



Media Release

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Research lab to advance how humans interact and live with autonomous systems

A new International Research Laboratory (IRL) being launched today will focus on humans-autonomous agents teaming: an area of research at the interface of artificial intelligence, computer science, engineering, technology, human factors and psychology.

The French Australian Laboratory for Humans-Autonomous Agents Teaming, shortened to CROSSING, is a collaboration between the French National Centre for Scientific Research (CNRS), the University of Adelaide, Flinders University, the University of South Australia, French technological university IMT Atlantique, and Naval Group, the only industrial partner.

An IRL is a flagship international collaboration mechanism used by CNRS, France's leading scientific research centre. The new IRL is called CROSSING because it represents the crossover of ideas that is at the heart of this important collaboration.

"The CROSSING Lab will bring together leading French and Australian scientists from artificial intelligence, machine learning, computer science, engineering, psychology and human factors. They will work together to tackle important challenges in finding new ways for systems and humans to work together," says Professor Jean-Philippe Diguët, Director of the lab.

"The outcomes could provide significant advances in the way operators use control systems on ships, maintenance platforms in industry or services to assist within the home, and the way these systems are developed to assist and improve human performance to make work safer and more efficient."

The CROSSING Lab will join a network of more than 70 IRLs, but will become one of only five international research laboratories with industry partners in the world. It will join the ranks of other labs in global innovation hubs, including Singapore, China, Japan and the United States of America. Based in Adelaide, the CROSSING Lab will be a unique multidisciplinary facility in Australia that provides an opportunity for South Australia to be at the forefront of research into frontier technologies highly relevant to future industries.

"At the CROSSING lab we will develop new ways for humans to work with robots and autonomous systems," says Professor Anna Ma-Wyatt, from the University of Adelaide's School of Psychology, who is Co-Director of the new lab.

"Human operators will cooperate with high-level automata, robots or adaptive information systems able to produce knowledge and to explore the physical or informational environment on their own."

Each partner brings complementary expertise to the research partnership. The University of Adelaide's Australian Institute of Machine Learning (AIML) brings expertise in artificial intelligence and machine learning. In the field of interactive and virtual environments and human performance, the University of South Australia has expertise in sleep and fatigue analysis and the University of Adelaide in active vision. IMT Atlantique has expertise and facilities in virtual and augmented reality and embedded and human-centric AI, and Flinders University in autonomous systems, human factors and industry 4.0 advanced manufacturing. Industrial partner, Naval Group, will share its world-class expertise from areas including embedded intelligence, optimised architectures, unmanned vehicles, industry of the future and human performance measurement.

The new lab will be launched on Monday 22 February at the Art Gallery of South Australia, at an evening event which will be attended by the partners in person and virtually. The launch will be opened by the Premier of South Australia the Hon. Steven Marshall and attended by the French Ambassador to Australia, his Excellency Mr Jean-Pierre Thébault, and by videoconference, Australia's Ambassador to France, Her Excellency Ms Gillian Bird. The event will be attended by the CEO of Naval Group, Pierre-Eric Pommellet. The Vice-Chancellors of the University of Adelaide, the University of South Australia and Flinders University, as well as, remotely from Paris, the CEO of CNRS, Professor Antoine Petit, and IMT Atlantique Vice-President Ms Anne Beauval, who will join a round table discussion.

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It will directly contribute to growing South Australian hi-tech industries such as space, oil and gas, manufacturing and mining, defence and space industries by:

- Undertaking world-class research in the emerging field of human-machine interaction, developing new ways of efficient, ethical and human-centred collaboration with autonomous systems
- Upskilling and educating personnel within industry and academia, building both capability and capacity through co-design and co-investment
- Enhancing international collaboration between South Australia and France to attract and retain top scientific talent from industry and academia
- Establishing translation pathways to allow research to move from the laboratory into industry and operational use.

Comments from CNRS IRL CROSSING partners:

Professor Antoine Petit CEO, CNRS

The establishment of this International Research Laboratory, the first of its kind in Australia, reflects the recent dynamism of the partnerships set up with that country. The CNRS is now Australia's leading foreign scientific partner, and it intends to enhance its presence there through the development of new projects and networks.

Professor Peter Høj, Vice-Chancellor and President, the University of Adelaide:

"CNRS has more than 70 international research labs around the world, and the CROSSING Lab will be the first international research lab in Australia, and only the fifth of its type in the world with an industrial partner. It will offer an enduring link to the CNRS, the largest fundamental science organisation in Europe."

"It provides an opportunity for South Australian universities to build strong collaborations with CNRS and European partners to apply to European as well as Australian funding schemes, and to engage with industry in Europe with CNRS collaborators."

Professor David Lloyd, Vice-Chancellor and President, the University of South Australia:

"This new lab is set to boost both Australian-French scientific cooperation and Australian sovereign technical capability.

"We are proud to be contributing our world-leading expertise in key areas that connect human factors with the physical aspects of maritime vehicles in novel ways.

"Our interdisciplinary research includes psychophysiology and behaviour, metrics-based ergonomic design, virtual reality and augmented reality."

Professor Colin Stirling, Vice-Chancellor and President, Flinders University:

"The combined research strengths of South Australia's three world-class universities, Naval Group, IMT Atlantique and some 33,000 CNRS researchers and engineers represents a global powerhouse of expertise."

"This landmark collaboration further lifts South Australia's internationally regarded defence research capacity and will contribute to the take up of advanced technologies by industry by devising effective and safe ways for people to work with machines that effectively 'think' for themselves."

Mr Pierre Eric Pommellet, CEO of Naval Group:

"Naval Group is proud to be the industry partner for the new International Research Lab. We are honoured by the trust of our Australian and French partners, and the opportunity to make this a cornerstone of international scientific breakthrough. As one of only five labs with an industrial partner opened by CNRS, this world leading research laboratory, based in Adelaide, supports our commitment to ongoing global innovation. Supported by our subsidiary Naval Group Pacific, this partnership will help Australia realise and fulfil its innovation roadmap across a broad spectrum of sectors."

Ms Anne Beauval, Vice-President, IMT Atlantique

"Australia is a country where IMT Atlantique is actively developing its international strategy, building on 15 years of collaborations. It positioned itself in the favourable context of the strengthened partnerships between France and Australia in the field of higher education and research, by proposing the creation of the Western Alliance for Scientific Action with Australia (WASAA) in 2018 which has enabled the increase of student and researcher exchanges between our two countries.

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The CROSSING Lab is another dimension in which IMT Atlantique is joining forces with academic and industrial partners to strengthen our positioning in Australia. IMT Atlantique has especially set cooperation axes with Naval Group Research (and more generally Naval Group) about submarine communication and detection, ocean monitoring as well as digital transformation at different levels of practice (industrial management, command & control). These cooperations are already supported through chairs and collaborative projects and will contribute to consolidating and enriching the CROSSING Lab”.

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