AGI15 Calendar: [link](#)
Case: Uniview

How it works?
• Real-time rendering
• Depth sorting
• Scalegraph
• Texture map

Improvements
• Earth scale objects
• Dynamics
• VR + gestures
• Hololens AR
Agenda

1. Introduce VIC / Uniview
2. Show past AGI
3. Introduce AGI15
4. At 17:00 introduce myself
5. Next time...
Advanced Graphics and Interaction
The Students
Students in Advanced Graphics and Interaction 2012 (AGI12) in ForskarFredag
It’s all about the students

Students in Advanced Graphics and Interaction 2013 (AGI13) in the Visualization Studio VIC
It’s all about the students

Students in Advanced Graphics and Interaction 2014 (AGI14) in the Visualization Studio VIC

2015/08/31 AGI15 - L1
The Team
2015
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VIC director
Coordinate
Projects
Events
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Mario Romero
AGI15 Coach
Guidance
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Support
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2015/08/31
AGI15 - L1
Contact Mario

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The Studio
Resources: Visualization Studio

• Research
  • Visualization Supported Collaborative Work
  • Foundational Technology
  • User Evaluations
• Showcase and classroom environment
• Outreach
• High-resolution projection wall with stereoscopy
• Oculus Rift
• Cinema quality 7.1 audio
• High-definition video communications with eye contact
• Holographic display
• Multi-touch interactive surfaces
• Eye tracking
• GPU-based computing cluster
• Game controllers
• Tablets
• Cameras
• Haptic Devices
• 3D printer
• AR HUDs
Visualization Pipeline
expanded from Readings in Information Visualization: Using Vision to Think
By Stuart K. Card, Jock D. Mackinlay, Ben Shneiderman, 1999
The Learning
Students teaching themselves and each other.
Students teaching themselves and each other.
Students teaching themselves and each other.
Students teaching themselves and each other.
Students presenting to the open public.
Students presenting to the open public.
Students presenting to the open public.
Students presenting to the open public.
Students presenting to the open public.
The Seed
Assignment 1 (60 – 100 minutes)  
Tuesday September 1 at 13:00

1. Answer this Survey
2. Watch these videos and answer this survey:  
   1. 2012 SIGGRAPH Technical Papers  
   2. 2012 SIGGRAPH Emerging Technologies  
   3. 2013 SIGGRAPH Technical Papers  
   4. 2013 SIGGRAPH Emerging Technologies  
   5. 2014 SIGGRAPH Technical Papers  
   6. 2014 SIGGRAPH Emerging Technologies  
   7. 2015 SIGGRAPH Technical Papers  
   8. 2015 SIGGRAPH Emerging Technologies  
3. Familiarize yourself:  
   1. KTH Social  
   2. Facebook  
4. Think of what you would like to build in AGI15
The Challenge
Advanced(Graphic + Interaction) = Project
FORSKARFREDAG
En del av europeiska Researchers’ Night
COLLIDING WORLDS
FRIENDS ARENA 30 OKT - 1 NOV 2015
EXPERIENCE ADVANCED GRAPHICS & INTERACTION

Open House

Friday Dec 5
15:00-19:00

VICSTHLM
Select Portfolio
Virtual Sculpting

- Volume Rendering
- Computer vision interaction
Dust Storm

- Particle Systems
- Accelerometer-based gesture control
Base Jumper

- Octree rendering
- Computer vision body control
Dispersion
AGI14: tomorrow
De utvecklar spel för säkrare vägar

Den 1 december börjar nya regler gälla för mobilanvändning vid ratten. Och i samband med det utvecklar studenter vid KTH och Berghs i Stockholm ett spel som ska avskräcka förare från att köra bil och sms:a samtidigt.

Skräck med speltremor

Stina Ekholm visar och Cedric Mrin, Yann Chazallon, Remi Blateron och Henrik Boström tilltar på.

Foto: Urban Brädie

SPELET

Spellet går enligt studenterna ut på att uppmärksamma på farorna man utsätter sig själv och andra för när man användar telefonen bakom ratten.

MEST LÄST

1. Trykta falska tusselenhappar i mangelrum
2. Härda hot mot Jimmie Åkesson i ny låt
3. 27 djur dog under Hobbitinspektion

SENASTE NYTT

10:43 Malmö prisas för bok om Blake
10:42 Flygplan i dicket på Arlanda
10:42 Nya stjärnor söker schlagerrevansch
10:41 Vietnam inför hårdare Facebookregler
10:38 Saknad man var misstänkt för dubbelmord

SÖK

Sök på metro.se
Welcome to AGI15

• Intended Learning Outcomes:
  1. Collaborate to build original and stable projects that combine methods in advanced computer graphics and advanced human-computer interaction;
  2. Communicate the theory and practice of these methods at a technical and a practical level;
  3. Provide informed constructive criticism to the development of the projects from other teams;
  4. Demonstrate the projects at large public venues to open audiences.
AGI14 Grade Assignment

• Project 1 50%
• Project 2 40%
• Assignments 10%
  – < 100 minutes/week
  – Reading
  – Writing
  – Coding
  – Interacting
## Project 1 (50%)

<table>
<thead>
<tr>
<th>Event</th>
<th>Weight</th>
<th>Due Date</th>
</tr>
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<tbody>
<tr>
<td>Proposal</td>
<td>5%</td>
<td>7/9</td>
</tr>
<tr>
<td>Demo</td>
<td>5%</td>
<td>14/9</td>
</tr>
<tr>
<td>Forskar Fredag</td>
<td>10%</td>
<td>25/9</td>
</tr>
<tr>
<td>Deliverable 1</td>
<td>5%</td>
<td>23/10</td>
</tr>
<tr>
<td>Comic Con</td>
<td>10%</td>
<td>30/10</td>
</tr>
<tr>
<td>Open House KTH</td>
<td>10%</td>
<td>4/12</td>
</tr>
<tr>
<td>Deliverable 2</td>
<td>5%</td>
<td>11/12</td>
</tr>
</tbody>
</table>
Project 2

- Proposal: 5% 10/11
- Demo: 10% 1/12
- Open House KTH: 15% 4/12
- Deliverable: 10% 11/12
Deliverables

• Working VIC Demo
• Code with good comments
• Webpage
  – Description
  – Photos
  – "Making of" documentary (2 minutes)
  – Demo Reel (30 seconds)
  – PR Material: logo, trailer, flyers, posters, catalog...
  – User Testimonials
Assignment 1 (60 – 100 minutes)
Tuesday September 1 at 13:00

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3. Familiarize yourself:
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4. Think of what you would like to build in AGI15
Next Class

- Tomorrow, Tuesday Sept 1
  - 13:00 – 17:00
- AGI14 projects
- Form groups
- Brainstorm
- Discuss
- Propose drafts
Further Reading

KTHB Primo

Search for "Fundamentals of Computer Graphics"

Active refinements: Book / E-book, Online

2 Results

1. **Fundamentals of computer graphics**
   - Peter Shirley Michael Ashikhmin, Stephen Robert Marschner
   - 2009
   - Online

   - Bailey, Michael ; Cunningham, Steve
   - 2011 2nd ed.
   - Online

Sorted by: Relevance
Thank you!

Questions

marior@kth.se
Advanced Graphics and Interaction

High-Quality Ambient Occlusion
Volumetric Light Scattering
Shadow Maps
Multi-Texturing Techniques
Cloth simulation
Soft Bodies
Fluids
Smoke
Rigged body animation
Rigid Body simulation
Multiple specular reflections and refractions
Shading techniques
N-body simulation
Generating Complex Procedural Terrains
Animated Crowd Rendering
Collision detection
Hair
Snow

Clouds
Geometric texturing
Voxels - texturing - modeling - animation
Octree rendering
Volumetric shadows
GPU Ray Tracing of large scenes with shadows, reflections and ambient occlusion

Virtual Reality
Augmented Reality
See-through HUDs
Embodiment
Kinect
Wii motes
Multi platforms
4k screen - touch
Haptics
Mobile interaction
3D printing
Microsoft surface
Pixelsense
Touch screens
Gestures
Accelerometers
On-body sensing
Sonification

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