

Department of Information Technology **Human-Computer Interaction**

<http://www.it.uu.se/research/hci>





Today's menu

- Who we are.....
- Administrative
- Research
 - ✱ HCI methodology
 - ✱ Applied - What we have achieved
- Networks and collaboration
- Teaching
- KoF 2007, effects?
- Vision and plans
 - ✱ Challenges



HCI – research agenda

....to contribute to usability,
efficiency and a good work
environment for *skilled
professionals in IT supported
work*

- ✿ Understanding human work and behaviour.
- ✿ Methods for design, development, deployment and evaluation of IT systems.
- ✿ Real world applications – Action research.



Research environment

Multidisciplinary team

Psychology, sociology, computer science, automatic control, work environment, economy, pedagogy, ethics, process operators....

Real world applications

Long term engagements

Experiments
Prototypes
Simulators



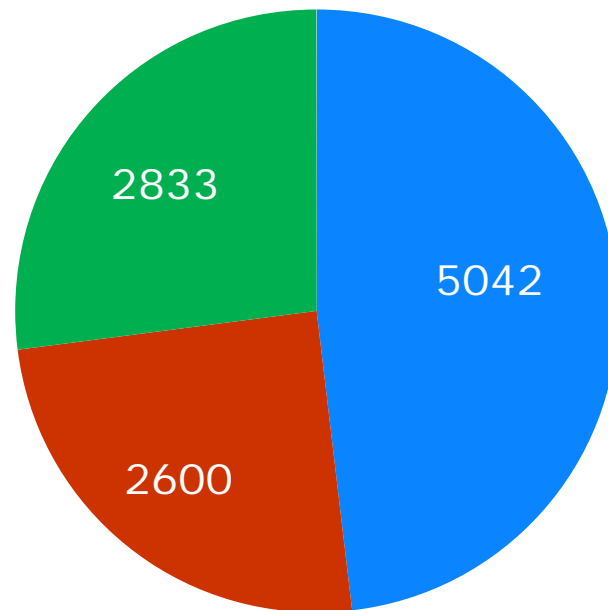
HCI research division today

- 2 professors
- 4 PhD senior researchers
- 8 PhD students
- Research engineers etc.
- Many master students
- So far... (more this year...)
 - ✿ 13 PhD
 - ✿ 17 Licentiate



HCI - funding

■ Funding in kSEK



■ Education

■ Faculty Funded Research

■ Externally Funded Research



HCI main research areas

- Human control of complex systems
- User centred systems development
 - ✿ Requirements, design, development, deployment, evaluation
 - ✿ Development processes – in practice
- IT support in health care
- Tools for ethical decision making
- HCI Didactics
- Internet and New Media
 - ✿ Patterns of usage among Internet users
 - ✿ Virtual Professional Cooperations



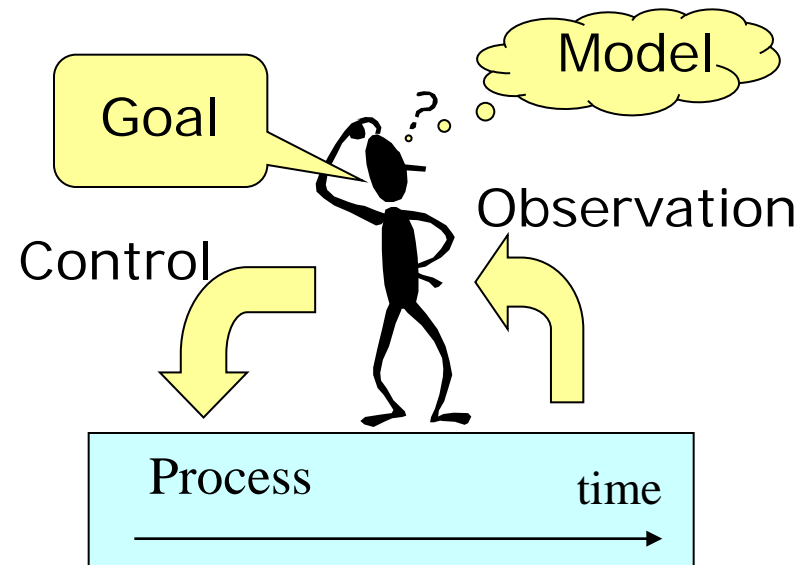
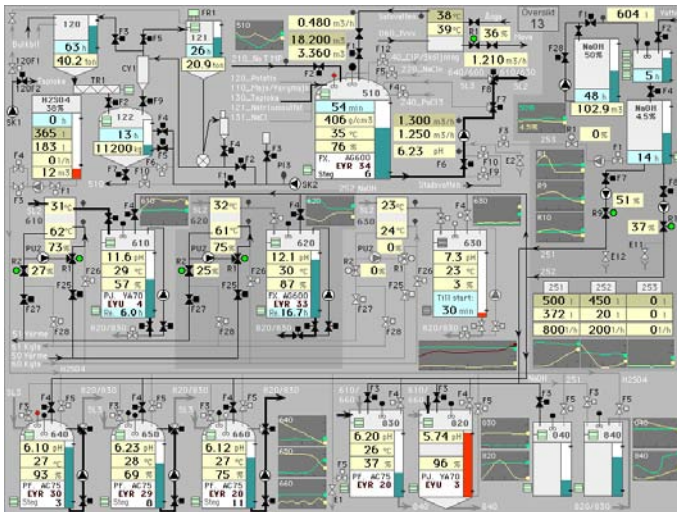
HCI main research areas

■ Development of *methods*

- ✿ GMOC-modelling humans in control of complex systems
- ✿ User centred IT development – processes in practice
- ✿ Cognitive Work Analysis - Collegial verbalization
- ✿ To measure usability – AVI-index
- ✿ Design of future work, vision seminars
- ✿ Tools for ethical decision making
- ✿ IT and Work environment

Methods....

- Humans in control of complex systems (GMOC)
- Understanding the operator
 - ✦ Control by awareness
- Design of user interfaces





User-Centred Systems Development

- The establishment of UCSD in organizations
 - ✿ Values affecting the work
 - ✿ Coaching as a method to introduce UCSD
 - ✿ Support for sustainability in organizations
- UCSD in relation to other software development methods (RUP, Scrum)

- Sensemaking when introducing UCSD





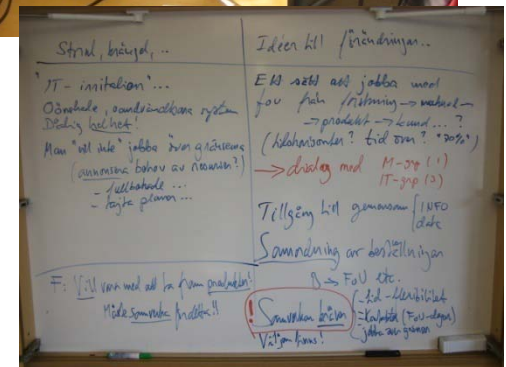
UCSD - designing future work

■ Future (vision) workshops

Working with the users

IT as a *driving force* for development of work processes

Design not only IT, but the new *work*





Usability assessment

- **Avl-index**: a questionnaire to assess users' understanding of how usable their systems are.
- Aspects: development, usage, utility, competence, stress and relations.
- Applied in eight public and private organizations.



Ethical aspects....

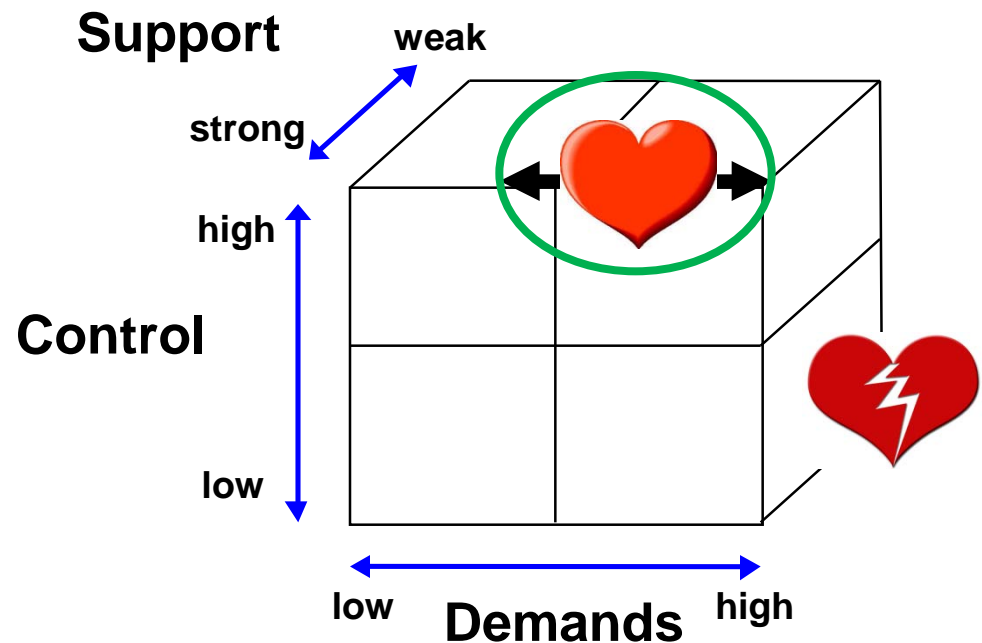
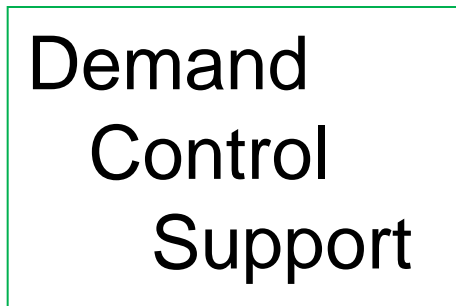
...are necessary parts of usability.

- Operationalized philosophical theory and psychological research.
- Methods to support ethical problem solving and decision making.
- Computerized tools for ethical usability, like EthXpert.



IT and work environment

- Helps us to *understand* work environment problems.
- Helps us to *design* IT supported work and systems .





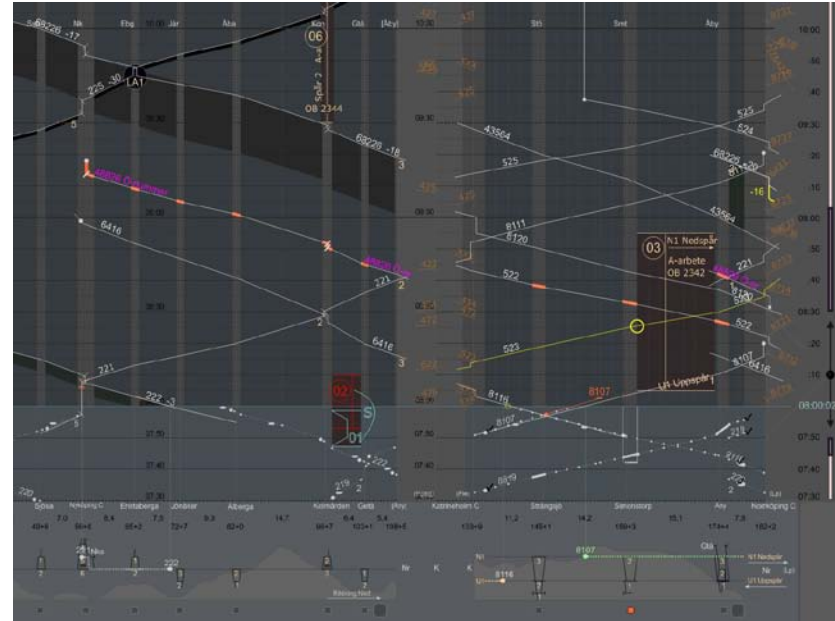
What we have achieved

- Some examples.....
- What we are proud of....
- Impact....



Train traffic control

- 15 years research cooperation with the Swedish Rail Administration
- Tested and evaluated systems
- A base for national systems!
- A base for European systems?





IT in health care

- 250 000 users every day
- Low usability, safety problems
- Professionals often dislike their systems
- We help the *professionals* to understand and express their needs and requirements.
- We help the *organizations* to develop better processes e.g. for system deployment.



Tailor the System or Tailor the User?

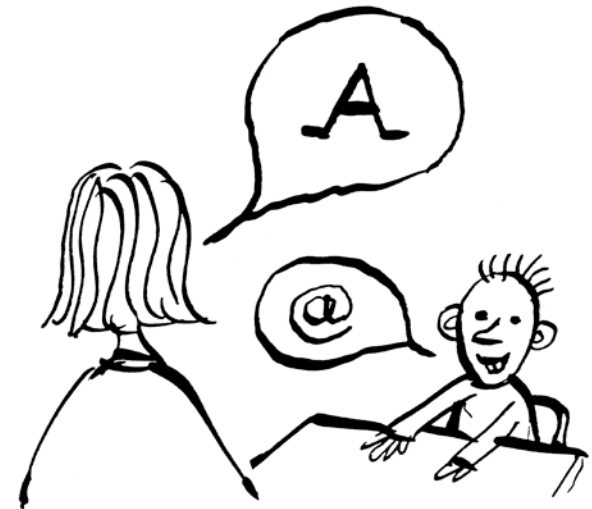
How to Make Better Use of Electronic Patient Record Systems

Understanding
specific (context)
requirements



Teaching and Learning in HCI - Didactics

- Action Research to improve teaching and learning in HCI
- Open Ended Group Projects as teaching framework
- Including professional competencies in the teaching and learning of HCI
- Methods for assessment of professional competencies
- Global collaboration skills
- Methods for improved collaboration and problem solving in student projects
- Educational platforms for sustainability and HCI





Networks and collaborations

Research collaboration

- Delft, Dresden, Nottingham, TUT (Tampere), KTH (Stockholm), TVU/UCL (London), DKFZ (Heidelberg), Politecnico di Torino, Center for Business Information Meiji University (Tokyo), University of Crete, Reykjavik University, Rose Hulman Institute of Technology, Curtin University, Perth, Australia, Robert Gordon University, Scotland, Oldenburg University, Germany, Bilkent University, Ankara, Auckland University

Industrial collaboration

- Public authorities; CSN, Migration, SMHI, Rail administration, Health Care, Communities, etc.
- Industry; SAAB Aerosystems, Guide/Redina, Transrail etc.
- Organisations; LO Research panel, UsersAward

EU-project

- ON-TIME (European Railways)
- ICT in ESD (Tool for online education)

Networks

National:

- NITA, STIMDI, EHSS (Ergonomics and Human Factors Society Sweden)

International:

- EURNEX (Railways Europe)
- INSEIT, International Society for Ethics and Information Technology, Ethics and Operational Research, EBEN, European Business Ethics
- NNEER (Nordic Network in Engineering Education Research)
- COST Action IC9004 – Towards the Integration of Transsectorial IT Design and Evaluation
- Chair IFIP Working Group 13.1 HCI Didactics and Education
- IFIP TC.13
- EACE (European Association of Cognitive Ergonomics)
- Organizing Committee of INTERACT 2011
- Etc.
- Interact 2009!!



INTERACT 2009 in
Uppsala, Sweden



August 17-21



HCI curriculum

- 13 modules on HCI
- Some distance and net-based courses
- International master in HCI
 - ✿ Industrial collaboration
 - ✿ In collaboration with City University, London
 - ✿ Invited international teachers
 - ✿ International master theses

Welcome

Studying for a Master in HCI at Uppsala University provides an opportunity to take part in all of the excitement and knowledge available at a large and well-known university. Completing the degree will allow you to apply for many interesting positions and to be ready for future challenges.

The program focuses on all issues involved in creating usable IT systems, is based on projects and uses real-world problems through our cooperation with leading Swedish companies such as SAAB AeroSystems, Altorblader and TV4 as well as local companies and organizations.

Internationally we cooperate with both the Centre for HCI Design at City University, London, U.K. and the Interaction Design Centre at University of Limerick, Ireland.

Uppsala is renowned for its relaxed, fun and student oriented life-style as well as its historic beauty. Studying here will let you take part in all this.





Relations to KoF 2007

■ KoF 2007:

- ✿ “The research is of good level, and some of it is unique”
- ✿ “The networking activities of the HCI researchers are outstanding”
- ✿ “HCI research (and education) is spread far too broadly (several units). The HCI people in the different units should be placed in the same division”
- ✿ “More effort should be put to disseminating the results gained in long-term studies to the HCI research community”



Relations to KoF 2007

- What happened?
 - ✿ IS department is now “Informatics and Media”. Still has an HCI group! Some has moved to us.
 - ✿ Improved collaboration.
 - ✿ We have improved our “dissemination of results”.
 - Publications etc.
 - Applied projects – knowledge transfer
 - ✿ Networking and international collaboration is even more developed.



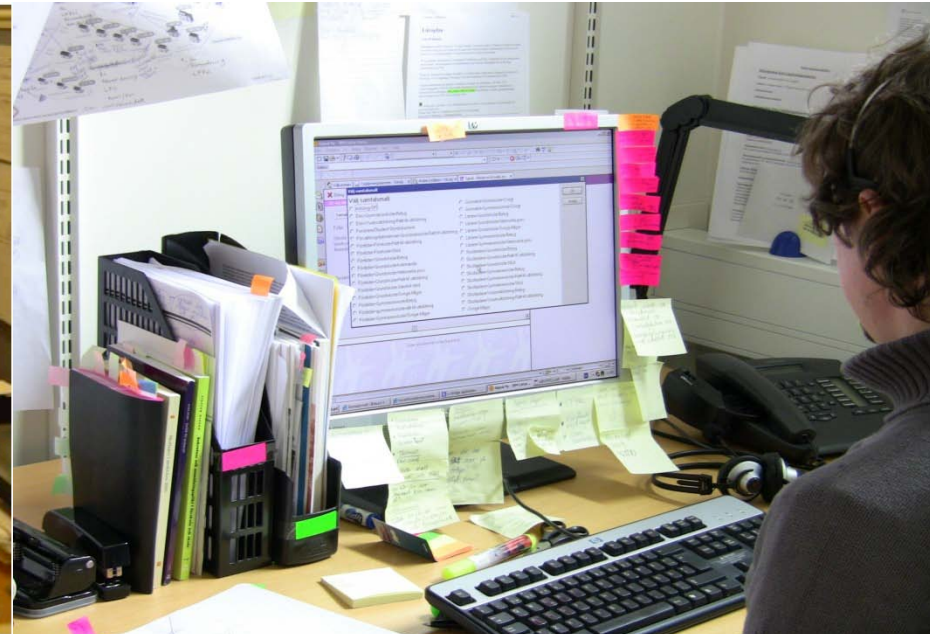
However.....

All problems are not solved. Yet!

Research results do not spread fast....



1995



2010



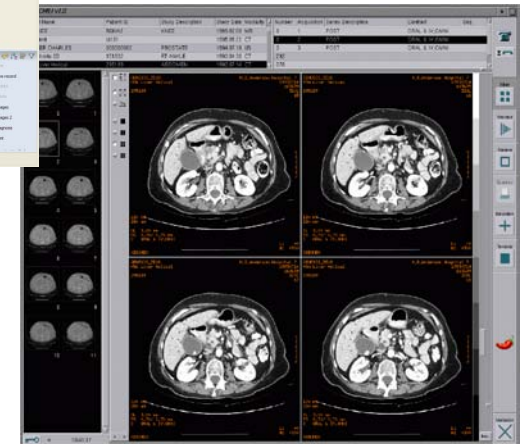
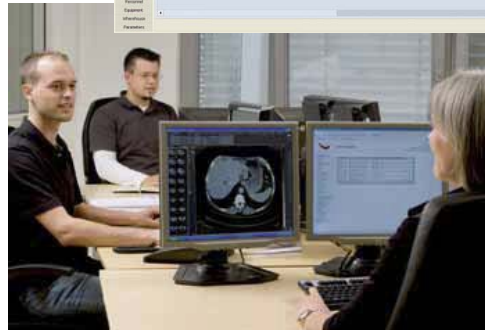
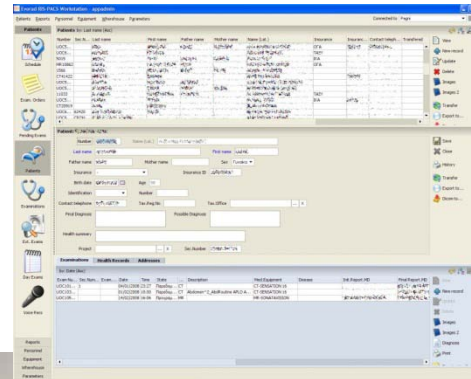
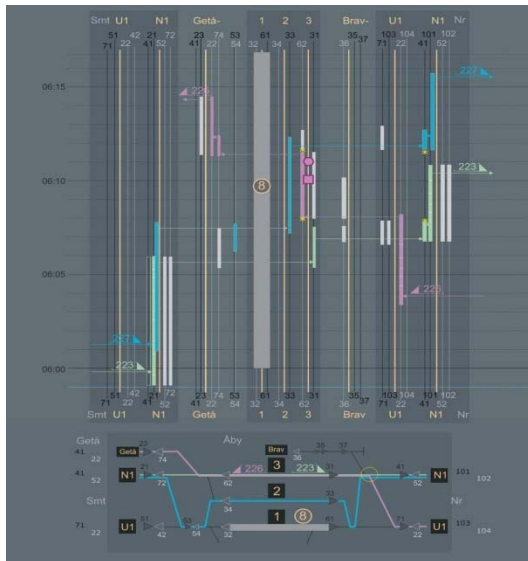
Future - Visions

- Broaden the usability perspective
 - ✿ “Usability doesn’t sell”
 - ✿ Efficiency, organization, processes
- But also continue on successful paths.....
- Develop new important research areas, with high potential.
 - ✿ Some examples are....



Visualization

- Visualization is also a part of HCI.
- HCI will be coordinated with Image analysis.
- Applications: health care, decision support etc.





Universal Design/Design for all

- Research Issues:
 - ✿ How does design of supportive technology affect a person with special needs?
 - ✿ Can stigmatization be decreased by better design?
 - ✿ How can technology increase inclusion?
 - ✿ How can HCI be applied to Supportive Technology?



In an inclusive society, access to activities is not depending on what your deficiencies are, but on the design of suitable and non-stigmatizing technology

How can we achieve this?



Actions for successful development

What hinders us? Well – nothing!

Some challenges:

- The funding situation
 - ✿ Faculty funding
 - ✿ External long term funding
- Help organizations to reach “sustainable usability” is difficult. We must broaden the perspective and find our role.
- Increase our international cooperation (and funding).



UPPSALA
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That's IT!