

Annual report 2006, Department of Computer Science

By Kurt Jensen, Head of Department of Computer Science

Dear employees and students at Department of Computer Science,

At the end of a year it comes naturally to look back, and I am very pleased to inform you that the year 2006 has been exceptionally successful for our department.

Appointments etc.

At the beginning of the year Anders Møller was appointed associated professor. Additionally two associated professor positions and two professor positions are available (the professor positions are associated to the graduated engineer programme).

In June six professors from the department who have been appointed within the last 3-4 years gave a joint inaugural lecture: Lars Arge, Ivan Damgård, Kaj Grønæk, Kurt Jensen, Morten Kyng and Mogens Nielsen. Later also Susanne Bødker has been appointed professor.

Mogens Nielsen has become member of the board of The Danish National Research Foundation. Morten Kyng has become member of the "IKT råd" at the Ministry of Science Technology and Innovation.

Olivier Danvy has defended a DSc degree entitled "An Analytical Approach to Programs as Data Objects".

New projects

In November Lars Arge and Gerth Støtting Brodahl received the go-ahead for establishment of a new research center entitled "Center for Massive Data Algorithmics".

In 2006 the department has been granted approx. 100 million DKK for establishment of projects and centers, among others:

- Advanced State Space Methods and Computer Tools for Verification of Communication Protocols, Lars Michael Kristensen , FTP, 4.0 million DKK
- Algorithmic and Combinatorial Theory of Infinite Duration Games, Peter Bro Miltersen, FUU, 1.5 million DKK
- BRICS 2006 Kvalitetsfremme, Mogens Nielsen, FUU, 1.7 million DKK
- BRICS 2006 Samfinansierede stipendier, Mogens Nielsen, FUU, 2.6 million DKK
- Center for Massive Data Algorithmics, Danmarks Gundforskningsfond, 30.0 million DKK
- Centre for Algorithmic Game Theory, Peter Bro Miltersen, Carlsbergfondet, 3.8 million DKK
- Compilation of Family Polymorphism. and Dynamic Inheritance, Erik Ernst, FTP, 2.3 million DKK

- Computer Models and Tools for Drug Discovery, Christian N. S. Pedersen, NABIIT, 7.8 million DKK
- Controlling High Resolution Fluid Simulations, Michael Bang Nielsen, FTP, 2.1 million DKK
- Dynamically Adaptive Pervasive Computing through Cyber Foraging, Niels Olof Bouvin, FTP, 3.0 million DKK
- Efficient Handling of Massive Heterogeneous Terrain Data, Lars Arge, NABIIT, 6.7 million DKK
- Interaktive oplevelsesrum, Kaj Grønbæk, VTU, 3.0 million DKK
- IT Security for Citizens, Ivan B. Damgård, NABIIT, 4.8 million DKK
- Mobile Quantum Security, Ivan B. Damgård, NABIIT, 6.6 million DKK
- Modeller og teknikker for sikre flerpartberegninger, Jesper Buus Nielsen, FNU, 2.0 million DKK
- Networked Embedded System Middleware for Heterogeneous Physical Devices in a Distributed Architecture, Klaus Marius Hansen, EU, 5.6 million DKK
- Quantum Protocols for Secure Computing in Practice, Louis Savail, FNU, 2.7 million DKK
- Secure Information Management and Processing, Ivan B. Damgård, NABIIT, 9.2 million DKK
- SensoByg, Lars Michael Kristensen, VTU, 1.8 million DKK

Conferences etc.

True to tradition the department has hosted a number of international conferences and workshops:

- Summer School on Game Theory in Computer Science (Gerth Stølting Brodahl).
- 8th International Bioinformatics Conference (Christian Storm Pedersen).
- Workshop on Models for Cryptographic Protocols (Ivan Damgård).
- 7th Workshop on Coloured Petri Nets and CPN Tools (Kurt Jensen).
- 6th Danish Human-Computer Interaction Research Symposium (Olav Bertelsen).

Furthermore, we have started a “Distinguished Lecture Series” where some of the world’s leading scientists are giving talks within our research area. Until now Kurt Melhorn, Stephen Cook, Peter Nauer and John Reynolds have been given talks. Lars Arge, Susanne Bødker and Christian Storm Petersen are the driving forces of this lecture series which is supported by the Villum Kann Rasmussen Foundation.

Both the Minister of Science, the County Mayor and the Mayor of Aarhus participated when the new Master plan 2011 for Katrinebjerg was presented in October. The overall objective of the IT-City of Katrinebjerg is to be:

- An international centre of force within IT-based business development, IT research and IT educations
- A world-class innovation environment driven by the “Katrinebjerg innovation model”, where innovation is developed among users, business and researchers.
- Centre of Pervasive Computing in Northern Europe

As head of the new Master plan 2011 group, Morten Kyng has taken a great share in developing the new plan.

Teaching

During autumn 2005 and spring 2006 all computer science programmes have been evaluated. Our department was praised for our high academic level which involves research in teaching, the consistent use of experienced professors and associated professors on the introductory courses, the applied reform of study in the year 2003 (the quarter model, more computer science during the first year, perspective courses, individual study plans and Master's thesis contracts), and our strong PhD program.

The report especially emphasizes two areas, where we can improve: well-defined academic processes on the Master's degree programme and a more systematic quality control. We are working on defining specialized variations of the Bachelor's and the Master's degree programmes that naturally will lead to more planned academic processes. In recent years the systematic quality control has been an area of priority for the Faculty of Science.

The enormous work with the evaluation report and planning of meetings with the Danish Evaluation Institute was excellently performed by Michael Schwartzbach, Head of the Teaching Committee.

During the year the department has produced an unusual large number of degrees at all levels:

- 18 PhD degrees
- 63 graduate degrees (MSc)
- 45 graduate degrees (graduate engineers)
- 70 bachelor degrees

The number of bachelor and graduate degrees is from the period October 2005 – September 2006 whereas the number of PhD degrees is from the calendar year 2006. Also our Diploma and Master programmes have had a lot of activity. Henrik Bækbak Christensen is the chairman of the Part-time Education Committee.

On August, the permanent scientific staff at Daimi went to Sandbjerg for a three-day intensive course on didactics. The course was very successful and was organized by Claus Brabrand in cooperation with "Universitetspædagogisk Udviklingsenhed". It is our plan to continue this work with e.g. courses for PhD students and instructors. Furthermore, we are in the process of rewriting all course descriptions to describe the competences you get by the courses.

As part of a project at Alexandra Instituttet, Karen Falkenberg Lund organized a three-day girls camp during the autumn holiday with the slogan "The future is too important to leave to only men". 25 girls from secondary schools all over Denmark participated. As always the PR Committee has been involved in several PR activities: internships for secondary school students and public school students. There is no doubt that the intensive work of the committee is one of the reasons why we have been able to keep our number of admission.

In December Claus Brabrand's short-film entitled "Teaching Teaching & Understanding Understanding" was awarded "Det gyldne snit" for the best educational video production of the

year. The jury consisted of people ranging from cinematographic experts to experts in teaching/learning and higher education. The jury emphasized the way the short-film communicated a complicated subject in a very clear and thought-provoking way, the way the target group was able to identify themselves, the humour and finally the pictures and graphic.

Finally, it has been announced that our three-year IT bachelor programme has been approved by the Ministry of Education. We have hired an IT bachelor manager, Søren Poulsen, to be in charge of PR, recruitment, organizing of internships etc. Our goal is to be well prepared to receive the first 40 students autumn 2007.

Support

During May our books and magazines moved to the new "IT Library of Katrinebjerg". The Department of Computer Science and the Institute of Communication and Media Studies share the library. It is placed in the IT-House of Katrinebjerg and we hope that other inhabitants of the IT-City will use the library as well. The head of the library, Birgit Pedersen and the chairman of the Library Committee, Ole Ølsterby, have both worked hard to plan and move the library.

The new auditoriums in the IT-House were dedicated shortly after. It will now be possible to host nearly all our teaching activities in the IT City. Only few large courses are still placed in Ny Munkegade. As always Søren Christensen, the chairman of the Office Committee, has extremely competently represented the department in various building committees.

In spring it was decided to reorganize the IT support of the Faculty of Science. In the future the support of e.g. mail, calendar, network and other central services will to a higher degree be common. Søren Christensen is in charge of the work and the reorganization is well underway. He will use half of his working hours on this job. In extension of the above, the department has made a cooperation agreement with the Department of Earth Sciences and the Department of Sport Science. The IT staff has worked hard with all the reorganization including the movement of Earth Sciences to the former Art Museum.

Also the university administration has presented new IT systems, e.g. the PURE system for registration of publications, activities and research areas. In addition to this they introduce the new account and personnel system. Uffe Engberg, the Head of Administration at Daimi, has worked extremely competently with these systems. Without him and our other administrative employees, we would be in distress.