

# Numero

Veckobladet om forskning, undervisning och administration  
på Skolan för datavetenskap och kommunikation



## Numero nr 37

23 november 2006 • Årgång 36

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### Numero är institutionstidningen

på Skolan för datavetenskap och kommunikation vid KTH. Numero utkommer normalt på torsdagsförmiddagar under teminstid.

Manus måste lämnas in före kl. 12 på onsdagar. Manus, tips, förslag och andra bidrag till Numero kan lämnas på något av följande sätt:

- via e-post till [numero@nada.kth.se](mailto:numero@nada.kth.se)
- på papper till Nada, Numero, KTH, 100 44 STOCKHOLM (dvs. facket "Numero" bland postfacken på pl 4)

Bidrag för artiklar och notiser bör i största möjliga mån vara färdigformulerade och korrekturlästa.

Varje Numeronummer utkommer i två former:

- På papper för normal postdistribution
- <http://www.csc.kth.se/aktuellt/numero/>

Numeroredaktionen består av Maria Engström. Ansvarig utgivare är Ingrid Melinder. Numeros innehåll uttrycker inte institutionens officiella ståndpunkt annat än då detta anges.

## Öppet Hus 16 KTH CSC Beräkningsbiologi

Numero finns CSC:s avdelning för Beräkningsbiologi i Hus 16 på Albanova campus, samlokaliserad med Stockholms Bioinformatic Center (SBC). Roslagstullsbacken 35A, Ruddammen

Vi kommer att arrangera ett Öppet Hus onsdagen den 29/11 från kl 17. Du är välkommen att titta in och se hur vi har det. Vi bjuder på buffe med mat och kaffe etc.

Tacksam för anmälan till [ala@csc.kth.se](mailto:ala@csc.kth.se) så vi kan få en uppfattning om ungefär hur många som avser att komma.

Hälsningar  
Anders L

## "Oslagbara" Bernhardsson vann igen

De nordiska mästarna i programmering för studentlag, Lag Bernhardsson, vann i helgen även de Nordeuropeiska mästerskapen i datorprogrammering. "Spelarna" i Lag Bernhardsson är Erik Bernhardsson, Joel Jonsson och Carl Nettelblad. De är därmed klara för programmerings-VM för universitet och högskolor som går i Tokyo 2007.

Andra platsen i tävlingen knep laget "Messed up" från universitetet i Twente i Nederländerna och de får också åka till VM. På tredje plats placerade sig ännu ett KTH-lag, " #define ever (;)" .

Det blir andra året i rad som Lag Bernhardsson tävlar i programmerings-VM. I april 2006 kom laget på 20: e plats när tävlingen avgjordes i Texas, USA.

Läs allt om tävlingen och hela resultatlistan på <http://www.csc.kth.se/contest/nwerc/>

## Kallelse, D-kollegium för Datateknikprogrammet på KTH.

Fredag 8/12 kl 15:15 2006 i sal E3.

D-kollegiet är till för dig som studerar på, undervisar på, eller arbetar med Datateknikprogrammet på KTH. Vi ska avhandla:

1. Information och aktuellt (SA).

Nya kurs- och program mål.

Civing 300hp. Övergångsbestämmelser.

2. Planerad utveckling. Hur ska det extra halvåret användas? Debatt.
3. Förslag från institutionerna (ev).
4. Förslag från studenterna (ev).
5. Zen, eller konsten att ge en bra utbildning: Kvalitetskontrollsystemet på KTH har stabiliserats. Kan vi ersätta det med Kai-Zen? Debatt, om möjligt med extern Kaizen-expert.

Inslag under punkt 3 och 4 kan föränmälas till mig.

*Stefan Arnborg*

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## Genombrott för akustiksimulering - hör skillnad mellan trä och betong direkt i datorn

Ett nytt verktyg för akustiksimulering i byggnader ger helt nya möjligheter att arbeta med modeller i datorn. Programmet gör det möjligt att flytta en vägg eller byta ett material under pågående simulering och direkt höra hur det förändrar ljudbilden. Det nya verktyget, som har tagits fram av ett forskarteam lett av KTH och Interactive Institute, öppnar helt nya möjligheter även för spelindustrin då det är kompatibelt med många av de system för Virtual Reality som används där.

Hittills har akustiksimulering krävt ett ganska stort mått av manuellt arbete. Det nya verktyget tar automatiskt bort detaljer som inte påverkar ljudmiljön och förenklar komplexa delar automatiskt. Man kan också kontinuerligt förändra miljön under en pågående simulering. Programmet, UVAS – Uni-Verse Acoustic Simulator, har tagits fram inom EU-projektet Uni-Verse där man arbetar med ett nytt protokoll för 3D-tillämpningar som bygger på öppen källkod. Ljuddelen av projektet har till större delen gjorts vid Interactive Institute och Tekniska Högskolan i Helsingfors.

– För första gången kan man nu, i sin dator, vandra runt i en byggnad och lyssna på akustiken, säger Gert Svensson, vid [Skolan för datavetenskap och kommunikation](#) på KTH och projektledare för Uni-Verse.

Ett direkt användningsområde för det nya verktyget, som presenteras vid en stor europeisk IT-mässa i Helsingfors tisdagen 21 november, är i arbetet med ljudmiljöer vid byggprojekt. En arkitekt kan nu enkelt samarbeta med en akustikkonsult och tillsammans lätt flytta en vägg eller ändra ett material och direkt höra resultatet.

## KTH hosts WWCS2007: reduced fee, extended submission deadline

WWCS 2007 conference May 21-24th 2007 in Stockholm

WWCS = International conference on Work With Computer Systems. The 2007 conference is the 8th in a series started in 1986.

Possibilities for abstract submission extended to December 4th!

Registration fee substantially reduced to SEK 4500 = about 500 EURO!

As an academic institution, KTH (Royal Institute of Technology), which is the technical university of Stockholm, now will host and be the main organiser of the conference together with VINNOVA,.

The cost for localities is drastically reduced and it has been possible to substantially reduce the registration fee. New fee is 4500 Swedish Crowns - SEK including coffee and lunch (about 500 EURO, 625 \$). A reduction of almost 40% ! This fee is of course valid also for those who already have registered.

Due to the reorganization and uncertainties about the fate of the conference it has been decided to extend the deadline for abstract submission. New deadline is December 4th 2006. An extension of three weeks ! Authors will hopefully be informed about acceptance before the end of the year.

We hope to receive your abstract soon and to see you at the WWCS 2007 at KTH May 21-24, 2007

More information to be seen on the web-page <http://www.wwcs2007.se>

Please forward this message to all who would benefit from it.

*Welcome !*

*Tomas Berns, President of WWCS 2007  
Allan Toomingas, Secretary General of WWCS 2007*

*Yngve Sundblad, CSC, KTH,  
Chair of the Conference Board for WWCS2007*

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Docentföreläsning:

## Precision and Stability in Computational Fluid Dynamics

Johan Hoffman

måndag 4 december 9.15

*Hälsningar,  
Johan*

## Seminarier

Seminar at Speech, Music and Hearing:

### **Prosodi hos fragmentariska grounding-yttranden i dialogsystem**

Jens Edlund, David House och Gabriel Skantze

15:15 - 17:00

Tuesday November 28, 2006

The seminar is held in Fantum.

#### Abstract

We will discuss the effects of prosodic features (primarily peak height and peak alignment) on the interpretation of fragmentary grounding utterances in dialogue. The presentation will include experiments where subjects judge and respond to short human-computer dialogue fragments in Swedish, as well as a number of human-human and human-computer dialogue examples. In the human-computer dialogue examples, subjects displayed a change of response behavior related to the prosodic features of the fragmentary grounding utterances. We will also discuss plans for future experiments involving longer grounding utterances in which both focal accent position and prosodic features are varied.

### **“Helping the poor help themselves – a road towards a more sustainable, equitable and peaceful future”**

Prof Muhammad Yunus - The Nobel Peace Prize Laureate 2006.

KTH, the Royal Institute of Technology, and SITE, at the Stockholm School of Economics, in cooperation with the Swedish Institute for International Affairs and the Tällberg Foundation Have the pleasure of inviting You to an open lecture.

December 13, 14:30-16:30 at Folkets Hus, Barnhusgatan 12-14, Stockholm.

Welcome by Anders Flodström, President, KTH, and Lars Bergman, President, Stockholm School of Economics

The lecture is followed by a panel discussion with Gunilla Carlsson, Minister for Development Cooperation;  
Ulla Holm, Global Director, Tetra Pak, Food for Development;  
Tomas Ries, Director, Swedish Institute for International Affairs;  
Students from KTH and the Stockholm School of Economics;  
Bo Ekman, Chairman, Tällberg Foundation (moderator)

Closing with the Royal Technology Choir.

Free admission – limited number of seats

The purpose of the seminar is to provide the general public, researchers and policy makers with an opportunity to listen to the 2006 Nobel Peace Prize Laureate. The lecture and panel discussion also aim to discuss Professor Yunus' pioneering work with Grameen bank in a broader context. This includes the important immediate challenges the world is facing in terms of poverty, security and climate change, as well as the institutional changes that are required to meet these challenges: new business models, financing structures and technology. With his seminal work with the Grameen bank, Professor Yunus has demonstrated that commercial capital and structures can play important roles in reducing poverty, improving equality and building social capital. He has been a pioneer of social entrepreneurship and his work has been instrumental in reducing the institutional barriers that long have separated development work and commercial activities. His work is of great relevance to many actors looking at sustainable development and in particular to educational institutions whose students are part of shaping the future.

Välkommen till seminarium i serien

KOMMUNIKATION: KULTUR, TEKNOLOGI, VETENSKAP

### **VETENSKAPENS ARKITEKTUR**

Sven Widmalm, Tema teknik och social förändring, Linköpings universitet

torsdag 23 november, 2006, kl. 15-17

CID-torget, Lindstedtsvägen 5, plan 6, KTH CSC

#### Abstract

Vetenskapshistoriker har på senare år ägnat en hel del uppmärksamhet åt frågor om arkitektur. En anledning är att arkitektur och experimentdesign är svåra att skilja åt när vetenskapens byggda miljöer allt mer anpassas efter den experimentella forskningens krav. Arkitekturen ger också fingervisningar om olika typer av idealbildning inom vetenskapen. I uppsatsen "A Machine to Work in" diskuteras den tidiga modernistiska laboratoriearkitekturen utifrån ideologiska och praktiska aspekter. I fokus står den svenske fysikaliske kemisten The (Theodor) Svedberg och det laboratorium som han byggde kring 1930. Laboratoriet representerade ett modernistiskt vetenskapsideal bland annat genom att formgivningen betonade flexibilitet. Samtidigt designades laboratoriet för att kunna inhysa tung och dyrbar laborieutrustning som inte alls var flexibel. Det modernistiska vetenskapsidealet, som samtidigt betonar snabb förändring och en teknifiering av forskningen, innehåller alltså motsägelser vilka kan analyseras utifrån laboratoriearkitekturen.

Välkomna!

// Minna Räsänen

## Disputationer & Lic

PhD Thesis

### **Stochastic Multi-Agent Plan Recognition, Knowledge Representation and Simulations for Efficient Decision Making.**

Robert Suzić.

Thesis defense on the 11th December, 2006.  
Place: Hall D2, Lindstedtsvägen 5,  
Royal Institute of Technology (KTH), Stockholm.

#### Abstract

Advances in information technology produce large sets of data for decision makers. In both military and civilian efforts to achieve decision superiority, decision makers have to act agilely with proper, adequate and relevant information available. Information fusion is a process aimed to support decision makers' situation awareness. This involves a process of combining data and information from disparate sources with prior information or knowledge to obtain an improved state estimate about an agent or other relevant phenomena.

The important issue in decision making is not only assessing the current situation but also envisioning how a situation may evolve. In this work we focus on the prediction part of decision making called predictive situation awareness. We introduce new methodology where simulations and plan recognition are tools for achieving improved predictive situation awareness.

Plan recognition is the term given to the process of inferring an agent's intentions from a set of actions and is intended to support decision making. Beside its main task that is to support decision makers' predictive situation awareness, plan recognition could also be used for coordination of actions and for developing computer-game agents that possess cognitive ability to recognize other agents' behaviour.

Successful plan recognition is heavily dependent on the data that is supplied. Therefore we introduce a bridge between plan recognition and sensor management where results of our plan recognition are reused to the control of, to give focus of attention to, the sensors that are expected to acquire the most important/relevant information.

Our methodologies include knowledge representation, embedded stochastic simulations, microeconomics, imprecise knowledge and statistical inference issues.

Keywords: Plan Recognition, Decision Making, Knowledge Representation, Information Fusion, Predictive Situation Awareness, Data Fusion.

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<http://www.nada.kth.se/~rsu/SuzicThesis.pdf>

Disputation

### **Electronic Cash and Hierarchical Group Signatures**

Mårten Trolin, Datalogi KTH,

15 december kl 14:00  
Sal D3, Lindstedtsvägen 5

Opponent är Helger Lipmaa, University College London.

In this thesis we present results in two areas, electronic cash and hierarchical group signatures.

- We investigate definitions of security for previously proposed schemes for electronic cash and strengthen them so that the bank does not need to be trusted to the same extent. We give an experiment-based definition for our stronger notion and show that they imply security in the framework for Universal Composability. Finally we propose a scheme secure under our definition in the common reference string (CRS) model if based on a family of trapdoor permutations.

As a tool we define and prove the existence of simulation-sound non-interactive zero-knowledge proofs (NIZK-PK) in the CRS-model under the assumption that a family of trapdoor permutations exists.

- We propose a scheme for electronic cash based on symmetric primitives. The scheme is secure in the framework for universal composability if based on a symmetric CCA2-secure encryption scheme, a CMA-secure signature scheme, and a family of one-way, collision-free hash functions. In particular, the security proof is not in the random-oracle model. Due to its high efficiency, the scheme is well-suited for devices such as smart-cards and mobile phones. We also show how the proposed scheme can be used as a group signature scheme with one-time keys.

- We introduce the notion of hierarchical group signatures. This is a proper generalization of group signatures, which allows multiple group managers organized in a tree with the signers as leaves. For a signer that is a leaf of the subtree of a group manager, the group manager learns which of its children that (perhaps indirectly) manages the signer. We give definitions and three different constructions. Our first construction uses general methods and is secure if based on a family of trapdoor permutations. It is not intended for actual use, but serves as a proof of concept of our definition. Our second construction is almost practical, and we prove its security in the random oracle model under the strong RSA assumption and the DDH assumption. Our third construction is practical and secure under the strong RSA assumption and the DDH assumption in the random oracle model. The third construction is optimistic in that a group manager may need to interact with other parties to open a signature of a corrupt signer.

Finally we show that if a hierarchical group signature scheme is secure, then it realizes an ideal hierarchical group signature scheme in the framework for universal composability.

Thesis for a Doctoral Degree in Technology  
**Developing tools for sustainability management in the graphic arts industry**

Maria Enroth

Auditorium F3, Lindstedtsvägen 26, Stockholm (KTH)  
on 24 November, 2006 at 13.30.

Opponent: Prof. Ulf Lindqvist, VTT, Esbo, Finland  
Supervisor: Prof. Nils Enlund

Royal Institute of Technology (KTH)  
School of Computer Science and Communication  
Department of Media Technology and Graphic Arts  
Stockholm, Sweden

#### Abstract

The main aim of this thesis is to develop and test industry-specific, applied work procedures and tools for environmental and emerging sustainability work in the graphic arts industry. This includes methods to quantify, follow-up, evaluate, manage, improve and communicate the environmental performance of activities in the graphic arts supply chain and printed products.

In order to achieve the aims of the thesis, a selection of work areas were chosen as the basis for developing the industry-specific work procedures and tools. The selected work areas are the following: environmental management (being a part of sustainability management), environmental and sustainability strategies, environmental indicators and design for environment (DfE).

The research presented in this thesis was based on survey research methods, case studies and multi-company studies. Within the framework of these methods, quantitative and qualitative techniques for data gathering were used. The companies included in the studies were selected according to their willingness, interest and motivation to participate and develop their environmental or sustainability work.

The most significant results of the research presented in this thesis regarding the selected work areas are the following:

- An evaluation of early certified environmental management systems (EMSs) in Sweden identified four areas as priorities in making the EMSs more efficient. Two of them, viz. improvement in the follow-up of environmental work, and the linking of EMSs to product design, were developed for the graphic arts industry. The remaining two areas were clarifying the identification process and assessment of environmental aspects, and streamlining and co-ordinating different management systems.
- An established and successfully tested working method for formulating and realising corporate sustainability strategies in the graphic arts industry.
- Industry-specific environmental indicator models for the graphic arts industry with defined methods for standardised inventorying and calculations. These models have been tested, used and approved of by the industry itself.
- Collected and compiled data for the developed

environmental indicator models. Data have been collected from quite a large number of companies (10-20 companies for each of the printing techniques covered, i.e. coldset offset, heatset offset and gravure) over a period of several years.

- The use of the industry-specific environmental indicator models was developed and illustrated.
- A described and recommended work procedure for DfE in graphic arts companies including industry-specific tools for applying DfE to printed products, in the form of a manual and a checklist. The checklist was designed so that it can serve as a simple tool for the environmental assessment of printed products. The tools were tested by graphic arts companies.

Keywords: graphic arts industry, printing industry, environmental management, sustainability strategy, environmental indicators, design for environment, eco-design.

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## Pågång

### Qigong. v. 26 ledig

november 24	fredag	kl 14.30	1537
november 28	tisdag	kl 14.00	1537
december 1	fredag	kl 14.30	1537

## Jobb

Nordic-Math-Job number: SE-0738  
University: Umeå University  
Department: Department of Statistics  
Position: Professor in Statistics  
Deadline: 7th of December 2006  
Contacts: Göran Broström, 0046-(0)90-786 52 23,  
prefekt@stat.umu.se  
Web-info: [http://www.umu.se/umu/aktuellt/arkiv/lediga\\_tjanster/311-3989-06.html](http://www.umu.se/umu/aktuellt/arkiv/lediga_tjanster/311-3989-06.html)

## Kalendarium 2006

### 23 november kl. 13-17

EU:s Marie Curie-program och Att tänka på när man skriver ansökan

### 23 november, 2006, kl. 15-17 seminarium i serien KOMMUNIKATION: KULTUR, TEKNOLOGI, VETENSKAP VETENSKAPENS ARKITEKTUR

Sven Widmalm, CID-torget, Lindstedtsvägen 5, plan 6, KTH CSC

### 24 november klockan 11:15 exjobbseminarium i MDI

Linda Eriksson, Wi-Fi-telefoner och användbarhet – en användbarhetsutvärdering av Hitachi WirelessIP5000, Ascocom i75 och Accton VM1188T anslutna till Ericssons växel MX-ONE™. på CID-torget.

### 24 november kl 13.30 Disputation

Maria Enroth, Medieteknik och grafisk produktion, Developing tools for sustainability Management in the graphic arts industry. F3, Lindstedsv 26, KTH. Abstract Numero nr 37

### 28 november 2006

Urban Turntable Conference på Färgfabriken

### 28 November 15:15 - 17:00, 2006 Seminar at Speech, Music and Hearing:

Prosodi hos fragmentariska grounding-yttranden i dialogsystem, Jens Edlund, David House och Gabriel Skantze, The seminar is held in Fantum.

### 29 november från kl 17 Öppet Hus 16

Öppet Hus, KTH CSC Beräkningsbiologi i Hus 16 på Albanova campus, Roslagstullsbacken 35A, Ruddammen

### 4 december 9.15, Docentföreläsning:

Precision and Stability in Computational Fluid Dynamics, Johan Hoffman

### 6 december heldagsseminarium:

Den rätta känslan - om affektiv produktutformning på Konstfack, Telefonplan, Stockholm.

### 6 december kl. 12.10 – 12.50 Lunchkonserter Hösten 2006

Nordisk romantik med Duo Musica Romantica, Åke Lundeberg, violin och Harry Severin, piano

### 6 december, kl 14.00

STIMDI firar 20-årsjubileum Fest och mingel intressanta seminarier från kl 14 och hela kvällen.

### 7 december, 13:00 Bloggseminarium,

Gilad Mishne, Universiteit van Amsterdam, Applied Text Analytics for Blogs

### 8 december 14.00 Disputation

Eva Björkner, TMH KTH, Why so different? - Aspects of voice characteristics in operatic and musical theatre singing. Sal F3.

### 8 december kl 15:15 2006

D-kollegium för Datateknikprogrammet på KTH i sal E3.

### 11 december 13.00 Disputation

Per-Anders Jande, TMH KTH, Modelling Phone-Level Pronunciation in Discourse Context. Sal F3.



## Kalendarium 2006

### 11 december 14.00 Disputation

Robert Suzic, TCS KTH, Stochastic Multi-Agent Plan Recognition, Knowledge Representation and Simulations for Efficient Decision Making, Sal D2. Abstract Numero nr 37

### 13 December, 14:30-16:30 open lecture.

"Helping the poor help themselves – a road towards a more sustainable, equitable and peaceful future"  
Prof Muhammad Yunus - The Nobel Peace Prize Laureate 2006. at Folkets Hus, Barnhusgatan 12-14,

### 15 december kl 13:00 Licentiatseminarium

Emmi Enoksson, Medieteknik och grafisk produktion, KTH. Studies on image control for better reproduction in offset, E2 Lindstedtsvägen 3

### 15 december kl 14:00 Disputation

Respondent: Mårten Trolin, Datalogi KTH, Electronic Cash and Hierarchical Group Signatures, Sal D3 Lindstedtsvägen 5. Abstract Numero nr 37

### 18 december 15.00 Lic.seminarium

Gunilla Svanfeldt, Tal- och musik kommunikation -KTH Expressiveness in virtual talking faces. I seminarierum Fantum, Lindstedtsv 24

### 19 december 14.00 Disputation

Håkan Melin, TMH KTH, Automatic speaker verification On site and by telephone: Methods, applications and assessment. Sal F3.

### 20 december kl. 12.10 – 12.50 Lunchkonserter Hösten 2006

JUL-in med Gunnar & Gunnar

## Seminarielänkar

### AlbaNova

<http://www.albanova.se/aktuellt/>

### Avdelningen för teknik- och vetenskapshistoria

[www.teknikhistoria.se](http://www.teknikhistoria.se)

### Bråket

<http://www.math.kth.se/braaket.html>

### INSTITUT MITTAG-LEFFLER SEMINARS

[www.ml.kva.se](http://www.ml.kva.se)

### Kommunikationsseminarium:

<http://w1.nada.kth.se/media/Research/k-sem/k-sem-aktuellt/>

### KTH – Computational Science and Engineering Centre

<http://www.kcse.kth.se/seminars.html>

### KTH Matematik

<http://www.math.kth.se/optysyst/seminar/>

S3 <http://www.s3.kth.se/>

### SICS

<http://www.sics.se/research/seminars.php>

### Stacken

<http://www.stacken.kth.se/kalender/>

### Stockholm Bioinformatics Center and Dept Num Analysis and Comp Science

<http://www.sbc.su.se/seminars/>

### TMH, Tal, musik och hörsel

<http://www.speech.kth.se/seminars/>

### Wireless@kth

<http://www.wireless.kth.se>