

Numero

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



Numero nr 18

24 maj 2007 • Årgång 37

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Numero är institutionstidningen
på Skolan för datavetenskap och
kommunikation vid KTH. Numero ut-
kommer 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
- 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
Malmqvist. Ansvarig utgivare är Ingrid
Melinder. Numeros innehåll uttrycker inte
institutionens officiella ståndpunkt annat
än då detta anges.

Kallelse till skolans lärarkollegiemöte

Lärare och forskare, välkommen till möte för skolans lärarkollegium
28/5 kl 15.15-17 i sal D3.

Som alltid är det en kort forskningspresentation som denna gång ges
av Marko Turpeinen, ny professor i medieteknik.

Mötets tema blir uppföljning av lärarinternatet. Speciellt kommer
temat "Pedagogik för alla" att tas upp, denna gång med en diskussion
av idéer, övningar, goda exempel mm att tillämpa i klassrummet.

Har du synpunkter inför mötet, kontakta Erik Fransén, erikf@nada.kth.se.

Välkomna,
Erik Fransén, Ann Lantz,
Sandra Brunsberg, Rolf Carlson,
Nils Enlund

PhD Council spring meeting

Hello all postgraduate students!

It is now time to register for the PhD Council spring meeting for all
postgraduate students at KTH CSC on Tuesday May 29th at 2.30-4.00
PM in room 1537.

Please send a mail no later than Monday at 12 noon to dr-sekr@csc.kth.se
that you are coming!

We in the Board of the PhD Council would like to discuss with you
which questions are the most important for us postgrad students,
and where we in the Board of the PhD Council should concentrate our
efforts. We will happily inform you about what we have been doing so
far if you want to hear about that, but we are especially interested in
getting to know what you think!

Judging from the PhD student questionnaire at KTH CSC last spring,
questions about supervision and postgraduate education seem to
engage many postgrad students. Maybe we could discuss questions
such as:

- As a PhD student, what kind of supervision can I expect to get?
How often? What can I do if the supervision doesn't work?
- What are PhD courses meant for? How can I find relevant courses?
- What salary should I get? What should I do to get the correct
salary? Do I need to do anything?
- What is that "individual study plan" that everybody keeps nagging
me about? Why is it so terribly important?

fortsättning på nästa sida...

See you on Tuesday May 29th at 2.30 PM in room 1537, Osquars backe 2, 5th floor. PhD Council sandwiches will be offered!

Jakob Nordström

Förslag till nya Arkitekturskolan och KTHs entréplats presenteras på Info-Center

Hur kommer nya Arkitekturskolan och entréplatsen vid Kungliga Tekniska högskolan att utformas? Måndagen den 28 maj kl. 17.00 bjuder Akademiska Hus in till en utställning, på Info-center Dr Kristinas väg 4, av de förslag som fyra arkitektkontor ritat i ett parallellt arkitektuppdrag. Förslagen kommer att vara utställda till den 6 juli.

Öppet hus

Öppet hus hos MDI-gruppen

med seminarium med professor Hubert Dreyfus
31 maj 14.00 - 18.00

Professor Hubert L. Dreyfus, Philosophy Dept, University of California at Berkeley, håller ett seminarium: "Why Heideggerian AI Failed and how Fixing it would Require it more Heideggerian"

Seminarier är 14.00 - 15.00 i E1, Lindstedtsvägen 3, KTH. Abstract; se under seminarium.

Efter seminariet, kl. 15-18 visar vi på Lindstedtsvägen 5, 6 tr. exempel på vår pågående forskning och bjuder på förfriskningar. MDI-gruppen vid skolan Datavetenskap och Kommunikation, KTH bestod tidigare av IPLab och CID. Vi har arbetat med forskning inom människa-datorinteraktion och användarcentrerad IT-design i snart 25 år.

Du kommer att kunna se:

- Multimodalt samarbete med haptik och ljud för synskadade barn och ungdomar
- IT-design för nomadiska samarbetsituationer bland studenter och lärare
- Interaktion mellan människor och serviceroboter: "The cognitive robot companion"
- Verktyg för att kollaborativt planera, skapa, uppleva och publicera interaktiva multimedia berättelser
- Pågående arbete med personor, scenarier och prototyper för att skapa en semantisk desktop.
- och mycket mer

Welcome to Open House

with a seminar by Professor Hubert Dreyfus, on May 31 at 14.00-1800.

Seminar 14.00 - 15.00 in Lecture Hall E1,

Lindstedtsvägen 3, KTH: Professor Hubert L. Dreyfus, Philosophy Dept, University of California at Berkeley, will lecture on "Why Heideggerian AI Failed and how Fixing it would Require it more Heideggerian"

Abstract: see below.

After the Lecture, from 15.00-18.00 there will be an Open House with demonstrations and discussions of the work of the HCI Group at Torget, Lindstedtsvägen 5, floor 6,

You will see:

- Multimodal cooperation with haptics and sound for visually impaired children and youths
- IT-design for nomadic cooperative work situations among students and teachers
- Interaction between people and service robots, "The cognitive robot companion"
- A tool that enables collaborative planning, building, experiencing and publishing of interactive multimedia stories
- Ongoing work with personas, scenarios and prototypes in order to create a semantic desktop.
- And a lot more

Welcome

Kerstin Severinson Eklundh och Yngve Sundblad

Seminarium

Why Heideggerian AI Failed and how Fixing it would Require it more Heideggerian

Professor Hubert L. Dreyfus,
Philosophy Dept, University of California at Berkeley

Thursday, 31 May 2007, 14.00 - 15.00
in Lecture Hall E1, Lindstedtsvägen 3, KTH

Prof. Dreyfus is well known for his deep criticism of some aspirations of Artificial Intelligence, in books like *What Computers Can't Do* (1977) and *Whan Computers Still Can't Do: A critique of Artificial Reason* (1992) and *Mind Over Machine* (2000)

Abstract

Reading Heidegger's *Being and Time* and Merleau-Ponty's *Phenomenology of Perception* suggests that Symbolic AI with its representations of meaningless facts about the world cannot solve the frame problem, and that the best representation of the world is the world itself.

Now GOFAI has failed, and Rondey Brooks boasts that his animats avoid the frame problem precisely by directly relating to the world. But Brook's animates and all other versions of what some call Heideggerian AI have their own version of the frame problem, viz. that the program can't update what it finds to be relevant. Fortunately, there is at least one model of how the brain could provide the causal basis of such an ability. Walter Freeman, a founding figure in neurodynamics and one of the first to take seriously

the idea of the brain as a nonlinear dynamical system, has worked out an account of how the brain of an active animal can directly pick up and update what counts as significant in its world.

But, to program Heideggerian AI, we would not only need a model of brain functioning such as Freeman's; we would also need a model of our particular way of being embedded and embodied such that what we experience is significant for us in the particular way that it is. This shows the task of a Heideggerian AI to be overwhelmingly difficult and casts doubt on whether we will ever be able to accomplish it.

Full paper on Heideggerian AI - great reading:
<http://cid.nada.kth.se/en/HeideggerianAI.pdf>

Professor Dreyfus will visit us the full day Thursday, May 31, and will be available for discussions in the morning.

After the Lecture, from 15.00-18.00 there will be an Open House with demonstrations and discussions of the work of the HCI Group at Torget, Lindstedtsvägen 5, floor 6, which will also be announced separately.

*Very welcome to both events,
Yngve Sundblad & Kerstin Severinson Eklundh*

Forthcoming CBN seminar

Three kinds of "effective connectivity" and their sensitivity to activity scaling errors

Fredrik Edin, CBN

On the 25/5 at 10.15
in our seminar room at Roslagstullsbacken 35,

Abstract:

Effective connectivity measures the connectivity between nodes in a network of neurons or neural populations active during an experiment, but confusion in the literature regarding its definition has led to the use of the term for two other related measures of interactions in networks as well. In this text, I distinguish between effective connectivity (the functional strength of a connection), influence (the influence of one node on the activity of another) and relative influence (the influence of one node on the activity of another relative to all influences on the activity of that other node). I investigate the sensitivity of effective connectivity and relative influence to signal scaling (e.g. stronger signal attenuation in subcortical than cortical regions in fMRI). I show that scaling affects the conclusions of the effective connectivity analysis severely, whereas relative influence is not only unaffected by the scaling problem, but is also an appropriate type of measure of neural interactivity if one is interested in the degree to which one node controls activity in another node, rather than connectivity per se.

*Very welcome,
Erik Fransén*

Välkommen till seminarium i serien

KOMMUNIKATION: KULTUR, TEKNOLOGI, VETENSKAP
Temat för VT 2007 är "spel som medium och kultur"

Computer game play in terms of situated activity and cognition

Jana Rambusch, doktorand i kognitionsvetenskap,
Inst för Kommunikation och Information, Högskolan i Skövde

Tid: torsdagen den 24 maj 2007, kl. 14-16.
Plats: Torget, Lindstedtsvägen 5, plan 6, KTH CSC

Abstract:

Forskning på datorspel har växt explosionsartat de senaste åren men forskning med den faktiska spelaktiviteten i fokus lyser fortfarande med sin frånvaro. Jana kommer att diskutera (dator)spelandet utifrån ett kognitionsvetenskapligt perspektiv, gå igenom vilka frågeställningar som finns samt diskutera vilka metodologiska problem man ställs inför utifrån ett sådant perspektiv.

Textunderlag:

- <http://sv.wikipedia.org/wiki/Kognitionsvetenskap>
- Kurt Squire (2002) Cultural framing of computer/video games. The International Journal of Computer Game Research, 2(1). (<http://www.gamestudies.org/0102/squire/>)

*Välkomna!
Daniel Pargman*

Bildning och utbildning på KTH

Henrik Eriksson, KTH CSC

Torsdagen den 24 maj 2007 kl 13.15 -14.30
Seminarieret hålls i sal D3, Lindstedtsvägen 5

Vad kan bildning på ett tekniskt universitet som KTH vara? Innebär det kunskaper som gör att den blivande ingenjören inte ska känna sig generat okunnig i samtal om litteratur, konst, musik och filosofi? Eller handlar det om kritisk förmåga? Kan man rent av ge kurser i bildning? Javisst kan man det! Det har Henrik Eriksson, universitetslektor på skolan för datavetenskap och kommunikation, gjort i kursen "Allmän bildning" <http://www.nada.kth.se/kurser/kth/2D1190/index07.html>

Vid ett seminarium på KTH torsdagen den 24 maj 2007 kl 13.15 -14.30 kommer Henrik kommer att både ta upp generella frågor om bildning i akademisk utbildning och erfarenheter från sin kurs. Seminarieret hålls i sal D3, Lindstedtsvägen 5, på KTH Campus och fakultetens dekanus, professor Folke Snickars, är moderator.

I debatten om den akademiska utbildningens syften kan man urskilja två huvudlinjer. Den ena betonar att utbildningen i huvudsak ska förbereda för en profession. Den andra betonar att utbildningen huvudsakligen är till för att ge generella kunskaper och färdigheter, som är värdefulla för alla människor

oavsett profession. Det som ska förmedlas enligt den senare uppfattningen kallas ofta bildning. Tidigare fick ofta ingenjörer (orättvist) representera en oförmåga att se sin verksamhet ur andra än snävt fackmässiga synvinklar. Denna s.k. "fackidioti" föddes på 40- och 50-talet en stark motkraft i kommittén "Humanistisk orientering i teknisk undervisning", med KTH-professorerna Georg Wästlund och Erik Ingelstam som initiativtagare. Kommittén pläderade för att det i varje ingenjörs utbildning borde ingå en orientering i humaniora och samhällsvetenskap och man ordnade föreläsningar för teknologer i historia, litteratur och psykologi.

Läs också vad högskoleverket anser om bildning och utbildning <http://www.hsv.se/kvalitet/bildning.4.539a949110f3d5914ec800056498.html>.

"Bildning och utbildning på KTH" är ett av Fakultetens kvalitetsseminarier.

Kontaktpersoner är Folke Snickars, folke@infra.kth.se och Per Jacobsson, perjac@admin.kth.se

Disputationer

Disputationer

Stability of Plane Couette Flow and Pipe Poiseuille Flow

Per-Olov Åsén, Numerisk Analys, KTH CSC

Tid: 2007-05-25 kl 10:15

Plats: Sal D3, Lindstedtsvägen 5

Opponent: Professor Jonathan Goodman

Handledare: Professor Gunilla Kreiss

Abstract publicerat 14 maj, Numero nr 17

Disputation

The Impact of Consumer Knowledge, Information Mode and Presentation Form on Advertising Effects

Sanjay Nagaraj, Medieteknik och grafisk produktion, KTH CSC

2007-06-01 kl 10:00 - 13:00

Sal E3, Lindstedtsvägen 3

Opponent: Docent Micael Dahlén

Handledare: Professor Nils Enlund

Abstract:

Consumers consistently acquire information on product attributes available to them. In considering the many and varied effects of advertising a very central issue is how these attribute information in an ad is processed, that is, how consumers were able to comprehend and remember what an ad claimed. Researchers also seem to believe that the

use of persuasive ads increases recall of attribute information, enhances attitude toward the ad, brand, and positively affects intent to purchase. Such information in marketing communications is often presented either in a vivid or non-vivid form and they are conveyed in either numbers or adjectives. The complexity of numerical information and the fact that they are being used on a frequent basis to make many important decisions makes numerical cognition a challenging and important domain for this research. In this research we draw the reviews and advances in consumer research on comparisons between two types of information in an advertising setting and combining it along with two types of presentation forms. Yet a few empirical investigations of presentation forms, typically vividness and its interaction effects with information mode, have been conducted in a consumer-behavior context. Further to add to this research is the inclusion of consumer knowledge moderates the way such information is processed. Although the effects of vividness in terms of its ability to impart a persuasive communication have yielded mixed results, we extend the scope of vividness research and attempt to examine vividness effects and its interaction with information mode in print ads. Since different consumers use different skills and strategies to evaluate information, it is suggested that individual differences in product knowledge may be an important moderating factor in information processing and final response to product ads.

In order to address the research issues, a conceptual framework based on the availability valence hypothesis (availability theory) was created. Sixty individual hypotheses were the resulting derivatives from the framework. To test the hypotheses and the conceptual model, a 2x2x2 factorial design was employed and examined responses from 160 students from both arts and computing science program of a major university. Experiments examined the persuasive impact of a new brand containing two forms of presentation and information mode. The conclusions from the study reveal that vividness has an impact on recall and attitudes. The impact on recall and judgment was more pronounced for novices in comparison to experts. The interactions between presentation form and information mode also revealed that the consumer knowledge moderates the way information is processed for recall and subsequent judgment. Experts were able to recall attribute information more accurately than novices irrespective of the presentation form and the judgment imparted was based on the information available. All functional properties of the variables in the proposed model had an impact on the effects of advertising during memory and judgment tasks. We also provided a theoretical rationale based on extant literature on the availability model as to which presentation form and information mode may influence the recall and judgment resulting in intent to purchase. The presentation form and information mode highlights the similarities in the benefits offered by an existing base brand. Theoretical and practical implications of the results are discussed as well as the limitations and future directions of this study.

Disputation

Gravure vs. web-offset! The changing world of publication printing 1986-2006

Anders Bjurstedt, Medieteknik KTH

2007-06-05 kl.10.00
Sal F3 Lidstedtsvägen 26

Abstract:

The European publication printing industry and its markets have undergone profound structural changes between 1986 and 2006. This thesis is an investigation of these changes and of how the publication industry has been affected, as well as of the balance between publication gravure and commercial heat-set web-offset. The publication printing market has grown substantially during 1986-2006, and the increase in volume is about 250%, from 5 million tons to 13 million tons of paper. In 1986, gravure was the dominating publication printing technique. Since 1986, however, web-offset printing has grown substantially, and the process has today a much larger market share of the European publication market. This domination is also reflected in the investments in new printing capacity since 2000, where 70-75% has gone to commercial heat-set web-offset press manufacturers.

This thesis focuses on the reasons why the balance between the two competing publication printing techniques, gravure and web-offset, changed between 1986 and 2006. It also studies the main driving forces determining the developments of these techniques and their related processes as well as their competitive strengths. Is gravure a printing process suitable only for very large runs, for huge volumes and for large markets? The changes in the European media market have affected the two major segments of the publication market; magazine and catalogue printing. In the magazine market, print runs in the segments of medium to large titles have decreased, and catalogues have changed from a single, thick catalogue to thinner; more targeted catalogues.

This thesis is based on two studies. The first, focused on the market requirements and techno-economical comparisons of gravure and web-offset in 1985-1986, was carried out by the author as the Secretary General of the European Rotogravure Association (ERA), and the second, in 2005-2006, has investigated the present situation on the European publication markets. The methodologies used in the investigations have been questionnaires (the originals 1985-86 have also been used in 2005-2006), surveys, literature studies and a substantial number of interviews with representatives of print buyers (publishers and catalogue producers), printers and all the major suppliers to the industry.

Given these changes, how can the competitiveness of publication gravure be improved and what strategies should a publication gravure printer use in order to survive in a very competitive European market? With shorter runs in very fast running gravure presses, the turn-around time in the cylinder-engraving department becomes very critical. A Double Ender gravure press for paginations from 16-64 pages, with an alternative up to 96 pages,

where only four cylinders are needed, in combination with high-speed laser engraving of the cylinders, may be the answer.

Disputation

Resource lean and portable automatic text summarization

Martin Hassel, Datalogi

2007-06-11 kl 13:15
E2 Lindstedtsvägen 3

Opponent: Dr. Horacio Saggion, Dept of Computer Science, Univ. of Sheffield, UK

Handledare: Docent Hercules Dalanian

Abstract

Today, with digitally stored information available in abundance, even for many minor languages, this information must by some means be filtered and extracted in order to avoid drowning in it. Automatic summarization is one such technique, where a computer summarizes a longer text to a shorter non-redundant form. Apart from the major languages of the world there are a lot of languages for which large bodies of data aimed at language technology research to a high degree are lacking. There might also not be resources available to develop such bodies of data, since it is usually time consuming and requires substantial manual labor, hence being expensive. Nevertheless, there will still be a need for automatic text summarization for these languages in order to subdue this constantly increasing amount of electronically produced text.

This thesis thus sets the focus on automatic summarization of text and the evaluation of summaries using as few human resources as possible. The resources that are used should to as high extent as possible be already existing, not specifically aimed at summarization or evaluation of summaries and, preferably, created as part of natural literary processes.

Moreover, the summarization systems should be able to be easily assembled using only a small set of basic language processing tools, again, not specifically aimed at summarization/evaluation. The summarization system should thus be near language independent as to be quickly ported between different natural languages.

The research put forth in this thesis mainly concerns three computerized systems, one for near language independent summarization – The HolSum summarizer; one for the collection of large-scale corpora – The KTH News Corpus; and one for summarization evaluation – The KTH eXtract Corpus. These three systems represent three different aspects of transferring the proposed summarization method to a new language.

One aspect is the actual summarization method and how it relates to the highly irregular nature of human language and to the difference in traits among language groups. This aspect is discussed in detail in Chapter 3. This chapter also presents the notion of "holistic summarization",

an approach to self-evaluative summarization that weighs the fitness of the summary as a whole, by semantically comparing it to the text being summarized, before presenting it to the user. This approach is embodied as the text summarizer HolSum, which is presented in this chapter and evaluated in Paper 5.

A second aspect is the collection of large-scale corpora for languages where few or none such exist. This type of corpora is on the one hand needed for building the language model used by HolSum when comparing summaries on semantic grounds, on the other hand a large enough set of (written) language use is needed to guarantee the randomly selected subcorpus used for evaluation to be representative. This topic briefly touched upon in Chapter 4, and detailed in Paper 1.

The third aspect is, of course, the evaluation of the proposed summarization method on a new language. This aspect is investigated in Chapter 4. Evaluations of HolSum have been run on English as well as on Swedish, using both well established data and evaluation schemes (English) as well as with corpora gathered "in the wild" (Swedish). During the development of the latter corpora, which is discussed in Paper 4, evaluations of a traditional sentence ranking text summarizer, SweSum, have also been run. These can be found in Paper 2 and 3.

This thesis thus contributes a novel approach to highly portable automatic text summarization, coupled with methods for building the needed corpora, both for training and evaluation on the new language.

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Disputation

Computational modeling of the lamprey CPG - from subcellular to network level

Mikael Huss, Datalogi

2007-06-14 kl 13:00

Sal FB 42, Roslagstullsbacken 21, AlbaNova

Opponent: Associate Professor Ranu Jung, Arizona State Univ, USA

Handledare: Docent Jeanette Hellgren Kotaleski

Abstract

Due to the staggering complexity of the nervous system, computer modelling is becoming one of the standard tools in the neuroscientist's toolkit. In this thesis, I use computer models on different levels of abstraction to compare hypotheses and seek understanding about pattern-generating circuits (central pattern generators, or CPGs) in the lamprey spinal cord. The lamprey, an ancient and primitive animal, has long been used as a model system for understanding vertebrate locomotion. By examining the lamprey spinal locomotor network, which is a comparatively simple prototype of pattern-generating networks used in higher animals, it is possible to obtain insights about the design principles behind the spinal generation of locomotion.

A detailed computational model of a generic spinal neuron within the lamprey locomotor CPG network is presented. This model is based, as far as possible, on published experimental data, and is used as a building block for simulations of the whole CPG network as well as subnetworks. The model construction process itself revealed a number of interesting questions and predictions which point toward new laboratory experiments. For example, a novel potential role for KNaF channels was proposed, and estimates of relative soma/dendritic conductance densities for KCaN and KNaS channels were given. Apparent inconsistencies in predicted spike widths for intact vs. dissociated neurons were also found. In this way, the new model can be of benefit by providing an easy way to check the current conceptual understanding of lamprey spinal neurons.

Network simulations using this new neuron model were then used to address aspects of the overall coordination of pattern generation in the whole lamprey spinal cord CPG as well as rhythm-generation in smaller hemisegmental networks. The large-scale simulations of the whole spinal CPG yielded several insights: (1) that the direction of swimming can be determined from only the very rostral part of the cord, (2) that reciprocal inhibition, in addition to its well-known role of producing alternating left- right activity, facilitates and stabilizes the dynamical control of the swimming pattern, and (3) that variability in single-neuron properties may be crucial for accurate motor coordination in local circuits.

We used results from simulations of smaller excitatory networks to propose plausible mechanisms for obtaining self-sustaining bursting activity as observed in lamprey hemicord preparations. A more abstract hemisegmental network model, based on Izhikevich neurons, was used to study the sufficient conditions for obtaining bistability between a slower, graded activity state and a faster, non-graded activity state in a recurrent excitatory network. We concluded that the inclusion of synaptic dynamics was a sufficient condition for the appearance of such bistability.

Questions about rhythmic activity intrinsic to single spinal neurons – NMDA-TTX oscillations – were addressed in a combined experimental and computational study. We showed that these oscillations have a frequency which grows with the concentration of bath-applied NMDA, and constructed a new simplified computational model that was able to reproduce this as well as other experimental results.

A combined biochemical and electrophysiological model was constructed to examine the generation of IP3-mediated calcium oscillations in the cytosol of lamprey spinal neurons. Important aspects of these oscillations were captured by the combined model, which also makes it possible to probe the interplay between intracellular biochemical pathways and the electrical activity of neurons.

To summarize, this thesis shows that computational modelling of neural circuits on different levels of abstraction can be used to identify fruitful areas for further experimental research, generate experimentally testable predictions, or to give

insights into possible design principles of systems that are currently hard to perform experiments on.

Downloadable thesis in PDF:

<http://www.csc.kth.se/~hussm/HussThesis2007.pdf>

Disputation

Logics of Knowledge and Cryptography: Completeness and Expressiveness

Mika Cohen, teleinformatik

2007-06-15 kl 10:00

Plats: E2 Lindstedtsvägen 3

Opponent: Dr. Alessio R. Lomuscio, Dept of Computing, Imperial College London, U.K.

Handledare: Docent Mads Dam

Licentiatseminarium

Licentiatseminarium

Early Information Processing in the Vertebrate Olfactory System - A Computational Study

Malin Sandström, Datalogi, KTH CSC

2007-06-08 kl 15.00

Sal E2 Lidstedtsvägen 3

Abstract:

The olfactory system is believed to be the oldest sensory system. It developed to detect and analyse chemical information in the form of odours, and its organisation follows the same principles in almost all living animals -- insects as well as mammals. Likely, the similarities are due to parallel evolution -- the same type of organisation has arisen more than once. Therefore, the olfactory system is often assumed to be close to optimally designed for its tasks.

Paradoxically, the workings of the olfactory system are not yet well known, although several milestone discoveries have been made during the last decades. The most well-known is probably the discovery of the olfactory receptor gene family, announced in 1991 by Linda Buck and Richard Axel. For this and subsequent work, they were awarded a Nobel Prize Award in 2004. This achievement has been of immense value for both experimentalists and theorists, and forms the basis of the current understanding of olfaction.

The olfactory system has long been a focus for scientific interest, both experimental and theoretical. Ever since the field of computational neuroscience was founded, the functions of the olfactory system have been investigated through computational modelling.

In this thesis, I present the basis of a biologically realistic model of the olfactory system. Our goal is to be able to represent the whole olfactory

system. We are not there yet, but we have some of the necessary building blocks; a model of the input from the olfactory receptor neuron population and a model of the olfactory bulb.

Taking into account the reported variability of geometrical, electrical and receptor-dependent neuronal characteristics, we have been able to model the frequency response of a population of olfactory receptor neurons. By constructing several olfactory bulb models of different size, we have shown that the size of the bulb network has an impact on its ability to process noisy information. We have also, through biochemical modelling, investigated the behaviour of the enzyme CaMKII which is known to be critical for early olfactory adaptation (suppression of constant odour stimuli).

Exjobb

Presentation av exjobb i MDI

Nästa exjobbseminarium i MDI äger rum fredagen den 25/5 klockan 10:15 i seminarierum 4523

4523 har adressen Lindstedtsvägen 5, plan 5.

Staffan Larsson

Utbildande programvara - design och implementation av ett undervisande program.

Sammanfattning: http://www.nada.kth.se/utbildning/grukth/exjobb/rapportlister/2007/sammanf07/larsson_staffan.html

Program: Medieteknik

Handledare: Kerstin Severinson-Eklundh

Examinator: Kerstin Severinson-Eklundh

Opponent: Kamilla Pahlefors och Olof Strömqvist

Gustaf Bengtsson

Rapporthantering och SharePoint - Metoder för en effektiv och kontrollerad rapporthantering på Svenska Volkswagen.

Sammanfattning: http://www.nada.kth.se/utbildning/grukth/exjobb/rapportlister/2007/sammanf07/bengtsson_gustaf.html

Program: Industriell ekonomi

Handledare: Åke Walldius

Examinator: Yngve Sundblad

Opponent: Staffan Larsson och Herbert Cuba Garcia

Seminarieledare: Yngve Sundblad

Fredrik

X-job seminar at Speech, Music and Hearing:

Stegljud

Åsa Wrangle

Tuesday June 5, 15:15 - 17:00

The seminar is held in Fantum.

Opponent: Johan Bjurling

Forthcoming CBN seminar, exjob:

Odor Concentration Coding in the Olfactory Bulb Glomerulus: The Interval Coding Hypothesis

On the 1/6 at 10.15 in our seminar room at Roslagstullsbacken 35,
Thomas Proschinger, exjobbare at CBN,

This week, May 18, there is no seminar.

*Very welcome,
Erik Fransén*

Exjobbepresentationer i datalogi och biomedicinsk teknik.

Tisdagen den 29 maj 2007 kl 13.15 i rum 4523

Björk, Olof

The use of machine learning techniques to control individuals of fighting squads in computer games.

Ämne: Datalogi. Program: D
Uppdragsgivare: Avalanche Studios
Handledare: och examinator: Anders Lansner
Opponent: Richard Hall

Proschinger, Thomas

Odor Concentration Coding in the Olfactory Bulb Glomerulus: The Interval Coding Hypothesis.

Ämne: Biomedicinsk teknik. Program: D
Uppdragsgivare: KTH CSC
Handledare: och examinator: Anders Lansner

Tengwall, Oscar

Scaling Performance of a Parallel Implementation of a Biophysically Detailed Model Retina.

Ämne: Datalogi. Program: D
Uppdragsgivare: KTH CSC
Handledare: Örjan Ekeberg och examinator: Anders Lansner
Opponent: Basim Barelias

Seminarieret leds av Anders Lansner

Tisdagen den 29 maj 2007 kl 15.15 i rum 4523

Hellebro, Viktor

Analys av problem vid införande och utvidgning av en tjänsteorienterad arkitektur.

Ämne: Datalogi. Program: D
Uppdragsgivare: EnjoyIT Sweden AB
Handledare: Stefan Nilsson och examinator: Karl Meinke

Hansson, Theresia

Graphics Processor Based Rigid Body Physics Simulation.

Ämne: Datalogi. Program: Mikroelektronik
Uppdragsgivare: AB Colored Media

Handledare och examinator: Stefan Arnborg
Opponent: Viktor Hellebro

Algotsson, Gustav

Automatic pronoun resolution for Swedish.

Ämne: Datalogi. Program: D
Uppdragsgivare: KTH CSC
Handledare: Martin Hassel och examinator: Stefan Arnborg

Seminarieret leds av Stefan Arnborg

Onsdagen den 30 maj 2007 kl 15.15 i rum 1537

Löthman, Mikael

Non-human Activity Detection in Internet-based Advertising Systems.

Ämne: Datalogi. Program: D
Uppdragsgivare: TradeDoubler AB
Handledare: Daniel Gillblad och examinator: Anders Lansner
Opponent: Rebecka Wedlund

Gustafsson, Simon

Planar Surface Tracking and its Applications.

Ämne: Datalogi. Program: E
Uppdragsgivare: KTH CSC
Handledare: Danica Kragic och examinator: Jan-Olof Eklundh
Opponent: Mikael Löthman

Seminarieret leds av Danica Kragic

Ann B

Exjobbepresentationer i numerisk analys

Onsdagen den 30 maj kl i E1625

(Note 6th floor, need door card to get in)

10.00

Alessio Quaglino: **Simulation of Collision deformations - a finite element approach in Computer Graphics,**
advisor: Johan Hoffman, opponent: Oana Wiklund

10:45

Gael Dubus: **MOGADOR - a model for nuclear fuel, a numerical study**
advisor: Ninni Carlsund, Axel Ruhe opponent: TBA

11:30

Kristofer Stenberg: **En hierarkisk Bayesianisk modell av värdepapperstatistiska egenskaper,**
advisor: Mikael Andersson mat. stat. opponent: TBA

*Welcome
Axel Ruhe,
Professor of Numerical Analysis*

Kurser

Interaktiv basutbildning i förvaltningskunskap - del förvaltningslagen

Till dig som kanske är nyanställd eller som behöver fräscha upp dina kunskaper om förvaltningslagen. Du får en god grund i de regler som styr ärendehanteringen kopplat till hur det fungerar på KTH. Sista anmälan 1 juni.

Mer info:

<http://www.kth.se/internt/personalutbildning/>

KTH ACCESS GRADUATE SCHOOL
Intensive course on

Wireless Sensor Networks

11-15 June, 2007
Professor Lang Tong, Cornell University

Welcome to attend this intensive course arranged by ACCESS graduate school. We are very pleased to have Prof. Lang Tong, Cornell University (see biography below) giving this series of lectures.

See:

http://www.access.ee.kth.se/ACCESS_gradschool/WSN_course.php for more details and the schedule.

Please distribute this information to those interested.

*Welcome,
Bjorn Ottersten*

Smått&gott

Qi-gong tisdagar och fredagar

Ett pass tar ca 20 minuter och gör gott för axlar och rygg när du sitter mycket framför datorn. Kom som du är, ingen föränmälan, inget ombyte behövs.

Qi-gong de närmaste veckorna:

| | |
|----------|--------------------------|
| Vecka 21 | 25 maj kl 14.30 rum 4523 |
| Vecka 22 | 29 maj kl 11.30 rum 4523 |
| | 1 juni kl 14.30 rum 4523 |
| Vecka 23 | 5 juni kl 11.30 rum 4523 |
| | 8 juni kl 14.30 rum 4523 |

OBS!

(tisdagen den 12 juni flyttas Qi Gongen till onsdag 13 juni 14:30 i 4523)

Massagestolen

Boka in dig på en stunds avslappnande massage. Passen är 15 minuter långa och sköna för trötta axlar och ryggar.

Boka på: <http://www.csc.kth.se/bokning> välj personalvård.

Seminarielänkar

AlbaNova

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

Avdelningen för teknik- och vetenskapshistoria
www.teknikhistoria.se

Bråket

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

CIAM - Center for Industrial and Applied Mathematics

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

INSTITUT MITTAG-LEFFLER SEMINARS

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/optsys 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>

21-24 maj WWCS2007 conference at KTH in Stockholm

24 maj 2007 kl 13.15 -14.30

Bildning och utbildning på KTH. Henrik Eriksson, KTH CSC Seminariet hålls i sal D3, Lindstedtsvägen 5

24 maj 2007, kl. 14-16 seminarium i serien KOMMUNIKATION: KULTUR, TEKNOLOGI, VETENSKAP

Computer game play in terms of situated activity and cognition. Jana Rambusch, Torget, Lindstedtsvägen 5, plan 6, KTH CSC

25 maj kl 10:15 Disputationer

Stability of Plane Couette Flow and Pipe Poiseuille Flow. Per-Olov Åsén, Numerisk Analys, KTH CSC
Sal D3, Lindstedtsvägen 5

25 maj at 10.15 CBN seminar

Three kinds of "effective connectivity" and their sensitivity to activity scaling errors. Fredrik Edin, CBN
in our seminar room at Roslagstullsbacken 35

25 maj klockan 10:15 Presentation av exjobb i MDI

Staffan Larsson. Utbildande programvara - design och implementation av ett undervisande program.
Gustaf Bengtsson. Rapporthantering och SharePoint - Metoder för en effektiv och kontrollerad
rapporthantering på Svenska Volkswagen. i seminarierum 4523

28 maj kl 15.15-17 skolans lärarkollegiemöte

Lärare och forskare, välkommen till möte för skolans lärarkollegium i sal D3.

29 maj kl 13 - 16 Framtidens vardagsrum/vardagsrummets framtid

Presentationen är resultatet av kursen "Innehåll och uttryck i media KTH, Sal F2, Lindstedtsvägen 26

29 maj 2007 kl 13.15 Exjobbspresentationer i datalogi och biomedicinsk teknik.

Björk, Olof.

The use of machine learning techniques to control individuals of fighting squads in computer games.

Proschinger, Thomas.

Odor Concentration Coding in the Olfactory Bulb Glomerulus: The Interval Coding Hypothesis.

Tengwall, Oscar. Scaling Performance of a Parallel Implementation of a Biophysically Detailed Model Retina.
i rum 4523

29 maj 2.30-4.00 PM PhD Council spring meeting

PhD Council spring meeting for all postgraduate students at KTH CSC in room 1537.

29 maj 2007 kl 15.15 Exjobbspresentationer i datalogi och biomedicinsk teknik.

Hellebro, Viktor. Analys av problem vid införande och utvidgning av en tjänsteorienterad arkitektur.

Hansson, Theresia. Graphics Processor Based Rigid Body Physics Simulation.

Algotsson, Gustav. Automatic pronoun resolution for Swedish. i rum 4523

29 maj KL 18 - 19.15 Konstvisning

Utställningen: Ännu större skala! Statens konstråds konstpedagog Inger Höjer Aspemyr presenterar de nya
entréer som den tyske konstnären Franz Ackermann gestaltat

30 maj kl 10.00 - 12.15 Exjobbsredovisningar i numerisk analys

Alessio Quaglino: Simulation of Collision deformations - a finite element approach in Computer Graphics,

Gael Dubus: MOGADOR - a model for nuclear fuel, a numerical study

Kristofer Stenberg: En hierarkisk Bayesianisk modell av värdepapperstatistiska egenskaper,
i E1625 (Note 6th floor, need door card to get in)

30 maj, 15:15 Linneaus Center ACCESS Distinguished Lecture Series

Engineering Autonomic Systems Using Control Theory. Dr Joseph L. Hellerstein,
Salongen, Osquars backe 31, KTH

30 maj 2007 kl 15.15 Exjobbspresentationer i datalogi och biomedicinsk teknik.

Löthman, Mikael. Non-human Activity Detection in Internet-based Advertising Systems.

Gustafsson, Simon. Planar Surface Tracking and its Applications. i rum 1537

Kalendarium 2007

Även på <http://www.csc.kth.se/aktuellt/kalendarium/>

30 maj Användarnas dag

Användarnas dag är även i år ett samarrangemang mellan UsersAward, LO, TCO, MDI/KTH och VINNOVA. Varmt välkommen till Pelarsalen i Norra Latin

30 maj - 1 juni 2007 FONETIK 2007. TMH står som värdar för årets fonetikkonferens

31 maj 14.00 - 15.00 seminarium

"Why Heideggerian AI Failed and how Fixing it would Require it more Heideggerian"
Professor Hubert L. Dreyfus, i E1, Lindstedtsvägen 3, KTH

31 maj 14.00 - 18.00 Öppet hus hos MDI-gruppen

Öppet hus hos MDI-gruppen med seminarium med professor Hubert Dreyfus vi visar exempel på vår pågående forskning och bjuder på förfriskningar

1 juni kl 10:00 - 13:00 Disputationer

The impact of consumer knowledge, information mode, and presentation form on advertising effects
Sanjay Nagaraj, Medieteknik och grafisk produktion, KTH CSC. Sal E3, Lindstedtsvägen 3

1 juni at 10.15 CBN seminar, exjob:

Thomas Proschinger. Odor Concentration Coding in the Olfactory Bulb Glomerulus: The Interval Coding Hypothesis. in our seminar room at Roslagstullsbacken 35

5 juni kl.10.00 Disputation

Gravure vs. web-offset! The changing world of publication printing 1986-2006. Anders Bjurstedt, Medieteknik KTH. Sal F3 Lidstedtsvägen 26

5 Juni, 15:15 - 17:00 X-job seminar at Speech, Music and Hearing:

Stegljud. Åsa Wrangé. The seminar is held in Fantum

8 juni kl 15.00 Licentiatseminarium

Early Information Processing in the Vertebrate Olfactory System - A Computational Study. Malin Sandström, Datalogi, KTH CSC. Sal E2 Lidstedtsvägen 3

11 juni kl 13:15 Disputation

Resource lean and portable automatic text summarization. Martin Hassel, Datalogi E2 Lindstedtsvägen 3

14 juni kl 13:00 Disputation

Computational modeling of the lamprey CPG - from subcellular to network level. Mikael Huss, Datalogi Sal FB 42, Roslagstullsbacken 21, AlbaNova

15 juni kl 10:00 Disputation

Logics of Knowledge and Cryptography: Completeness and Expressiveness
Mika Cohen, teleinformatik. KTH CSC. Plats: E2 Lindstedtsvägen 3

27-29 juni 2007 THE DIVERSE CONFERENCE Lillehammer, Norge

2-6 July 2-6, 2007, Summer School in Sound and Music Computing, KTH CSC

8-20 Juli 2007 Summer School

International Summer School in Grid Computing 2007, in Mariefred, Sweden, organised by the European project ICEAGE

15-18 July 2007, konferens

Statistical mechanics of distributed information systems conference in Finland

20-31 August, 2007. PDC Summer School

Introduction to High-Performance Computing – PDC Summer School, KTH, Stockholm, Sweden

23-24 oktober. COMSOL Conference 2007

COMSOL Conference 2007 i Grenoble på Europole, World Trade Center of Grenoble, France