CSC Information meeting
February 13, 2015

New employees
Welcome!!!

New employees:
- CB
  Ilya Ivanov, Research Engineer
- HPCViz
  Gregorio Palmas, Ph.D Student
- MID
  Johanna Mercurio, Research Engineer
  Pedro Sanches, Researcher

Tino Weinkauf
Professor for Visualization, HPCViz

Professor for Visualization
HPCViz, CSC, KTH Stockholm
Max Planck Institute for Informatics, Saarbrücken, Germany
Adjunct Assistant Professor
Postdoc, 2009 – 2011
Courant Institute of Mathematical Sciences, New York University
Researcher, PhD, 2001 – 2009
Zuse Institute Berlin / University of Magdeburg
Studies: Computer Science at University of Rostock
Contributions to Discrete Morse Theory

Graph Matching Problem
Volumetric data
Computation Morse-Smale complex $O(n^3) \rightarrow O(n)$
Significantly smaller memory footprint for simplification and persistent homology
PhD Thesis David Günther

Application to Cell Biology

Continuous Methods
Numerical Method
Height Ridges Surface
PhD Thesis David Günther
Cryo-Electron Tomography Data from MPI Biochemie

Discrete Methods
Discrete Morse Theory
Separatrix Persistence

Data courtesy: ZIB, Daniel Baum
Distance field of a Chaperon protein
Data set size: $1120 \times 1131 \times 1552$ (ca. 8 GB)
Computation of persistent homology
Memory footprint:
$500 \text{ GB} \rightarrow 14 \text{ GB}$

5000 forward and backward integrated streak lines in a flow behind a cylinder
Velocity magnitude of the streak lines in a flow behind a cylinder
The recruitment committee recommends to promote to professor

Leif Dahlberg, MID

Also congratulations to double PhD at Yale University in Comparative Literature

Congratulations!!!

KTH is preparing to hire 12 well funded (3 Mkr per year in 4 years) assistant professorships in strategic areas

February 19 Faculty council decision
February 28 Rector’s decision to go ahead
March Positions advertised
May 31 Deadline for application
June – September External reviews
October – November Recruitment group meetings
December 2015 Decisions
Gru
Olov Engwall

Increase in student numbers & performance
In particular in Computer Science

Increase in number of graduations
In particular in Computer Science

Consequences

1. Better Gru economy
2. More students stay on until the MSc thesis: increased need for supervisors and examiners. Some new students will start beginning of period 4; please volunteer.

Note on MSc/BSc theses: KTH has now decided to move to P/F grades.

Evaluation of PhD education
Erik Fransen

Starting November 2014, KTH is conducting a survey / evaluation of PhD education (FUS).
CSC will during the spring 2015 update subject study plans and program study pt.
Starting March 2015, UK-ämnet will start pilot evaluations
- Fulfillment of HF goals (documented in ISP)
- Research environment of PhD students
- Quality processes
- Interviews with PhD students
CSC Finances 2014

Tina Billing, Finance Manager

KTH 2014 Net profit/loss per school (34 Msek)

- Science: 29
- Biotechnology: 21
- CSC: 18
- Architecture & Built Environment: 7
- Industrial Engineering & Management: 5
- Electrical Engineering: 3
- Technology and Health: -10
- Scientific Information & Learning: -11
- Chemical Science & Engineering: -13
- Information & Communication Techn: -15

CSC 2014 Sources of Income (366 M Sek)

- Government grants for undergraduate education (46 M Sek)
- Government grants for research (137 M Sek)
- External funding (144 M Sek)
- Other (44 M Sek)

CSC 2014 Costs by category (348 K Sek)

- Personnel (181 K Sek)
- Consultants (23 K Sek)
- Premises (48 K Sek)
- Travel (10 K Sek)
- Equipment/depreciation (27 K Sek)
- Operating costs (14 K Sek)
- KTH Overhead (6 K Sek)

CSC Net profit/loss for Education and Research 2011-2014

Year
- 2014
- 2013
- 2012
- 2011

Education
- Research

-10 0 10 20

-10 0 10 20
### CSC Agency Capital 2014-12-31

<table>
<thead>
<tr>
<th></th>
<th>Capital 2013-12-31</th>
<th>Change 2014</th>
<th>Capital 2014-12-31</th>
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<tbody>
<tr>
<td>Education</td>
<td>7 401</td>
<td>4 905</td>
<td>2 536</td>
</tr>
<tr>
<td>Research</td>
<td>67 829</td>
<td>13 432</td>
<td>81 261</td>
</tr>
<tr>
<td>Total</td>
<td>60 388</td>
<td>18 337</td>
<td>78 723</td>
</tr>
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</table>

### Research administration

### PRISMA-VR, Forte and Formas new system for applications and projects

PRISMA-VR, Forte, and the Swedish Research Council application and case management systems. Here researchers apply for grants and manage granted funds.

CSC Finance Unit is right now developing templates that support your application. If you plan for an application, please contact the Department economist.

Research Office will hold information sessions in English at CSC:
- Thursday, 2/12 at 15:15 in 304 on the 3rd floor on Teknikringen 14
- Wednesday, 2/18 at 15:15 in 304 on the 3rd floor on Teknikringen 14


### Information from HR

Maria Widlund

### Salary review 2014 - ongoing

Everyone has been offered "lösensamtal" as an individual discussion to evaluate last year’s performance.

**Members in Saco** will be invited to individual salary discussions with their managers before 28 February 2015.

**Members in BT** will have the same process as last year i.e. central parts (employer and union) will negotiate their salaries.

New salaries will be valid from 1 October 2014 and earliest paid in April 2015.

### Employee Day

Employee Day in March
Step competition in April
Remember to do the environmental education

More information will come via Numera concerning the Employee Day and the step competition
Communication

Sneak preview!
February 17, 16.00–17.30, Kollegiesalen, Brinellvägen 8

The campaign aims to attract more women to our programmes in Computer Science, IT and electrical engineering by sharing great stories.

- Welcome; Eva Malmström, Deputy President of KTH
- Insights from the YouGov survey 2014
- Concepts and methods
- Film preview

Mingle and listen to the presentations. Welcome!

Crosstalks.tv February 19, 6 PM CET

Servicecenter

External post for employees at Albanova and SciLife Lab

There are several employees situated at Albanova and SciLife Lab. To make sure they receive their post to the correct address we have distributed lists of those employees to your apartments together with preprinted address labels. So you only have to write the persons name above them.

Use KTH envelopes, since this is external post NOT internal.

ERC Proof of Concept Grant
Johan Hoffman
ADAPTIVE: ERC Proof of Concept Grant

ERC StG project (2008): adaptive finite element methods for computer simulation of fluid-structure interaction involving turbulent flow, published open source in FEniCS

ERC PoC project (2015): commercialize the technology. ADAPTIVE targets civil (non-military) industry, with a focus on subsonic fluid dynamics. The strategy is to deliver services and products tailored to each customer, from simulation result, to education and support for integration of the simulation tools in the workflow of a customer.

CPU Project

Christopher Peters

Activity-led approach to modeling and simulation through interactive games technologies

Johan Hoffman
Professor
Numerical analysis

Alejandro Marzinotto
PhD student
Multi-agent systems

Axel Lewenhaupt
Master student
Computer Science

Christopher Peters
Associate Prof.
Graphics and HCI

Philip Sköld
Master student
Computer Science

Daniel Månsson
Master student
Computer Science

Objectives

• Pedagogical renewal at CSC related to Science, Technology, Engineering, Mathematics (STEM)
• Games technologies to encourage engagement, self-directed inquiry and deep learning
• Stimulate curiosity about underlying numerical methods, algorithms and physics models
• Develop student-led research, soft skills


DD1354 Models and Simulation, VT 2015

Interactive Games Technologies

• Real-time interactive simulation
• High quality visual feedback (link to AAA games)
• Gateway to many simulation and research domains
• Physically-based and behavioural systems

Methods

• Scaffolding for learning
• Augment the traditional teaching sequence
• Portfolio building activities and project work
ProsocialLearn
EU Horizon 2020 ICT-21-2014
Advanced digital gaming/gamification technologies
Innovation action; 3 year project
Project funding: €4.197m (KTH: €240K)
Consortium of nine companies, universities and institutions, coordinated by ATOS Spain
Project focus: prosocial educational games
KTH focus: simulation and perception of behaviour
Explore behavioural correlates of prosociality
Interactive virtual characters
Facial expression, gaze, full-body motion

ACCESS Linnaeus Center
Sonja Buchegger, Vice Director
ACCESS was established from VR grant 2006
Developed into a leading European university research center in networked systems
• 36 faculty, 50 postdocs, >100 PhD students
• Graduate school with >50 graduated PhD’s
Faculty renewal and mobility programs
Research program on the fundamental principles for the design of future interconnected society
Application projects on
• Smart mobility
• Smart energy grid
• Multimedia communications

Scientific Research Problem
Which are the fundamental principles and tools for the design of future networked systems?
"[ACCESS] is the largest and leading research center in its field in Europe, being able to generate world-class research and being highly attractive for international recruitments and exchanges."
MID-TERM EVALUATION REPORT 2012
Activities

Thematic Area research program (long term), new areas being formed now: Cyber-physical systems, Software-defined networking, Data analytics; Security, privacy and trust. Also new: Industry liaison

Collaborative seed projects (short term, 2 years)
- Founding faculty collaboration projects
- Cross-lab seed collaboration projects
- High-risk high-payoff projects
- Industry seed projects

Application projects
- Third party funded projects (EU, VINNOVA, SSF, etc.)
- Industry projects

Graduate school: PhD courses, summer schools, PhD student workshops

Mobility program: incoming/outgoing faculty/postdocs

Internal and external communication

Scientific and industrial workshops

Internal Seminar Series, faculty lunches

Distinguished Lecture Series (Videos online: https://www.access.kth.se/en/dls/dls-1.35678)

2014: Tage Erlander professorship: John Baras UMD

2014: KTH Honorary Doctorates to Marta Kwiatkowska (Oxford) and Lei Guo (Chinese Academy of Science)

KTH and Konstfack collaboration

- KTH has a strategic collaboration with Konstfack agreed on the rector level.
- KTH has a PhD program in Technology, Art and Design, currently hosted by the ABE school.
- KTH wants to form a centre for the collaboration with Konstfack.
- Leif Dahlgren is our representative in this collaboration.
- At KTH Katja Grillner has been in charge of this up until now.
- CSC lederingsgrupps has agreed to explore the opportunities for the school to play a leading role in such a collaboration.
- Possibilities of broadening the collaboration to other aesthetic disciplines

Technology, Art and Design

Jan Gulliksen
Volunteers needed – please talk to me or to your head of department.

Infrastructure investments also changing to require an impact strategy.

What we want to achieve

KTH’s work with impact aims to build ‘a brighter tomorrow’ and takes an active approach to the development of a supportive impact ecosystem at KTH that includes:

- Processes for strategic and other partnerships with societal partners to develop research and education in terms of both relevance and quality.
- Opportunities for personal exchanges to strengthen mutual knowledge and innovation, including exchanges through a well-functioning alumni network.
- Professional support services for students, researchers and teachers to develop innovative products, services and activities.
- Processes for addressing future funding challenges through private as well as public means.
- Qualified support activities for research funding applications and agreements, as well as support for partnering processes.
- Developed methods for monitoring and analyzing impact interventions, qualitative and quantitative results and effects.
- Incentives for researchers and teachers to create impact.

KTH Impact Strategy (draft)

Key elements of the strategy include:

- KTH considers the creation of impact as essential to its vision as education and research.
- KTH will work to create impact in Stockholm, Sweden and the world.
- KTH values and promotes the creation of impact through both education and research.
- Impact is championed by the KTH Leadership.
- Actions are intelligently developed and coordinated between the centre of KTH, the KTH Schools and KTH Faculty.
- Through its culture, management, recruitment, development and promotion procedures, KTH will show that it values and rewards the creation of impact.
Impact C3

Create
WP1: Impact Training
WP2: Impact Launch Leaders
WP3: Impact Fellows Programme Pilot
WP4: Creating Spaces for Impact

Capture
WP1: Adapting Impact Indicators
WP2: Education Case Studies
WP3: Impact and Career

Communicate
WP1: Impact Comms Strategy
WP2: European Impact Platform

3. UK REF

- UK universities have a “dual system” of research funding:
  i. The majority of research funding is applied for competitively by researchers from the Research Councils.
  ii. Considerable funding, 28 GBP per year, is also distributed via the “QR block grant” to the universities. This is long-term funding for research and infrastructure.
- QR funding is quality-controlled and volume sensitive. Quality is assessed by the Research Excellence Framework, the REF.
- The REF (formerly RAE) is carried out at a national level every 6 years.

What was assessed

Panels judged the overall quality of each submission

65% Quality of research outputs
20% Impact of research on society
15% The research environment

191,150 research outputs by 52,061 staff were reviewed
6,975 impact case studies were reviewed

The review was based on data and information about the environment

“an effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia”

REF Results (Dec 2014)

Combined GPA for Output, Environment and Impact

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<thead>
<tr>
<th>Rank</th>
<th>Institute</th>
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<tbody>
<tr>
<td>1</td>
<td>Institute of Cancer Research</td>
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<tr>
<td>2</td>
<td>Imperial College London</td>
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<td>3</td>
<td>London School of Economics</td>
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<td>4</td>
<td>University of Oxford</td>
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<td>University of Cambridge</td>
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<tr>
<td>9</td>
<td>University of Oxford</td>
</tr>
<tr>
<td>10</td>
<td>London School of Pharmacy and Tropical Medicine</td>
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</table>

Comments
- The overall hierarchy of UK universities did not change.
- The London universities did exceptionally well – at the cost of Cambridge and Oxford?
**UK Next steps**

- Plans are already underway for the next REF 2020.
- We will hear from two UK policy advisors, one from the Higher Education Funding Council for England (HEFCE) and the other from Research Councils UK (RCUK) about national plans.

**4. Back at KTH: next steps**

**How do we want to take this forward?**

- Ledningsgrupp: Which dates? Other opportunities?
- Impact Launch leaders in place and meetings for the group
- Follow-on School Meetings with project updates
- Impact project team meeting every Tuesday 14.00-16.00
  Available for support

**What will we do at CSC?**

- Develop an impact strategy for the school
- Hire or appoint an Impact Launch Leader
- Discuss how this will affect our strategies in long or short term.
- Value impact achievements on an individual level
- More information to come…