**Research Visitation Computer Science 2015-2021**
**Leiden Institute of Advanced Computer Science**
**Leiden University**

**Commentary and Reaction by LIACS**

LIACS is pleased with the report of the visitation committee, which paints a fair picture of our research accomplishments.

After a few quotes from the findings by the committee, we will provide a reaction to their recommendations.

The committee has followed the new SEP, in which the focus is on constructive criticism on the institute's strategy, without comparing institutes to each other.

The committee notes that LIACS has grown in size by a factor of three. It applauds the constructive and informal atmosphere that has endured despite this growth, and hopes that the institute is able to continue in the light of further growth.

## The committee notes:

- *Previous Visitation*: LIACS has acted upon the seven recommendations provided to them during the previous evaluation. This has resulted in significant improvement in research quality. In particular, the self-evaluation reports a drastically reduced drop-out rate of PhD candidates (only 1 in the reporting period), an increased number of full professors, a significant investment in research infrastructure, acquisition of more external funding, and the building of strategic alliances with industry.
- *Research Quality*: LIACS has developed into a key player in several internal, national and international networks. For instance, the Confederation of Laboratories for Artificial Intelligence Research in Europe (CLAIRE) is a network launched in 2018 with LIACS being one of the initiators. LIACS has also developed as a major player in the Dutch and international quantum computing community. These examples witness that the LIACS team has a strong reputation. LIACS has been very successful in acquiring national grants (e.g., 5 Veni grants, 2 TOP grants). LIACS participates in three NWO Gravitation projects: the Quantum Software Consortium, Hybrid Intelligence, and Ethics of Socially Disruptive Technologies.
- *Societal Relevance*: LIACS is involved in an impressive breadth of outreach activities with societal relevance, e.g. developing the educational programming language Hedy, being among the founding members of the recent initiative CLAIRE on AI in Europe, an extensive list of industry cooperation, and joint projects with all faculties of LU .
- *Viability:* The expertise of LIACS aligns well with the United Nations Sustainable Development Goals (SDGs). Given the fact that funding agencies

require this connection this is an advantage in acquiring funding. Throughout the reporting period LIACS has been very successful in increasing funding from research grants and industry cooperation. LIACS is very successful in acquiring grants by junior staff. Staff members are supported by the grant support office within LIACS.

- *Viability*: Over the reporting period, student numbers increased significantly, which led to an increase in direct funding. This development led to an extreme growth of the institute, from 69 to 190 research staff. This immense growth is a sign of success, but also raises some concerns. While the LIACS team is still searching how to address this in a sustainable way, some initiatives have been taken with positive effect, such as the organisation into clusters. The building quality and amount of space is mentioned as a problem. A new building is planned, but given the growth in the reporting period, the new building will not suffice. Currently the team is very well connected with many internal collaborations. The lack of suitable accommodation might become an issue.

- *PhD*: The committee was positively surprised by the dropout rate of virtually zero (2%). While, over the period 2012-2016, roughly 47% completed their PhD within 4 years and 6 months and 57% within 5 years, the recent trend towards higher delays gives some reason for concern. Therefore, the committee recommends that success rates should be closely monitored and delays should be investigated.
  Due to the recent growth of the LIACS, it appears that PhD candidates lack the physical office space to efficiently fulfil their duty. The committee recommends that sufficient space should be provided.

- *Culture*: LIACS provides an open and safe research environment. There are many opportunities for informal interaction, collaboration and information sharing. Due to an extreme growth of the department, the management structure was changed in the reporting period, towards a more formal management and communication structure, in order to streamline communication structure between management and staff. While such a change may be necessary, it also comes at the risk of losing the connection to the researchers, and strategic decisions no longer being in the hands of researchers.

- *Diversity*: LIACS provides an open and welcome environment. Junior staff are mentored by senior staff. The gender balance among the postdoc (42% female) and assistant professor (34% female) hiring's is reasonably high, given the market situation. In 2020, a separate Diversity Committee (DivCom) was founded to address diversity and inclusivity in a more general way for all LIACS staff members. A key function of DivCom is to provide an interface between the management team and the LIACS community on diversity and inclusivity: staff members can contact the DivCom directly and if necessary, the DivCom gives advice to the MT on matters related to inclusion. This is complemented by the university-wide efforts with regards to diversity and inclusion. The open and supportive atmosphere is very much appreciated.

**Recommendations of the Committee:**
The committee offers the following recommendations in their report:

- Carefully monitor the different money streams and keep a healthy balance between fundamental and applied research;
- The informal contacts and information sharing is well appreciated. Make sure the accommodation fits your way of working when the LIACS is growing further;
- Central computer infrastructure should be aligned with the ambition of the institute and follow the growth of LIACS;
- Consider increasing the number of research software engineers, their support is important to reach the objectives of combining fundamental research and applied research;
- Encourage and support senior staff to apply for prestigious funding, such as ERC, so as to also increase their contribution in these funding streams;
- Pay greater attention to the regularisation and systematic implementation of open science principles throughout LIACS.

**Reaction**

LIACS is pleased with the report of the visitation committee, which gives a fair perspective on our research and culture. Indeed, LIACS has grown in many ways: Student numbers have grown strongly, staff has grown strongly, and research funding has grown strongly. The ongoing transformation to a digital society is in full swing, and Computer Science and Artificial Intelligence institutes in the Netherlands are benefiting greatly.

Within the University we benefit from collaborations in Artificial Intelligence and Data Science (SAILS/LDE).

LIACS has focused on a warm, helpful, and inclusive culture, which has worked well with the large influx of new staff members. We have also focused on structure, introducing a new cluster-structure to keep the institute manageable and improve communication. Maintaining this high-touch people-oriented culture will be a challenge as further growth continues, for which the cluster-structure may help.

**Follow up actions**

LIACS is grateful to the committee for their recommendations. LIACS has developed actions to address the recommendations and suggestions of the committee. In particular we will focus on the following topics:

- Increase the number of female staff members in senior research positions further;
- Continue and strengthen PhD monitoring & support system, closely monitor PhD success rate and investigate delays; Explore ways to increase office space for PhD students;
- Bring the institute together in a single building (LIACS is currently distributed over three buildings (Snellius, Huygens, Schipholweg) which is not conducive to our culture;
- Improve the computational infrastructure for experiments of members of the institute including research software engineers;

- Provide focused support for senior staff members to apply for prestigious grants and monitor the balance between fundamental and applied research;
- Further increase awareness and stimulate implementation of open science principles;
- Align initiatives with research themes in our University and Faculty, to strengthen the digital transformation for the benefit of all research and education at our University and Faculty.