



EIS

Information Technology

Open Day 2013

November 13th, 2013



Information Technology Open Day 2013

The Halmstad area has become a well-known centre for electronics and information technology - in research, higher education, industry and society. On the Information Technology Open Day 2013 we will show Halmstad University's internationally positioned research in embedded and intelligent systems, nano electronics and digital service innovation. As a celebration of the 30th anniversary of the University we will in particular draw the attention to the many successful enterprises that have grown within the information technology area. We will also look forward, with the help of invited speakers and an insightful discussion panel.

Information Technology Open Day 2013 is a meeting place for industry people, researchers, educators, students, politicians, and other people full of curiosity.

Programme, November 13, 2013

- 8:30 - 8.55** **Good morning!**
Registration and coffee/tea
- 9:00 - 9.10** **Opening of the Information Technology Open Day 2013**
Magnus Hällander, Head of School of Information Science, Computer and Electrical Engineering
- 9.10 - 10.20** **Academia and industry in interaction - A strong IT area in the region**
The academic and the industrial landscape, two areas that grow mutually dependent of each other. How and with what do they contribute to each other?
Bertil Svensson, Thorsteinn Rögnvaldsson, Maria Åkesson, Håkan Pettersson och Johan Karlsson
- 10:30 - 11:00** **Parallel seminars, session 1**
Interesting seminars to choose among, reflecting possibilities of tomorrow.
The seminars are presented below.
- 11:20 - 11.50** **Business case - From thesis work to global industry**
Invited speaker: Jörgen Palmhager, COO HMS Industrial Networks
- 12:00 - 12:40** **From Mobile Phones in 2013 to Internet of Things beyond 2020
- where are the challenges?**
Tord Wingren, Vice President and Site Manager, Lund, Huawei
- 12:40 - 13:40** **Lunch and exhibition**
The companies in the region as well as the researchers at Halmstad University present what they are doing, at the same time as you will have the opportunity to share a lunch with us and meet a lot of interesting people.
- 13:40 - 14:20** **The Future of Embedded Computing, a DARPA Perspective**
Invited speaker: Professor Dan Hammerstrom, program manager at DARPA, USA.
A talk in the Halmstad Colloquium distinguished speaker series.
- 14:25 - 14.55** **Parallel seminars, session 2**
- 15:00 - 15:40** **Electronics and IT Industry - possibilities and necessity for Sweden**
The electronics industry is important for most industrial sectors. Innovation and research is of essence. Ongoing work by the Swedish Electronics Trade Association together with institutes and universities, supported by Vinnova, aims to enable this.
Invited speaker: Lena Norder, director, The Swedish Electronics Trade Association
- 15:50 - 16:20** **Parallel seminars, session 3**
- 16:30 - 17.00** **The coming 30 years**
So how do we continue our joint work, which are the opportunities and challenges we are facing tomorrow?
Panel discussion

Parallel seminars

- 1 Learning about maintenance needs from on-board streaming data and off-board data bases**
We present how the streaming data on-board modern vehicles combined with off-board maintenance records, and other off-board databases, can be used to predict and detect maintenance needs for complex mechatronic products (city buses).
Thorsteinn Rögnvaldsson, Professor, Stefan Byttner, Assistant Professor, Slawomir Nowaczyk, Assistant Professor, Halmstad University
- 2 Prospective video applications for road safety and public security**
We present a video-based vehicular system aimed at distributing interactive video content between the vehicles and the infrastructure. The system relies on emerging IEEE 802.11p communication standard, advanced scalable video compression algorithms and distributed multiplexing of multiple video flows. A variety of new applications is being developed such as public transportation video surveillance, distributed road monitoring and overtaking assistance. Envisioned end users of the system are emergency services such as police, transportation companies as well as ordinary drivers.
Alexey Vinel, Guest Professor, Halmstad University
- 3 The Tappa Actimeter - from research to product, to continued research...**
Tappa Service AB has in cooperation with researchers at Halmstad University developed an actimeter, a wearable device for measuring physical activity. We present the background; look briefly on current products and how the new one might solve the disadvantages of them. We will also look in to the data output from the device and how it is possible to use them for improvement of people's well being.
Nicholas Wickström, Associate Professor, Halmstad University
- 4 Doing digital service innovation**
In this seminar we will illustrate how we work with digital service innovation in practice. We will show examples of design activities from different research projects, designing digital services such as peer-support for children with cancer, an iPad game for elderly, and digital newspaper services.
Maria Åkesson Associate Professor, Pontus Wärnestål, Associate Professor, Halmstad University
- 5 NAO a humanoid platform for research applications**
We illustrate how humanoid research platform such as NAO can be used to perform research in different areas such as Validation, Verification, Motion Control, Planning, Navigation, Image Recognition and Image Processing.
Jawad Masood, Post Doctor, Halmstad University
- 6 A Heterogeneous Compilation Framework for Reconfigurable Computing**
The future trend in microprocessors for the more advanced embedded systems is focusing on massively parallel reconfigurable architectures. In this talk, we present a systematic approach to address the grand challenge of compiling programs developed in a high-level language, occam-pi, to reconfigurable platforms. We present an end-to-end framework for building, compiling, and generating machine code for heterogeneous hardware from occam-pi language that enables to capture the diverse properties of the target architecture.
Zain Ul-Abdin, PhD, Researcher, Halmstad University
- 7 Forensic recovery of deleted images**
Have you ever been on vacation and filled your camera with lovely pictures of sunsets, fish, bird-life and rural markets --- just to arrive back to home and realize that your memory cards are corrupted? In this workshop IT-forensic lecturer Mattias Wecksten is going to explain how the file system of a memory card works and how you can try to recover those lost pieces of joy.
Mattias Wecksten, Lecturer IT-forensic, Halmstad University
- 8 On bugs, bug finding and debugging!**
Long time has passed since the first bug was found in a computer system: in 1947, Grace Hopper found a moth (an insect) trapped in a computer system, which prevented the system from functioning properly. We keep on finding different sorts of bugs in computer systems and some bugs can affect our lives drastically (e.g., malfunctioning pacemakers, improperly accelerating cars, unexpectedly diving airplanes). In this talk, we show that it is very easy to write computer programs, but it is even easier to introduce and overlook bugs in our own programs. We then present the directions of our on going research on testing (finding bugs) and debugging (removing bugs). The talk is designed for a public audience and no pre-knowledge (particularly of programming) is assumed.
Mohammadreza Mousavi, Professor, Halmstad University

9 Virtual cycling down Memory Lane

How can we motivate people with dementia to exercise more and in the same time activate their memory, using technology? The idea is to provide people with dementia an enjoyable experience that will stimulate memories of areas they may not have been to for many years. The idea is very simple. Having loaded the area in which you want to cycle into the system, you sit at the pedals of a stationary bike in front of a dome on which is projected the display. This innovation is created at Health Technology Centre Halland at Halmstad University, together with personnel from the municipalities in Halland and students from different disciplines. We talk about the working process, user involvement and the importance of multidisciplinary project teams.

Anne-Christine Hertz, Project Manager, Health Technology Centre Halland

10 How do autonomous robots move around?

A fundamental property of autonomous robots is that they move around in the world. Preferably without crashing into anything, of course. This seminar illustrates a variety of techniques developed over the years to plan and control the motions of mobile robots and robot arms.

Karl Iagnemma, Robotics Mobility Group Director, MIT, USA

Roland Philippsen, Assistant Professor, Halmstad University

11 Computer vision on portable devices

The presence and uses of cameras is steadily increasing, while their costs are decreasing. We aim to solve problems such as face recognition, 3D reconstruction and gesture interpretation within the area of image analysis/computer vision. In this short talk, we will discuss, possibilities, future applications and challenges. Topics range from human motion analysis to face detection and tracking.

Stefan Karlsson, Postdoctoral Researcher, Halmstad University

12 Nanoelectronics

Nanotechnology deals with manipulation of matter on an atomic and molecular scale. The application areas are vast and include e.g. medicine, materials science and electronics. This seminar introduces nanotechnology in general, and discusses applications in electronics and photonics in particular.

Håkan Pettersson, Professor, Halmstad University

Program and seminars may be subject to change.



Please register at www.hh.se/itod
not later than November 5th, 2013



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