Master of Science in Software Engineering of Distributed Systems (SEDS)

Program Director: Prof Mihhail Matskin

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Our goal

Educate engineers who will be able to design, implement and maintain distributed software systems for a wide range of applications including Service Oriented Architecture and Web services, data analytics, big data systems, cloud computing, P2P, agent computing and internet-based applications

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Application Statistics

- 2011-2020 – about 100-150 with 1st priority
- 2010 – 714 with 1st priority
- 2009 – 419 with 1st priority completed
- 2008 – 438 with 1st priority completed
- 2007 – 205? with 1st priority completed
- 2006 – 344 with 1st priority completed
- 2005 – 250 with 1st priority completed
- 2004 – 219 with 1st priority completed

Program output

- Started in 2004

- About 500 master students examined

- About 30 students from the program already got PhD degree

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Curriculum

- Two-year (four semesters) study program

  120 ECTS Credits, (90 courses + 30 Degree Project)

- Compulsory and elective courses

- 30 credits per semester

- Students are expected to reach at least 45 credits after one year

- Degree Project during fourth semester

Curriculum Organization

- Core block (compulsory courses) 30 ECTS credits

- The programme offers two specialization tracks: software track and data science track each assumes 30 ECTS courses as compulsory for the specialization

- A set of optional Elective courses that student can choose from, 30 ECTS credits

- A Degree Project, 30 ECTS credits

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Core compulsory courses

Period 1 Sept-Oct

1. Distributed Computer Systems, basic course
   7.5 credits
2. Modern Methods in Software Engineering
   7.5 credits

Period 2 Oct-Nov-Dec

3. Distributed Artificial Intelligence and Intelligent Agents 7.5 credits

Period 5 Sept-Oct

4. Theory and Methodology of Science with Applications , 7.5 credits

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Set of courses for the Software Track

- Network Programming with Java
- Distributed systems, advanced
- Data Intensive Computing
- Ubiquitous Computing
- Logic programming

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Set of courses in Data track

- Distributed systems, advance course
- Data Intensive Computing
- Data Mining
- Scalable Machine Learning and Deep Learning
- Networks in Data Science

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Some Other Elective courses

- Courses from other tracks
- Internet Security and Privacy
- Parallel Computer Systems,
- Programming of interactive systems
- Product realization processes I
- …

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Degree project (exjobb)

- One set of thesis topics is provided by faculty.
- Many students choose to look for their theses in industry either in Sweden or abroad.
- Others look in foreign universities.
- Students' choice of thesis project depends on their plans for future industrial or research job.
- Experience has shown that thesis projects in industry are most popular among our students.

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Some recent titles of Master Thesis

- Building Evolutionary Clustering Algorithms on Spark

- Trust and verifiable computation for smart contracts in permissionless blockchains

- Web Scraping to monitor the client and the competitor's brands performance and product offering in an online space

- Mobile Crowdsourcing

- WorkflowDSL: Scalable Workflow execution with Provenance

- Deep Convolutional Neural Network for Effective Image Analysis

- Exploring consensus-mediating arguments in online debate

- Enterprise network topology discovery using end-to-end measures

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Career prospects

- There is a continuous demand for good software engineers on the world job market.
- SEDS programme qualifications allows students work in all kinds of companies developing or maintaining software and this is a huge market.

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Career prospects

- Feedback from our former students shows that they very much appreciate the knowledge of modern technologies they learned from the programme.

- This knowledge allows them to be very competitive in the job market.

- There are also examples of students becoming key employees in their companies by promoting these modern technologies.

- A large number of students target an academic career and many of them have PhD positions in well-known universities all over the world.

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Who employs SEDS students? (an extract)

- Large companies/research organizations
  - Ericsson (Sweden, Ireland, Germany and China), Spotify, INRIA Rocqencourt (France), INRIA Sophia Antipolis (France), SAP Lab (France), Amadeus (France), SICS, Tietoenator, Philips (Holland),...
- Universities
  - EPFL (Switzerland), CERN (Switzerland), DERI Galway (Ireland), University of Trento (Italy), Norwegian University of Science and Technology, Luleå University, Delft University, University Oslo, Tilburg University, Trinity ...
- SMEs in Sweden, Norway, Holland, Germany, China, Pakistan, India, Italy, Spain, France...

Other Information

- **Sign up to exam minimum 3 weeks prior to Exam**

- **Information about course selection for the next term**
  - Course selection on the web before November 15

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Important information

- **Code of honor for students and teachers**
  - https://www.kth.se/en/eecs/utbildning/hederskodex

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Program Administration

Program Director: **Prof Mihhail Matskin**

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Program Administrator/Coordinator:

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WELCOME!

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Set of courses for the Security track

- Internet security and privacy
- Security in Mobile and Wireless Networks
- Security Architectures for Open Distributed Systems
- Advanced Networked Systems Security

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