



TOWARD A VIBRANT AND EXCITING AI SCENE

By Daphne Riksen Images Istock and Elodie Burrillon

On June 17th, the 'NOS Journaal' broadcasted an item in which Holger Hoos from Leiden University explained the need for a European vision and approach on artificial intelligence. Hoos is one of three AI researchers who took the initiative for CLAIRE, the Confederation of Laboratories for Artificial Intelligence Research in Europe.



Frank van Harmelen

Frank van Harmelen is Professor in Knowledge Representation & Reasoning at the Vrije Universiteit Amsterdam.

'With CLAIRE, we hope to make Europe exciting for AI research,' Hoos explains. CLAIRE is supported by over 150 leading researchers across Europe, and almost 2000 people are backing the initiative. 'We believe that Europe has a proud tradition and a bright future in this area. But we have to take good care that we don't lose our talent to others.' Hoos is referring to the United States, China and Canada, where governments invest heavily in AI and companies have much to offer in terms of facilities and data to work with. 'A lot of young people feel attracted to the excitement and opportunities there. How could they not? But that impoverishes our ecosystem and makes it difficult for us to continue the excellent research we've been doing in Europe over the past decades. Especially the Netherlands has a powerful position in this field: we are lifting above our weight in important areas, such as machine learning, knowledge representation and reasoning, multi-agent systems and game playing, as well as ethical, legal and societal aspects of AI.'

Position of strength

With CLAIRE, Hoos and his co-initiators want to help the EU and national administrations to prevent brain drain of both students and faculty members and to make sure that Europe has a vibrant and exciting AI scene. Frank van Harmelen (Vrije Universiteit Amsterdam) strongly supports the CLAIRE initiative. He adds: 'Europe is starting from a position of strength. A recent Elsevier study showed that Europe has the largest research output compared to China and the US. But we are in danger of losing our position due to lack of investments and commitment.' Especially in the Netherlands the situation is not good, Hoos and Van Harmelen stipulate. 'Countries such as the UK, Germany and France, and even Finland and Denmark are investing heavily. The Netherlands have a strong community and position in AI, and AI is one of the five themes in the "Kennis- en Innovatieagenda ICT", but a visible dedicated AI programme is sorely missing.'

In CLAIRE, researchers will collaborate in a confederation of AI laboratories across Europe. 'We don't want to create a new elite institute that draws all the good people away,' Hoos emphasizes. 'That would deprive the European countries from their AI leaders.' Instead, support is to be provided to existing centres of excellence. 'Researchers

need an infrastructure at Google scale, and it makes no sense to replicate such a massive infrastructure in various countries,' says Van Harmelen. 'We are not only talking about hardware but also about the availability of data. In the US this infrastructure is available because of the presence of large companies. The same goes for China. But Europe doesn't have as many dominant players in the IT industry, and we are by nature fragmented.'

Similar to CERN

To host the necessary infrastructure, a visible 'hub' somewhere in Europe is foreseen. This hub would also be a place where researchers meet, scale up their projects, and stay for workshops or a sabbatical. In this way, CLAIRE is similar to CERN. 'Physicists have fantastic hallway conversations at CERN, because great people are there,' says Hoos. 'What we would also really like to achieve, is the brand recognition of CERN. That would be a smashing success for Europe.'

Hoos and Van Harmelen don't see CLAIRE as a race between Europe and the US, China or other countries. 'We shouldn't be copying their efforts. That would be a very poor use of our resources. Instead, we strive for a distinct European flavour and focus on the things we do particularly well,' says Hoos. The coordinated European research effort has three key aspects. Firstly, it is about fostering AI excellence across all of Europe. Secondly, research subjects extend to all of AI, including machine learning, reasoning, search, robotics, computer vision, and so on. Last but not least, everything is done with ethical, legal, societal and human values in mind. Hoos: 'In April, the European Commission published a European approach to boost investment in AI and to set ethical guidelines. We believe that Europe can be distinctive here.' According to Hoos and Van Harmelen, it helps that Europeans have an enormous diversity of perspective. 'This can be annoying and it makes Europe slower sometimes, but it is also extremely powerful,' says Van Harmelen. 'You see it in the current data protection and privacy legislation: these are stronger than anywhere else.'

Hybrid intelligence

To emphasize the idea of human centeredness, Van Harmelen prefers the term hybrid intelligence. 'Artificial intelligence suggests replacement of human intelligence: as if we won't need radiologists anymore because a computer can recognize tumours so much better. That is why people are worried about the loss of jobs, their autonomy and human values. In our vision, human intelligence and machine intelligence need to collaborate. It is about combining their respective strengths and focusing on fairness, accuracy, confidentiality and transparency.'

Deploying AI systems that are not well understood or not carefully designed can have undesired and unplanned

effects and can cause real harm. Hoos gives two examples: 'If your mortgage is being judged by a bank, it is not only staff, but also machines that look at your data. And social networks – mostly made in the US – are changing our society and our political system. These risks can be managed by working with people that specialize in this area.' Therefore, there is a need for European AI systems, especially in sensitive areas such as government, public administration, health care and so on. Van Harmelen: 'We have different standards. We don't want to be dependent on software made elsewhere by companies, for profit, with different values in mind. AI needs to be a public effort, exactly the same as the sequencing of the human genome in 1990. The knowledge and the power that come with it belong in the public domain.'

Next steps

The launch of CLAIRE on June 18th has had good press coverage all over Europe. What are the next steps? 'Currently, we are working to strengthen the industry angle', says Hoos. 'We feel that CLAIRE should not be an academic initiative only. An important component for instance should be the Dutch Innovation Centre for AI (ICAI, see box). We will also need to strengthen our position with respect to the European Commission. We are planning a symposium in Brussels to identify which light-weight mechanisms can be used to translate already pledged funds into AI. It would be wonderful if the Dutch government and NWO would be showing serious commitment to support AI excellence.'

Holger Hoos

Holger Hoos is Professor of Machine learning at Leiden University since 2016. Before that, he worked at the University of British Columbia (Canada) for 20 years.



CLAIRE

The call for the establishment of CLAIRE, a Confederation of Laboratories for Artificial Intelligence Research in Europe, was prepared by Holger Hoos (Leiden University), Morten Irgens (Oslo Metropolitan University, Norway), and Philipp Slusallek (German Research Center for Artificial Intelligence, Germany). The initiative is backed by more than 150 of Europe's top AI researchers.

claire-ai.org

OTHER AI INITIATIVES

ELLIS (an initiative for establishing a European Lab for Learning & Intelligent Systems) wants to achieve much better support for machine learning and closely related areas in Europe, with an emphasis on fundamental research. ELLIS and CLAIRE endorse each other's proposals, acknowledge their complementary nature, and coordinate their efforts.

ellis-open-letter.eu

In the Netherlands, the Innovation Centre for AI (ICAI) was founded in April 2018. ICAI is an open collaboration, aimed at AI innovation through multi-year public-private partnerships. Current labs within ICAI involve Ahold Delhaize, Bosch and Qualcomm.

icai.ai