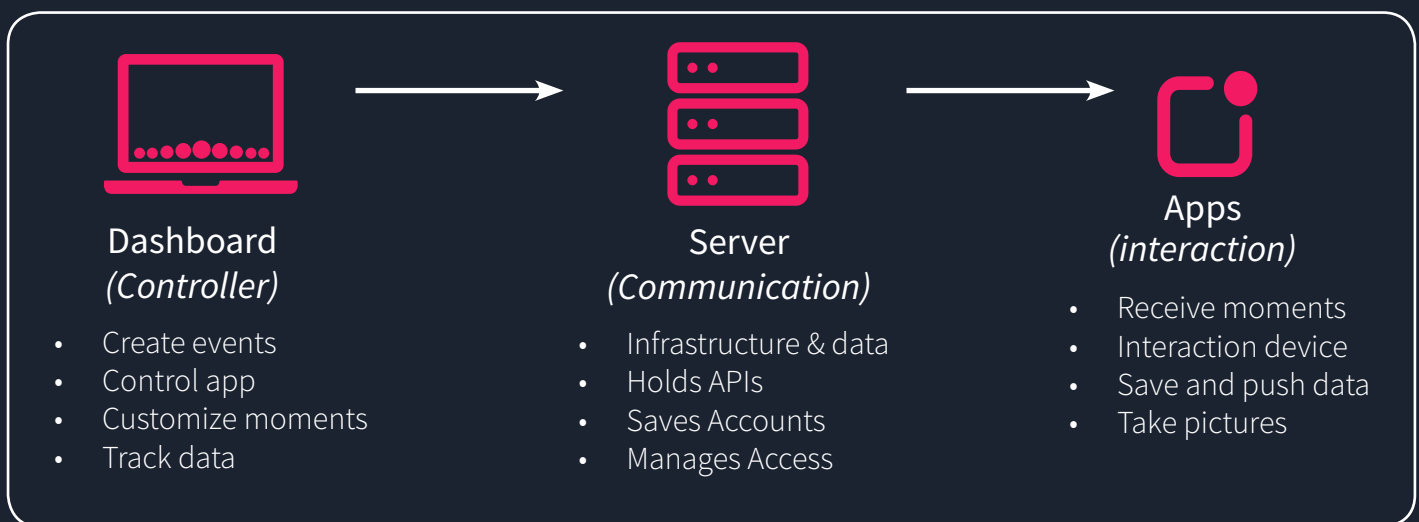**Write us a message or come by our office at KTH Innovation!**

hello@Stagecast.se
0046 70 292 5563

Jonas, Hedvig & Markus

02 The Project Proposal - Momentmania

We want you to create moments! Lots of them!

The picture attached gives you a rough overview of how Stageacast works: We are building a platform where artists can choose moments for their shows, adjust those moments and launch them live during the show - We call it the Moment Store and the Dashboard. Information is pushed though or Server to the applications on the phones in the audience. But what is this platform worth without a variety of Moments that fit every conceivable artistic mood of the light show specialists and artists? Right, not much! That's why we want your creative and technical skills in creating more moments.

Dashboard (Controller)

- Create events
- Control app
- Customize moments
- Track data

Server (Communication)

- Infrastructure & data
- Holds APIs
- Saves Accounts
- Manages Access

Apps (interaction)

- Receive moments
- Interaction device
- Save and push data
- Take pictures

We will be working closely with you. The project will consist of three phases. In each phase you will have a different supervisor (from us internally, Ericsson or Telia) that we will consult in the beginning of each phase. You can communicate through Slack with us but we are always available at KTH Innovation on campus.

1) Ideation & Conception (2-4 Weeks)

Go crazy! Go wild! Come up with lots of ideas and forget about most of them. A moment can be anything from simple colors on each screen to an digital orchestra hooked up with the PA system. No worries, we know this is not a creativity challenge - we have a whole catalogue of moments that we have not programmed yet and that you can also choose from. The founder team will guide you through the process.

2) Technical Feasibility (1-2 Week)

Take your ideas and investigate what is feasible with resources and time. We want you to choose at least 6 moments that you deliver at the end. You will talk to our senior developer which of your ideas are feasible with the environment we have created and which moments would work for us.

3) Production (Rest)

The fun part! Let's start hacking. Take your ideas and make them reality. You will have technical guidance from our Web & App team leaders and our graphical designer can help you produce amazing graphic interfaces, if needed!

Our platform is currently built on Angular 2 (Dashboard) and iOS Native (App). Expertise in App development is preferred. Moments can also be produces as Web Apps. Expected Deliverable: Six functioning moments that we can add to our Moment Store.