Mini-annual report, Department of Computer Science, 2014

2014 was a turbulent year for Aarhus University with challenges of many types of; especially an extensive cutback, which also hit Department of Computer Science. In spite of this, we have succeeded in the department to maintain a high level, both in the field of education, where 2014, for example, provided a record admission of new undergraduate students, as well as in terms of research, where the department, among other things, extended the Basic Research Center CTIC.

Staff

As regards tenured staff and staff in the tenure-track similar positions, there have been the following changes in 2014

- On July 1st, Lars Birkedal took up a position as Head of Department.
- Kurt Jensen has returned to his professorship and is also Deputy Head of Department and Director of the Aarhus Summer University.
- Sven Skyum has retired. However, he is still affiliated with the department as emeritus.
- Preben Holst Mogensen, Erik Ernst and Thomas Sangild have left their associate professor positions and are now employed at the Alexandra Institute, Google and 3Shape A/S.
- Aslan Askarov, Jörg Müller and Claudio Orlandi V are employed as associate professor within the Logic and Semantics, Ubiquitous Computing and Interaction and Cryptography and Security.
- Kasper Green Larsen has been employed as assistant professor within the Algorithms and Data Structures.

Awards and appointments

- Ole Caprani: e-Skills award for outstanding use of ITC for teaching. The recommendation to the nomination said, among other things:
  " Mr Caprani has inspired and motivated thousands of children, university students and teachers in Denmark, Scandinavia and many other countries to engage in eSkills, ICT, robotics and to pursue an education and a Career in that field. Mr. Caprani is a master in conveying enthusiasm as well as knowledge in STEM education. It is for his lifelong dedication to this work, that we want to nominate him two eSkills Award for Outstanding use of ICT for Teaching."
- Ole Lehmann Madsen and Ivan Damgaard: Chairman/member of the Danish Academy of Technical Sciences, council of Digital Advisors.
- Lars Arge Vice-chair in the Danish Council for Independent Research – Natural Sciences
- Lars Birkedal Editor-in-Chief of the journal "Logical Methods in Computer Science'.
- Annemette Hammer: The Faculty ST TAP Award.
- Kasper Green Larsen: The Aarhus University Research Foundation PhD Prize
- Morten Kragelund Holt and Jens Johansen: Danish Society for Computer Science Master's Thesis award.
- Brian Frølund, John Smedegaard Nielsen, Manual Ciosici and Mikkel Kringelbach: Winners of international App-Camp and winner of international App-competition.
- Jesper Lysgaard Rasmussen and Tobias Fjelsted Alrøe: Winners of the unofficial DM in App development.
- Anders Møller and Asger Feldthaus: ACM SIGPLAN OOPSLA artifact Award.
- Clemens Klokmose: Best Paper Award at the Interactive Tabletops and Surfaces the conference.
- Kaj Grønbæk: Portrayed in "Mandag Morgen", as a representative of one of Denmark's three innovation profiles.
- Esben Andreasen: Travel grant from the Stibo Foundation

Research projects

The department receives approximately DKK 40 million a year in external research grants. Larger grants starting in 2014:

- Continuation of Centre for Theory of Interactive Computation, Peter Bro Miltersen, Danish National Research Foundation, 10.0 million.

- Creativity in Blended Interaction Spaces, Susanne Bødker, the Program Committee for Strategic Growth Technologies, 3.9 million.
- Platform for Future Production, Kaj Grønbæk, the Danish Innovation Fund, 2.4 million.
- CryptoAction, Claudio Orlandi V, the EU network.

Conferences, workshops and summer schools

The department has hosted the following events over the year:

- CFEM Workshop Theory and Practice of Secure Multiparty Computation, 5. -9 May (Ivan Bjerre Damgård)
- MADALGO Summer School 11 to 14 August (Lars Arge)
- Summer PIT: 12. -16 August (Susanne Bødker)
- Theory of Cryptography workshop, 20 to 24 October in Beijing, China (organized in collaboration between the Institute for Interdisciplinary Information Sciences, Tsinghua University and the Centre for Theory of Interactive Computation at Aarhus University)

In addition, the department employees as usual participated in numerous conferences, workshops, summer schools and meetings all over the world.

Research Dissemination

In the course of 2014, the department arranged following Friday Lectures with both local and external researchers:

- An introduction to Crypto-currencies," (Claudio Orlandi).
- Computer generated Graphics for Applications in the real World (Jesper Mosegaard, Alexandra Institute).
- Using advanced Cryptography to solve simple Business Problems (Jakob Illeborg Pagter, Alexandra Institute).
- A History of Compilers and Autocoders (Peter Sestoft, the IT University of Copenhagen).
- Cryptographic Computing (Claudio Orlandi, inaugural lecture).
- Principled Approaches to Information Security (Aslan Askarov, inaugural lecture).
- Gestural Interaction in ubiquitous computing environments (Jörg Müller, inaugural lecture).

In addition, we held our annual Computer Science Day in which the department's research groups will present selected activities.

Dissemination to future students

The department's PR committee works throughout the year with a wide range of offers for students from upper secondary and primary and lower secondary schools all over the country. The offers are wide-ranging and include among other things the following:

- Study-related events, such as:
  o U-days:
  o Student internships for upper secondary school students
  o On-the-job training in primary and secondary school
  o Class visits from upper secondary school classes and primary school classes.
  o The "Rullende universitet":

- Competitions and camps, such as:
  o World Robot Olympics
  o Summer University for primary and lower secondary school students
  o IT-Camp for girls

- Focused talent development programs such as
  o Student Guidance for upper secondary students in connection with study projects
  o Themes about Cryptology for master class in Mathematics
  o Themes about innovation and product development for the Academy for talented young people

- Research dissemination to the general public.
  o Stand and student demos at Danish Airshow at Karup

- o Robot competition for politicians and people from the business community at Denmark's Political Festival on Bornholm
- o Exhibition in Ridehuset during Aarhus Festival Week
- o Workshop at the main library for 4-7 grade students.

A big thank you to the PR committee and all other participating in a great deal of work with the recruitment of new students and the communication of our study programs. In the course of the year, we have had more than 1,000 visitors for PR events at the department.

Student activities

The department's two very well-functioning student associations (DSAU and SOFA) actively contribute to create one of the country's best study environments for our approx. 1,000 students. Among the many excellent activities are:

- Students from the department participated in this year's Danish championship in programming and subsequently in the North-Western European championship in Linköping.
- Student demos in connection with First LEGO League robot competition.
- Student coaches to "Coding Pirates" for 3-8 grade students.
- The Students' Association DSAU is behind a number of social and academic activities for our students, including a certification course in DB2 and company visits.

Teaching

The department has two bachelor programs and two Master's programs, a diploma and a Master's degree programme (within the further and continuing education) as well as a PhD degree programme. In the course of the year, candidate number 25 in IT product development was graduated from Aarhus University. Number 24 and 25 were Anders Vestergaard Borrits and Christian Brandt Møller, who wrote their Master's thesis with the title "Activating the Aroused. A Design Oriented Study on Engagement and Participation in a Social Housing Area".
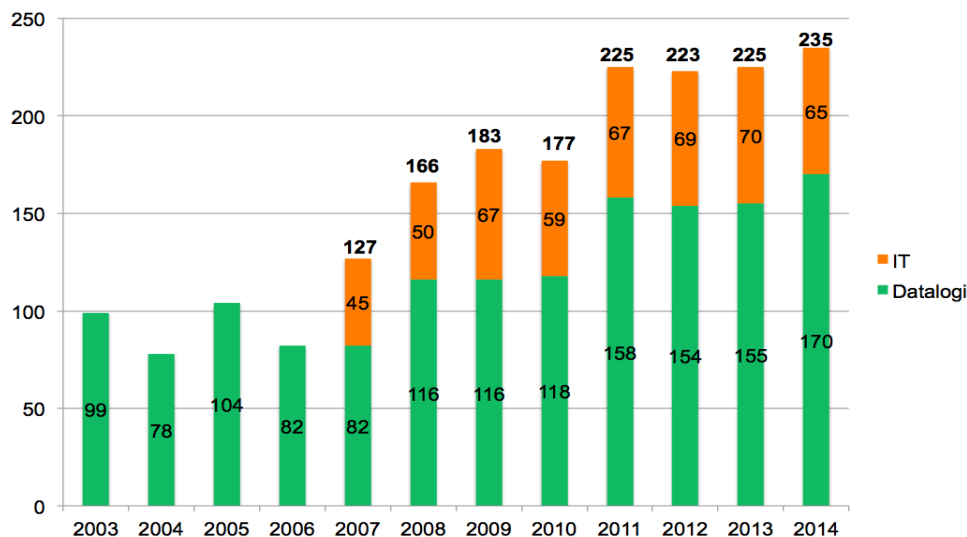
As in previous years, the department's students have named the Teacher of the year. There were five nominees for the title:

- Ivan Bjerre Damgård
- Lars Birkedal
- Niels Olof Bouvin
- Ole Caprani
- Olivier Danvy

It was Olivier Danvy, who won for the following reason: "As students it is clear that Olivier is dedicated to teaching and for students to get the maximum out of his teaching. He is constantly on the look-out for how the students understand the material, and on how the course can be adapted in the future."

As something new, this year's TA and student of the year were elected. These awards went to Nick Nielsen, Aris-Filos Ratsikas and Morten Larsson

As shown in the graph below, it has been possible to maintain the very high uptake of the department's two bachelor degrees. The department admits approx. 20 %of all new students, who start on a bachelor of science and technology at Aarhus University.

250

225 223 225 235

200

183
177
166
150

127

100

99 104
78 82
50

0

2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014

IT / Datalogi

Year	Datalogi	IT
2003	99	
2004	78	
2005	104	
2006	82	
2007	82	45
2008	116	50
2009	116	67
2010	118	59
2011	158	67
2012	154	69
2013	155	70
2014	170	65

The IT study programme has restricted access to 70 students per year.

The department has in the course of the year, produced the following number of degrees (angle brackets indicate production in 2013, 2012, 2011, 2010 and 2009):

- PhD
  12 (15, 12, 12, 15, 13)
- Number of Master's degree graduates
  Computer Science 42 (35, 32, 40, 55, 60)
  IT product development: 18 (5, 2, -, -, -)
- Bachelors
  Computer Science 80 (55, 44, 55, 67, 54)
  IT: 41 (28, 27, 25, 22, -)
- Further and continuing education
  Master 2 (10, 11, 11, 10, 0)
  Diploma 0 (0, 1, 3, 26, 0)

Through "Datalogisk Uddannelsesforum "(DUF) the department has expanded contacts and cooperation with student organizations for computer science and IT and these associations will take further
initiatives as to study environment and teaching.

Special thanks to Kurt Jensen
Finally, I would like to thank Kurt Jensen for his 16-year-old work as Head of Department. During this period, the Department of Computer Science has become the leading computer science department in Denmark, with several research groups in the absolute elite in the world and with an impressive large intake of undergraduate student. Thank you for your persistent efforts for the Department of Computer Science, Kurt.

Lars Birkedal

Head of department