![Advanced School for Computing and Imaging logo]

ASCI State of the Union March 2019

by the Director of ASCI prof. Henri Bal (Vrije Universiteit)

Highlights

> **Two active conferences** funded by ASCI: **NCCV and CompSys**

> **The NWO/M proposal for DAS-6** has been accepted

> New NWO-TTW Perspectief program **Efficient Deep Learning**

> A new PhD course on **Advanced Blockchain Engineering**

> **Joint scientific event in 2020** with SIKS and IPA to celebrate 25 years of Research Schools

> **Netherlands Prize for ICT Research 2019** for **prof.dr. Elmar Eisemann** (TU Delft)

> **NWO VICI** for **prof. dr. Marleen de Bruijne** (Erasmus Universiteit Rotterdam)

> **New Management**: Dick Epema (Chair of the board), Michiel van Loo (Secretary of the board), Henk Corporaal (MT), Marc van Kreveld (Chair of the research committee)

In this second 'State of the Union' I would like to summarize the recent initiatives and successes of the ASCI Research School. The introduction of Graduate Schools in the Netherlands has made PhD level education even more important. Experience shows that most universities now offer PhD courses for general skills (ethics, methodology, scientific paper writing), while Research Schools like

ASCI, IPA, and SIKS still provide the discipline-oriented PhD courses. It therefore is important that we keep on modernizing our course program, as exemplified by the new course on Advanced Blockchain Engineering.

A Note from the Director of ASCI
by prof. Henri Bal (Vrije Universiteit)

To stimulate community building and to train young talent, ASCI participates in ICT.OPEN (coordinated this year by Jan van Gemert) and it structurally supports and co-funds two conferences for its Computing and Imaging sections:
– the Netherlands Conference on Computer Vision (NCCV)
– the International Conference on Computing Systems (CompSys), www.compsys.science

NCCV has been organized successfully since 2014 as a 2-day "lunch-to-lunch" Computer Vision conference. It draws attention through renowned international keynotes and offers PhD candidates a chance to present published work in a national context offering a snapshot of the Dutch state-of-the-art in Computer Vision. Consistent sponsoring and attendance by companies offer opportunities for valorization. CompSys was organized in 2017 (by Alexandru Iosup) and 2018 (by Ana Varbanescu), both with strong 3-day programs and over 50 enthusiastic participants. CompSys 2019 (by Jan Rellermeyer) is scheduled for 3-5 June in Doorn.

The three Computer Science Research Schools, ASCI, SIKS, and IPA, now each exist for about 25 years. The three schools have decided to celebrate their anniversary together, in 2020, through a joint scientific and social event.

During these past 25 years, collaborations enabled by ASCI have resulted in numerous joint projects, with large initiatives like MultimediaN, VL-e, and COMMIT. I am glad to see that yet another large 5-year program started in 2018: the NWO-TTW Perspectief program *Efficient Deep Learning*, coordinated by Henk Corporaal. About 25 PhD students will do research on the intersection of systems and AI, with many participating groups from both the Computing and Imaging sections of ASCI, in collaboration with many dozens of companies.

To enable all this research, infrastructure is indispensable. I am very pleased that NWO/M has accepted the sixth DAS proposal in a row, as a 100% acceptance rate is unique in this highly competitive program. Also, the Netherlands eScience Center and SURFsara participate in DAS-6 with extra co-funding. The DAS Steering group is working on the Call-for-Proposals. The new system is expected early 2020.

I would also like to congratulate several of our ASCI colleagues with their new professor title, in particular Alexandru Iosup (VU), Cees Snoek (UvA), Rob van Nieuwpoort (UvA), and Wessel Kraaij (LIACS). Also, I'd like to welcome the Computational Bio-imaging team of Fons Verbeek (LIACS) as new group in ASCI.

Several of our key players formally retired recently, in particular former Scientific Director Arnold Smeulders, former Chairman Henk Sips, and former MT member Gerard Smit. I'd like to welcome Dick Epema as our new Chairman and Henk Corporaal as MT member for the Computing section. Marc van Kreveld is the new Chairman of our research committee, replacing Jack van Wijk. Most of the hard work of ASCI is actually done behind the scenes, at the Office by Janneke Hermans and Paula Diks. Janneke will go back fulltime to TU Delft and Michiel van Loo is the new (0.2) Secretary of the board. I hereby would like to thank Arnold, Henk, Gerard, Jack, and Janneke for all the excellent work they did for ASCI.

A Note from the education committee
by its Chair dr. Clemens Grelck (University of Amsterdam)

Notwithstanding the growth of *Graduate Schools* across universities in the Netherlands, ASCI courses remain as indispensable as they have been. Graduate Schools not only substantially differ in nature from university to university, but very generally do they focus on general scientific topics cross-cutting to the ASCI themes. Hence, University Graduate Schools and ASCI are complementary rather than competitive. In 2018 the following ASCI courses were organised:

– A1 *Advanced Pattern Recognition* (14 ASCI members, 13 guests);
– A8 *Front-End Vision and Deep Learning* (11 ASCI members, 3 guests);
– A24 *Programmer's Guide to Modern High-Performance Computing* (13 ASCI members, 3 guests);
– A27 *Advanced Blockchain Engineering* (5 ASCI members, 6 guests).

A particular highlight is the novel ASCI course Advanced Blockchain Engineering, organised by Dick Epema (TU Delft), Johan Pouwelse (TU Delft) and Marc Makkes (VU Amsterdam). The low number of participants can probably be attributed to the fact that the course was announced on very short notice. The next edition of the course is planned for Spring 2020. In the near future, the committee will explore the possibilities for new courses, for example on Efficient Deep Learning.

PhD students that completed the ASCI program

Enrolled PhD students
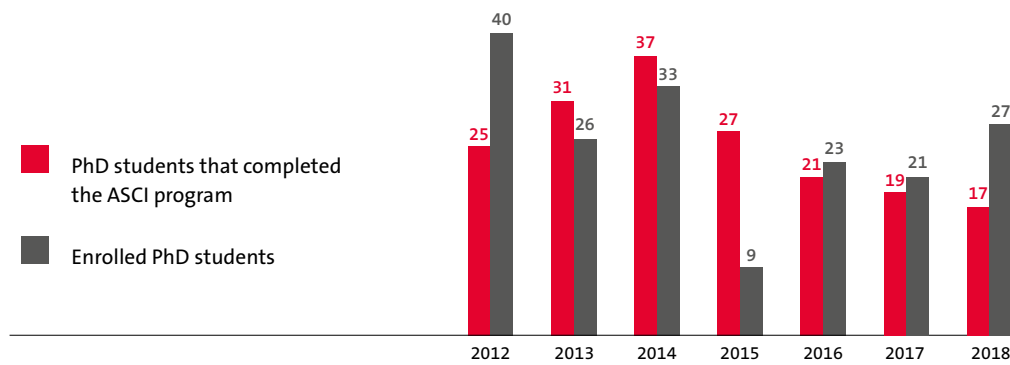
A Note from the research committee
by its Chair prof. Marc van Kreveld (Utrecht University)

The research in ASCI is most visible through the PhD theses of the PhD students. The number of theses completed in the last years is decreasing after an earlier increase: 25 (in 2012), 31, 37, 27, 21, 19, and 17 (in 2018). Given the enrollment numbers in the last years, we expect to see a slow increase again in the near future. The other medium through which ASCI research is visible are meetings. ASCI structurally supports CompSys and NCCV and it contributes – like IPA and SIKS – to the national ICT.OPEN conference, where the highlights of Dutch computer science research and valorization are presented.

ASCI has four research themes: High Performance Computing and Computational Science; Large Scale Distributed Systems and Embedded Systems; Image and Multimedia Sensing, Processing, Interpretation and Visualization; and Multimedia Information Systems.

The research committee of ASCI aims to exchange and promote ASCI-based research. At the moment, various improvements can be made to accomplish this. We will implement internal and external communication of finished PhD research via mailing list newsletters and websites, and we will introduce a PhD thesis award.

Henri Bal (bal@cs.vu.nl)
Clemens Grelck (c.grelck@uva.nl)
Marc van Kreveld (m.j.vankreveld@uu.nl)

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