13 Dec 2018 | News

New artificial intelligence lab aims to keep top minds in Europe

US tech companies are raiding our computer science departments. A new initiative, Ellis, wants to give researchers a reason to stay in academe and in Europe. Meanwhile, the Commission is putting flesh on its AI plans

By Éanna Kelly and Nicholas Wallace

Group photo at the Ellis kick-off meeting in Montreal. Credit: Ellis

Machine learning researchers and big industry players have teamed up to create multinational artificial intelligence (AI) labs across Europe in a bid to reverse the brain drain of the brightest and best scientists to north America and China.

The European Lab for Learning and Intelligent Systems (Ellis), will run physical labs in a handful of countries and create an education programme for doctoral students studying machine learning, with the aim of keeping Europe in the race for AI leadership

"If Europe wants to defend its position, it needs to do something major," said Bernhard Schölkopf, director at the Max Planck Institute for Intelligent Systems in

Tübingen, and one of the scientists behind the initiative. "If we team up we can create offers that are competitive with the US and China."

Amazon, Audi, Bayer, Siemens, and DeepMind, the London-based AI company owned by Google's parent Alphabet, are among companies that have pledged to support the initiative. Ellis is modelling itself on the European Molecular Biology Laboratory, which operates across six sites in Europe.

The need for such an organisation for AI was first described in an open letter signed by almost 200 researchers in April, with Ellis getting off the ground at a meeting in Montreal earlier this month.

Meanwhile, in the game of AI catch up, Brussels has finally brought some urgency to the task, announcing plans to launch a €4.4 billion industry partnership for AI research and a new €100 million pot of cash to help AI start-ups grow.

No funding has yet been announced for Ellis, but scientists said it would start small, with industry sponsoring a few PhD positions and fellowships. Eventually, the plan is to create an inter-governmental structure.

As the race to develop ever more advanced AI systems accelerates, wealthy tech companies from Google to Facebook are raiding university computer science departments in Europe for AI talent.

The trend is troubling for academics who fear brain drain is making it harder to train the next generation of researchers.

"We wanted to create a system to give researchers incentives to stay in academia," said Nicolò Cesa-Bianchi, a professor of computer science at the University of Milan. "In the longer term, if all our AI research is being done by industry, this is not good for anybody."

The level of brain drain in the field is becoming unsustainable, he added. "If things follow in the same direction, there's not going to be anybody left in academia to teach AI to the next generations," he said.

Lure of the US

Even if Ellis funding gives researchers a reason to stay in Europe, American companies, in particular, can still lure away top professors with hefty pay

packages.

But by involving some of these firms in the Ellis programme, the hope is that they will not require top minds to relocate to offices in Silicon Valley or elsewhere.

"These big tech companies will headhunt researchers through Ellis, but they would do that anyway. It's extremely attractive to do internships in industry, but we want a situation where it's better to do them here than in America," said Schölkopf.

The AI race is not a zero sum game, he adds. "If we can get American companies to start labs here, that's a good thing. We can't hide good students from them; we're going to lose if we do that. We need to work with [the Americans] and help push them into doing more open research and using more open source software."

One of the biggest artificial intelligence acquisitions in Europe in recent years was Alphabet's purchase of DeepMind, for £400 million.

"I would have preferred if DeepMind had stayed independent," said Schölkopf. "But they're still here in Europe and not in Mountain View, and that's a good thing."

American technology giants have acquired several other UK AI companies. Microsoft purchased SwiftKey, in 2016, while Amazon's voice-driven AI assistant Alexa was partly built by a team of engineers in Cambridge, acquired through its purchase of Evi Technologies.

Outside the UK, the other big AI plays are happening in a few European countries, namely Germany, Switzerland and France. Germany's national budget for 2019 earmarks €50 million of federal spending on artificial intelligence. In a plan unveiled in March, France announced €1.5 billion over four years.

Private investments dwarf these numbers. According to the European Commission (https://sciencebusiness.net/news/commission-says-eu92-billion-needed-boost-supercomputing-and-ai), investments in European AI were between €2.4 billion and €3.2 billion in 2016, compared to almost €10 billion in Asia and €18 billion in the US.

Urgent task

Schölkopf says the Ellis initiative will seek backing from policymakers in Brussels. "I think we'll have the attention and hopefully [financial] support of the EU," he said.

Brussels has been making ever-louder noises about the need for a greater EU effort in disruptive technologies, including AI, and last week introduced some urgency to the task.

The Commission on December 7 announced (https://ec.europa.eu/digital-single-market/en/news/coordinated-plan-artificial-intelligence) plans to launch an industry partnership for AI research, as well as a new pot of cash to help AI start-ups grow.

The €4.4 billion partnership will be mostly funded by private contributions, to the tune of €3.2 billion, with the rest coming from the EU.

The Commission also said it would provide a €100 million "scale-up fund" for start-ups working on AI and the blockchain verification technology that lies behind cryptocurrencies. This fund will be wholly separate from the European Innovation Council, Commission sources confirmed, despite the EIC having been previously touted by EU research commissioner Carlos Moedas as a "one stop shop" for EU innovation funding.

The Commission has not provided any details of which companies will participate in the AI partnership or what it will be called, though there was a statement of support from the Big Data Value Association, which is backed by firms including Atos, Huawei, IBM and Intel.

The announcement is a follow-up to the Commission's AI strategy, published in April (https://ec.europa.eu/digital-single-market/en/news/communication-artificial-intelligence-europe), which set a target of €20 billion for total public and private investments in AI by the end of 2020, and €20 billion per year for the decade after that.

Others 'doing much better' on AI

Speaking when he announced the funding plans last week, Commission vice president Andrus Ansip admitted Europe is playing catch up.

"Asia and North America are doing much better than we are doing here in Europe," he said. "We have to remember that 50 per cent of cloud volumes in Europe are provided by Amazon, by Microsoft, by IBM." In Europe's local governments and hospitals, "too often those global service providers are there, able to provide services with higher quality and more affordable prices," Ansip said.

The commissioner, whose job it is to develop the EU's digital single market, argued that increasing access to data is key to improving Europe's performance in AI. He cited as progress recently-adopted regulations that prohibit member states from restricting data flows to other parts of the EU, as well as a proposed update (https://sciencebusiness.net/news/meps-vote-open-publicly-funded-research-data) to the rules on public sector data.

The General Data Protection Regulation introduced this rule for personal data when it came into force in April, while another regulation (http://data.consilium.europa.eu/doc/document/PE-53-2018-INIT/en/pdf) that does the same for non-personal data will come into force next year.

International competition in AI is "not just a beauty contest," said Ansip. "Of course I would like to be the world leader, everybody wants [that.] But we have to understand that if we will not be able to compete with those others [China and the US], then we will lose our jobs. We will lose in competitiveness."

Artificial intelligence   ICT

Never miss an update from Science|Business

✉ Newsletter sign-up

Related News

LIVE BLOG: Reactions to Horizon Europe | 17 Dec 2018

International cooperation makes the Baltic Sea region a science powerhouse | 17 Dec 2018

Could medicines cause more side effects than once thought? | 17 Dec 2018

Q&A: What Estonia wants from Horizon Europe | 14 Dec 2018

EU governments grapple with research missions and partnerships | 13 Dec 2018