ASCI State of the Union July 2021

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

Highlights

> **Time to say goodbye and introduce successor**
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> **Education during COVID-19**
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> **Research**
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> **Community building**
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> **New ASCI groups**
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> **Management changes**
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> **Message from the chair of the ASCI Board**

This State of the Union marks the end of my 10-year term as ASCI scientific director and gives me the opportunity to look back at the school and at some of its recent achievements. I am also very pleased to introduce Remco Veltkamp (Utrecht University) as my successor and fourth ASCI director.

ASCI changed significantly since it was founded over 25 years ago. During its first 15 years (under directorship of Andy Tanenbaum and then Arnold Smeulders) ASCI built an excellent educational program for PhD students and it established a strong community for Dutch computer scientists from the Computing and Imaging domains, for example through yearly "Centerparcs-style" conferences. Up till today, we see the benefits of these strong bonds, in the form of the DAS systems and large new collaborative projects that require both computing and imaging expertise. During the last 10 years, the ASCI educational program evolved substantially, with a good variety of courses on modern topics, for which there always is a large demand. The yearly ASCI conferences are replaced by the highly successful ICT-wide national conference ICTopen and by our more specialized NCCV and CompSys conferences, as well as the "ICT with Industry" workshop series.

Education

The Corona lockdown had a severe impact on our educational program and several courses had to be cancelled. Fortunately ASCI staff did manage to organize three strong courses online:

- A24 - A Programmer's Guide for Modern High-Performance Computing
- A27 - Fundamentals and Design of Blockchain-based Systems
- A28 - Distributed systems

We are grateful to the coordinators of these courses for their major extra efforts, in particular to Alexandru Iosup and Jan Rellermeyer for setting up the new A28 course in this difficult period. Except for the Corona period, the number of enrolments in ASCI courses is at a stable and high level, making it effective to organize PhD courses in this way. Many universities now require their PhD students to follow an educational program and rely on national research schools like ASCI for the specialized PhD-level courses. The ASCI education committee is therefore also discussing ideas for new courses on possible topics like Systems Security, Deep Learning, and Quantum Computing.

Research

It is great to see that the long-term investments in community building between the Computing and Imaging areas of ASCI pay off even today. An excellent example is the large NWO-TTW program called Efficient Deep Learning[1], coordinated by ASCI MT-member Henk Corporaal. ASCI groups from TU Eindhoven, TU Delft, UvA and VU collaborate in this program, both from Computing and Imaging. The program has 25 PhD students in total and aims for synergy between machine learning experts (including many imaging researchers) and computing experts. As another example, a new NWO-TTW Open Technology Program coordinated by ASCI MT-member Cees Snoek studies real-time video surveillance search. This project is a collaboration between ASCI Imaging scientists from the UvA and HPC experts from the VU, together with a large consortium from Schiphol Airport.

Also, the sixth generation of the NWO-funded Distributed ASCI Supercomputer (DAS-6) was built in 2020, in collaboration with SURFsara, ASTRON and the Netherlands eScience Center. SURFsara also coordinated the purchase process through a service agreement with the DAS consortium. DAS-6 consists of 6 AMD-based clusters at 5 different sites, with about 100 nodes in total. GPU accelerators will be added in 2021. The DAS systems have been used for over 150 PhD projects so far, both in computing and imaging[2].

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[1] See https://efficientdeeplearning.nl/

The DAS community also has strong links with the French Grid'5000 community, for example around a new ''Scientific Large Scale Infrastructure for Computing/Communication Experimental Studies'' (Slices) initiative, which was recently accepted for the ESFRI roadmap.

Community building

ASCI also works continuously on community building. We have several concrete plans that will be materialized once physical meetings are feasible again. We want to have more courses on special locations, outside the universities, to obtain more (social) interaction between PhD students and staff. The yearly NCCV and CompSys conferences that ASCI sponsors were cancelled in 2020, but we are pleased that Animesh Trivedi has organized CompSys online in June 2021. The ASCI board has also provided funding for inter-ASCI collaborations, where a PhD student from one university visits another ASCI group for a 1-2 week collaboration, and for organizing a yearly 1-day poster-only symposium, to stimulate interaction among especially ASCI PhD students.

The ASCI office completely redesigned our website (https://asci.tudelft.nl/), giving a much improved overview of the available courses and their status, a dissertations archive, and information on its organization and membership, and about the DAS system. The ASCI office also maintains a LinkedIn group with our alumni and it is working on an ambitious communication plan to boost the visibility of ASCI.

We are also happy to welcome four new groups in ASCI:

- Interconnected Resource-aware Intelligent Systems, Prof.dr. Nirvana Meratnia (TU Eindhoven), 2020
- Visual Analytics, Visualization, Prof.dr. Anna Vilanova (TU Eindhoven), 2021
- Visualization and Graphics, Prof.dr. Alexandru C. Telea (Utrecht), 2021
- Social and Affective Computing, Prof.dr. Albert Ali Salah (Utrecht), 2021

Management

ASCI management is going through several important changes. Remco Veltkamp has been appointed as new scientific director. Nirvana Meratnia (TU Eindhoven) has replaced Clemens Grelck as the chair of the Education Committee. Jan van Gemert (TU Delft) is replacing Marc van Kreveld as chair of the Research Committee. I would like to thank Clemens and Marc for their excellent work for ASCI, and I wish Remco, Jan, Nirvana, and their team members all the best with their future work. Finally, I thank the ASCI board (chaired by Dick Epema), the MT members, and the ASCI Office for the very pleasant collaborations during the past 10 years.

Message from the chairman of the ASCI board

On behalf of all of ASCI, I sincerely thank Henri Bal for doing an excellent job as scientific director of ASCI over the last ten years, and more generally, for having served in important leadership roles in ASCI ever since it was founded.

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[2] See https://www.cs.vu.nl/das5/phd.shtml for the list of PhD theses that used DAS