

Ulster University
Intelligent Systems Research Centre
Computational Neuroscience,
Neurotechnology & Neuro-inspired AI
(ISRC-CN³)
Autumn School

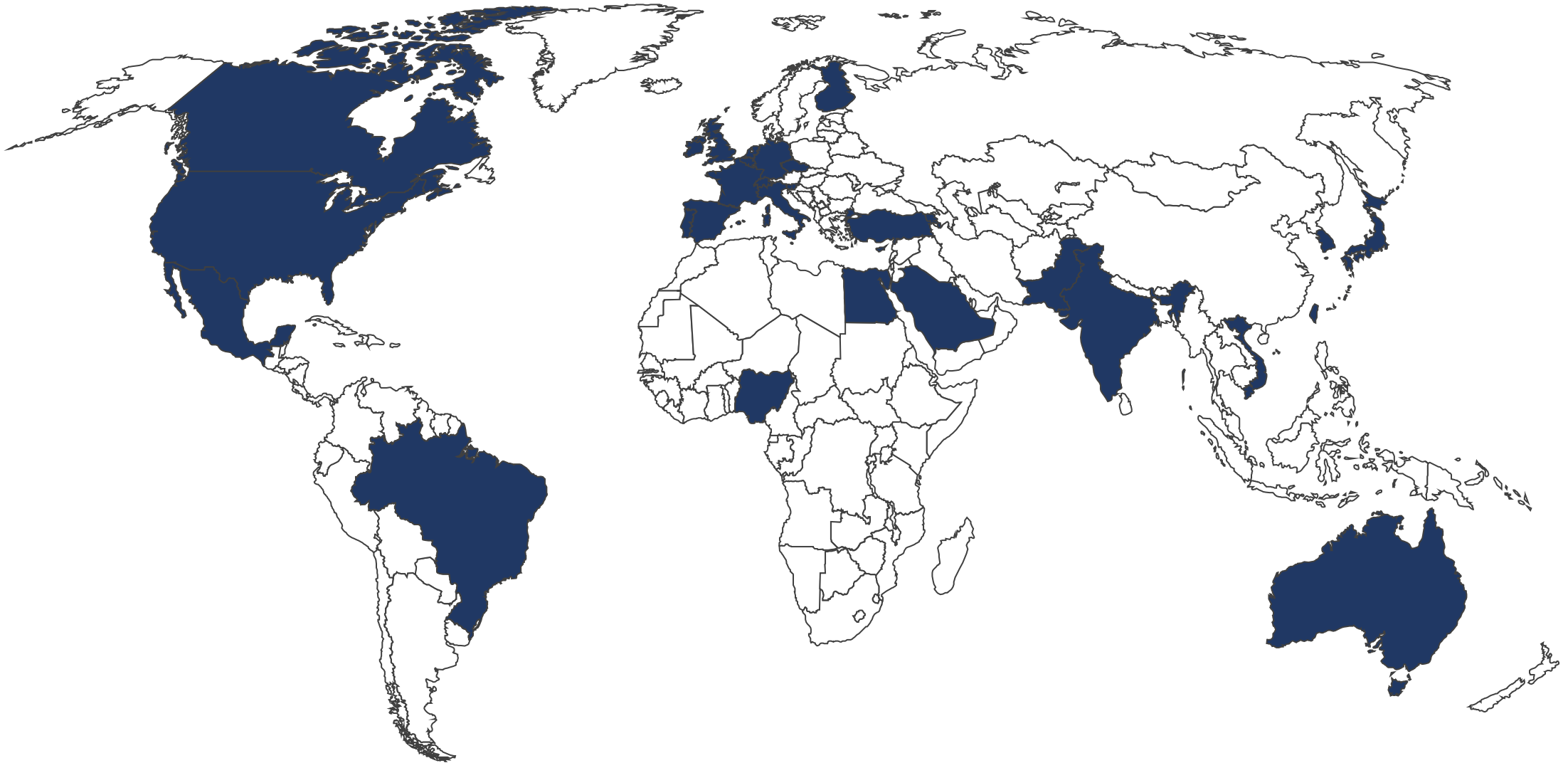
25-31 October 2023



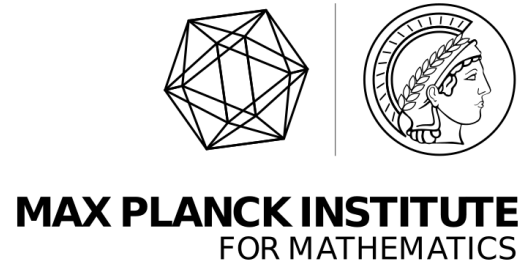
The School

- Conceptualized to train the next generation of researchers on state-of-the-art developments on **computational neuroscience, neurotechnology** and **neuro-inspired AI**
- **Started in 2021**; 3rd year and beyond
- Showcases the research capabilities of ISRC

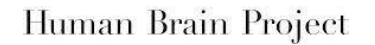
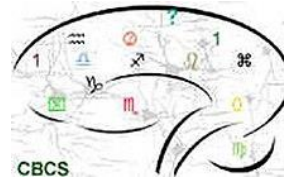
Applicants from 34 countries



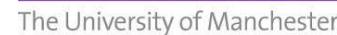
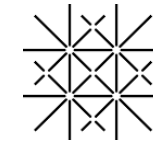
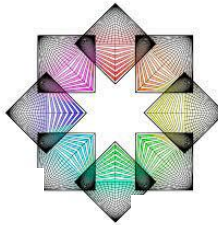
In-person attendees



Online attendees



Online attendees



Housekeeping

- Latest update of the information booklet available on GitHub (<https://github.com/ISRC-CN3/General-Information>)
- The GitHub link (<https://github.com/ISRC-CN3>) will be where the Autumn School's resources will be stored and made available
- Join the ISRC-CN3 2023 Slack (https://join.slack.com/t/isrccn32023/shared_invite/zt-24yau5uxj-Vrcb9B74MTJrd7m6CVHobg) for queries, discussions, networking, etc.
- **Online attendees: Please turn off your microphone when not speaking – use chat box for questions.**
- **Please do not talk during lecture**
- Videos of recorded presentations made available at end of day – don't share to non-attendees
- In-person attendees:
- On arrival today, please complete registration at Reception
- **Temporary username and password** will be provided to access our lab computers on Day 1 Lab session.
- Each morning, please sign-in at the reception of the ISRC building
- Wi-fi Guest Account joining instruction: <https://www.ulster.ac.uk/ds/services/wifi-services/visitor-wifi>
- Coffee, tea breaks, lunches and afternoon snacks will be provided and held at the dining room in ground floor of ISRC
- Friday (27th October) dinner will be held at Bishop's Gate Hotel, Derry, at 7:30pm
- Derry City Tour and Causeway Tour- Keep an eye out for the weather!!!

Schedule

- **Wednesday, 25th October:** Foundational Topics on Neuroscience, **Derry City Tour**
- **Thursday, 26th October:** Computational Modelling of plasticity & learning/neuronal and glial interactions/decision-making, **Ulster University Magee Campus Tour**
- **Friday, 27th October:** Neuro-imaging, Brain Connectivity, Brain-Computer Interfacing, Neuromorphic Engineering, **Formal Dinner**
- **Monday, 30th October:** Neuro-inspired AI: Brain-inspired Spiking Neural Network, Lifelong Learning, Large Language Models, AI in Neurotechnology, Panel Discussion on AI & Neuro-ethics, **ISRC Lab Tour (ScaniHUB, NIFBM, Cognitive Robotics)**
- **Tuesday, 31st October:** Project mini-presentation, Industry talks and demo (**FinalSpark, NeuroCONCISE, g.tec medical engineering**)



The Clock moves back 1hr on 29th October 2023, 2am

<https://www.timeanddate.com/time/change/uk>

Mini Group Projects

- Groups of 5 (max);
 - Online groups within the same time-zone
- A mini-presentation on the project→**31st October 2023 (Tuesday) from 9.30am-12.30pm**
- Project Description to be published in Day 2 Lab time
- Group formation and discussion in Day 3 Lab time
- Work on the project during the weekend;
 - Tutors will be available for support via Slack
- Title of mini-presentation to be submitted by **30th October 2023 (Monday), 5pm**

Join as member



IEEE Circuits and Systems Society
IEEE Computational Intelligence Society
IEEE Computer Society
IEEE Electron Devices Society
IEEE Engineering in Medicine and Biology Society
IEEE Magnetics Society
IEEE Signal Processing Society
IEEE Solid-State Circuits Society
IEEE Systems, Man, and Cybernetics Society

Use the link below to join as a professional or student

https://www.ieee.org/membership/join/index.html?WT.mc_id=hc_join

Join as member



Become part of the world of **computational intelligence**! Benefit from the many opportunities of expanding and updating your knowledge, sharing results of your activities, developing new knowledge and professional practices, networking with your peers, and promoting your career.

For more information:

<https://cis.ieee.org/>



The **IEEE Brain Technical Community** unites engineering and computing expertise across IEEE Societies and Councils relevant to neuroscience and provides an avenue for IEEE to work with multiple constituencies in academia, industry, and government to incubate and sponsor new activities, projects, and standards that facilitate bringing neurotechnology to market in an ethical and responsible manner.

For more information:

<https://brain.ieee.org/about-ieee-brain/>

Join as member



IEEE Engineering in Medicine & Biology Society

IEEE Engineering in Medicine and Biology Society (EMBS) is the world's largest international society of biomedical engineers. Members are interested in bioinformatics, biotechnology, biomechanics, clinical engineering, information technology, instrumentation and measurement, micro and nanotechnology, radiology, and robots. They are researchers and educators, technicians and clinicians - **biomedical engineers are the link between science and life science, creating innovations in healthcare technology for the benefit of all humanity.**

For more information:

<https://www.embs.org/>

Join as member



Northern Ireland Local Group

<https://www.bna.org.uk/>

<https://neuroscienceireland.com/>

Contact: Elaine Murray (e.murray@ulster.ac.uk), Ulster University

Derry City



Walking Tour- Wednesday 25th



Giant Causeway Tour



Saturday, 28 October
Meeting Point: 10am at Guildhall

Register your interest with



Ravi Jha



Kaniska Samanta

