CSC – Workplace meeting

2012-11-09

Professors for the future, November 16 2012
New honorary doctor with a connection to CSC – Ruzena Bajcsy

"Professor Bajcsy, University of California at Berkeley, är en av de verkliga nestorerna inom artificiell intelligens, datorseende och robotik. Hon har varit med om att bygga upp och forma dessa ämnesområden, och har haft stort inflytande på inriktningen vid KTH."

New adjunct professor in Language Technology

- Jussi Karlgren, Gavagai
New affiliated faculty in Human Computer Interaction

• Lidia Oschlyanski, Google

New docent

• Eva Lotta Sallnäs Pysander, MID
New professor promotion

- Patric Jensfelt

New hirings
New associate professor in Computer Science at TCS

• Per Austrin
• Right now at the Aalto university as a Postdoc
• Starting

New associate professor in Computer Science at CVAP

• Petter Ögren
• Currently at FOI and CVAP
• Starting full time January 1st 2013
New associate professor in Machine Learning at CVAP

• Atsuto Maki
• Previously Kyoto university and currently senior researcher at Toshiba research in Cambridge, U.K.
• PhD from KTH-CVAP

New associate professor in HCI with Computer Graphics Profile at HPCViz

• Christopher Peters
• Currently at Canterbury university, UK
• Starting January 1st, 2013. full time from April 2013
New associate professor in HCI with Computer Graphics Profile at HPCViz

- Mario Romero
- Currently at Uppsala university and at MID
- Starting January 1st 2013

Positions that will open soon

- Professorship in Visualization to be reopened
- Associate professorship in Computer Science with a specialization towards robotics, mobile systems and sensor fusion
- Assistant professorship in High Performance Computing
- Assistant professorship in Machine Learning
- Assistant professorship in Autonomous systems
- Postdoc in Scientific computing
- Postdoc in Machine Learning
- PhD student(s) in Robotics and computer vision
New funding from different sources

VR “CARMA”  
Manipulation Tasks in Robot Systems

- The main objective is to develop a learning framework based on probabilistic reasoning integrated with a control theoretic approach that exploits the available mechanical dexterity of single and multi-agent robot platforms to perform complex tasks in natural environments.
- PI: Danica Kragic; Budget: 10 MSEK
New paradigms for proving logical relationships with algebraic and geometric methods: Success factors and pitfalls

- Vetenskapsrådet
- Jakob Nordström, TCS
- Project funding – breakthrough research
- 4,000,000

From execution time to solution quality in combinatorial optimization

- Vetenskapsrådet
- Per Austrin, TCS
- Project funding – Young researchers
- 3,520,000
Interactive Learning and Generalization of Models for Planning and Controlling Manipulative Actions
Renaud Detry, CVAP, VR Young researchers, 2.550.000

Grasping strategy associated to an object part

Controlling the task with tactile and force feedback

VR “XPLOIT”
Learning and Exploiting Strong Structured Priors for Improved Spatial Understanding in Robots

- Indoor environments are highly structured and a robot could and should learn and exploit this to become more efficient in its execution of tasks.
- We study this in the context of map building

- A human who have seen one office can extrapolate and make a good guess what the rest of a floor will look like. Can we make a computer do that?
  - Ex: Learn the typical topology from floor plans*

- PI: Patric Jensfelt
- Budget 4yrs á 850kkr
Semantic Knowledge Acquisition, Exchange and Exploitation by Collaborating Robots and Humans

- Robots perceiving and understanding human environments
- Representation of space forms a common ground for human-robot communication
- Communication enables co-operation on tasks too difficult for robots to solve alone

PI: Andrzej Pronobis
www.pronobis.pro

Brain like algorithms for temporal sequences - recognition, generation and learning

- Vetenskapsrådet
- Anders Lansner, CB
- Project funding
- 4.000.000
Computational Modeling of Perceptual Music Features

Today, online music databases can contain millions of songs and new computer tools are needed for characterizing, and indexing music audio within the field Music Information Retrieval (MIR).

We will use a new approach based on perceptually determined features for characterizing audio and modeling human music perception. In a previous project we determined and evaluated a number of such features. Now we will develop specific models of these features from low level audio information using an ecological approach of perception.

A successful result will bridge the semantic gap between earlier studies in music psychology and contemporary data-mining projects leading to a better understanding of human listening as well as new applications within the MIR area.

Project leader: Anders Friberg
Budget: 2.55 MSEK
Time: 3 years

Integrating the structures of information and discourse: a cross-linguistic approach (VR)

Anastasia Karlsson, Arthur Holmer, Jan-Olof Svantesson, Gilbert Ambrázaitis - (LU) with David House - TMH

• Goal
  - To investigate the effect of radically different language systems on the structuring of information flow in speech and on the signaling of discourse functions (e.g. feedback, attitude and engagement)

• Method
  - 13 languages with different word order and different prosodic systems (e.g. Japanese, Mongolian, Turkish, Hungarian, Seediq, Swedish)
  - Analysis of audio and video recordings of tasks and narratives

• Application and implications
  - Studying oral communication gives a more accurate picture of language differences and similarities and how linguistic components interact
  - Creating a systematic language typology of spoken discourse
Timing of intonation and gestures in spoken communication (RJ)
David House, Jonas Beskow, Jens Edlund - TMH

- **Goal**
  - Understanding timing relationships between intonation and gesture in spontaneous speech
- **Method**
  - Semi-automatic extraction of co-speech gestures from a large and varied dataset (audio, video, motion-capture)
  - Analysis of function and synchronization of speech and gestures
- **Application and implications**
  - Co-speech gesture modeling for robots and avatars
  - Testing theories of speech and gesture

EU FP7 “STRANDS”
Spatial-Temporal Representations and Activities For Cognitive Control in Long-Term Scenarios

- “**STRANDS aims to enable a robot to achieve robust and intelligent behaviour in human environments through adaptation to, and the exploitation of, long-term experience.**”
- KTH: Adding the temporal aspect to maps ("4D SLAM") and build qualitative representations of space to facilitate more efficient learning and generalization.
- End-users partners: Elderly care facility in Austria and G4S in UK
- PI: Patric Jensfelt
- Duration: 4 yrs, start ≈ April 2013
- KTH budget: €1.9m (requested from EU €1.45m)
  (Total budget €10.8m / €8.3m)
EU FP7 “RECONFIG”
Cognitive, Decentralized Coordination of Heterogeneous Multi-Robot Systems via Reconfigurable Task Planning

• “This project aims at designing reconfigurable and adaptable heterogeneous multi-robot systems that can be assigned complex tasks. The task planning and control are decentralized and cooperative and they are held through the updated knowledge agents get from the environment and other agents in the group.”

• PI:
  - D. Dimaroganos (EES),
  - D. Kragic (CSC)
• Duration:
  - 3 yrs, start March 2013
• KTH budget:
  - €1.2m (Total budget €3M)

Mobile technology and human movement

• Helena Tobiasson,
  Anders Hedman,
  Jan Gulliksen
• AFA försäkring
• Design and case studies of Human movements with mobile technology
RAE 2012

- UoA 13.1 Theoretical Computer Science
- **UoA 13.2 Applied Computer Science**
- UoA 13.3 Mediated Communications

• **UoA 1.4 Numerical Analysis**

• -> will give these groups at the CSC school approximately 2 Mkr base funding from 2013

RAE 2012 and Rector contract negotiation

• Strategic funding will give the school some more, but how much and for what remains to be negotiated in the rector contracts on Tuesday

• We are also negotiating for this years steered funding, the results will come after Tuesday.
Fundraising Case

ICT for Life – ett tvåvetskapligt forskningscentrum för tillgänglighet och tekniska hjälpmedel

Joe Cudmore, professor i Elektriska systemteknik
Dennis Fröse, professor i Samhällsbyggnad med rötter
Johan Svedäng, docent i Födelsehälso

Sedan för Elektronisk samhälle kommunikation, KTH Royal Institute of Technology

CESC – Centre for Sustainable Communication 2007 – 2017

- Third Phase just started
- New board, new industrial partners, partly new direction
- Now including Green Leap
- Green Hackathon
New member of the Royal Academy of Sciences

- Danica Kragic Jensfelt
- Professor, Swedish Academy member. Elected to the Academy as a member number 1627
- Member of Class for engineering sciences
- Position Professor, Computer Science
- Organization Royal Institute of Technology

Dani also member of KVA group on Research Politics

KTH development plan 2013-2016

- KTH development version 1 is now open for comments
- The school must submit our comments before November 15
- Head of dep. is responsible, send comments to them
- Dean and LG will finalize CSC:s response.
- Final version will be decided by the US before Christmas
CSC development plan 2013-2016

- CSC makes the draft.
- Input from all dep. Deadline today 9/11.
- Head of dep. is responsible for having (had) an internal process
- 3-4 people will create the text, based on input received.
- There is still possible to volunteer to help with the writing.
  - Strategic influence on our plan
  - Good experience
  - Insight in CSC:s areas of research, education etc.
- Dean and LG will finalize the plan.

Education
New organization for Gru
The what, why and how?

Olov Engwall

Pedagogical seminar 10
december

Information and discussions

---

Erik Fransén

- New requirements for supervisors to amend individual study plan when applying for a PhD education
Staff Matters

Salary negotiations

• New salaries **should** come with November salary 2012, retroactively from October 2012 (all but ST)
• Complicated process with the union
• Average level of increase 2.3% but varying
• You will receive your new salaries from your head of department of from your manager before next salary payment
Chief of staff

• Eva-Lena wants to do part time retirement
• We have to recruit a new staff manager