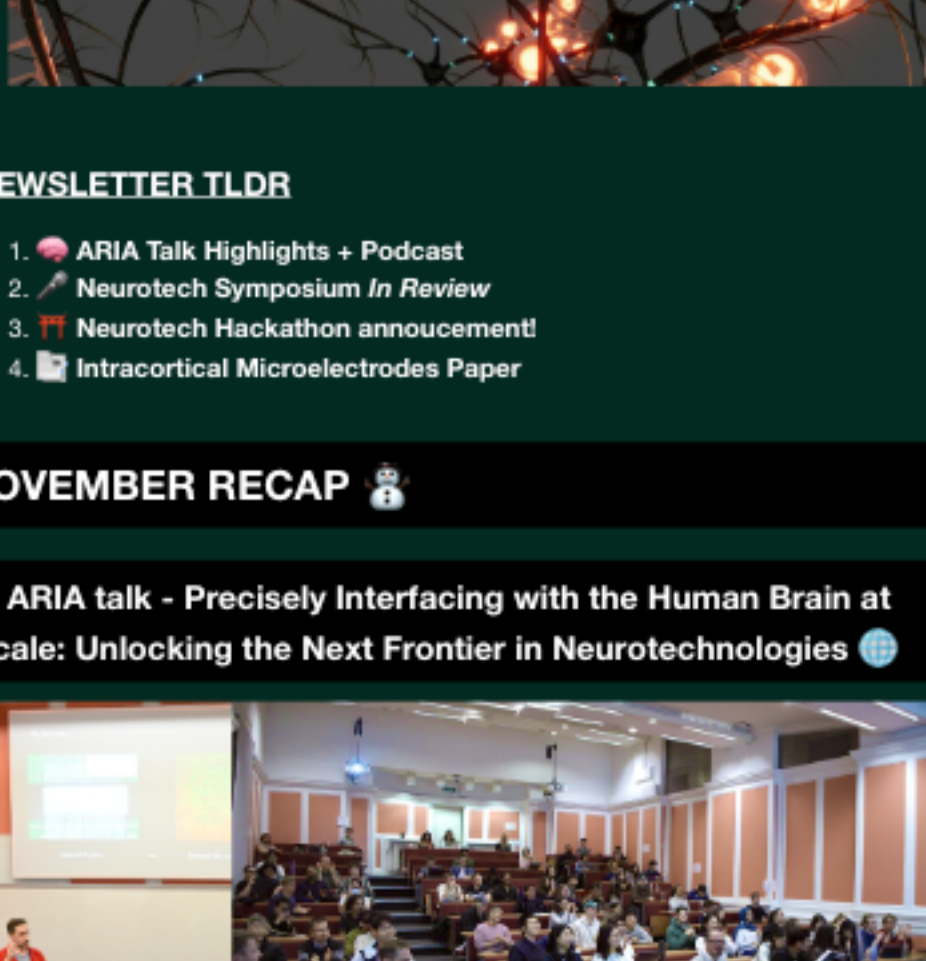




ICL Neurotech Monthly Newsletter 🎄

ISSUE 2. DECEMBER 2024

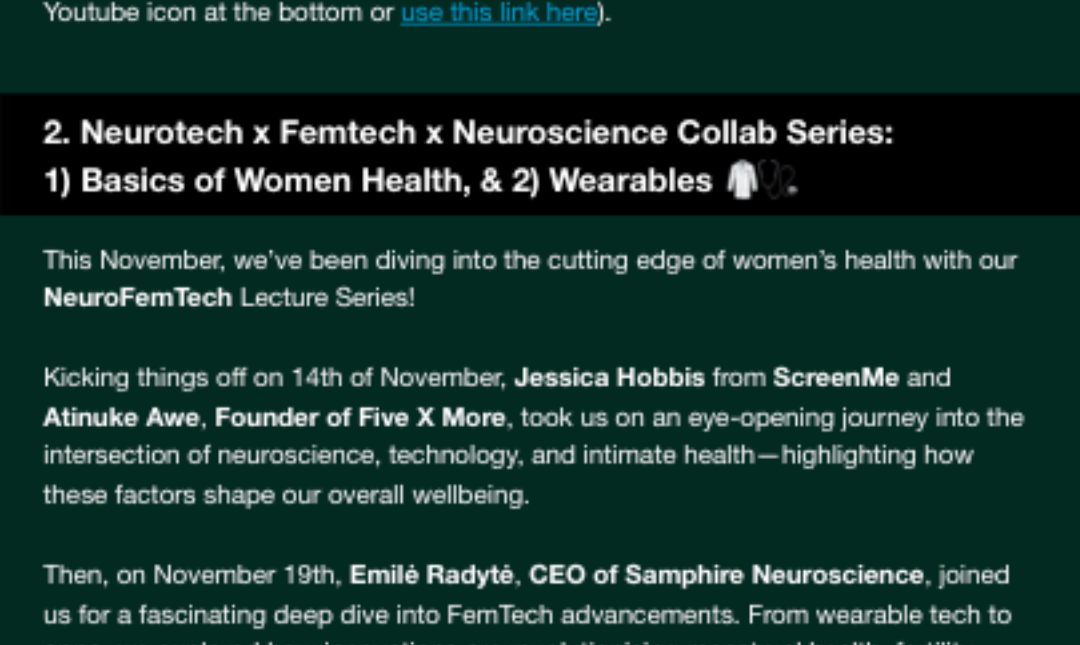


NEWSLETTER TLDR

1. 🎧 **ARIA Talk Highlights + Podcast**
2. 📄 **Neurotech Symposium In Review**
3. 🚀 **Neurotech Hackathon announcement!**
4. 📄 **Intracortical Microelectrodes Paper**

NOVEMBER RECAP 🗓️

1. ARIA talk - Precisely Interfacing with the Human Brain at Scale: Unlocking the Next Frontier in Neurotechnologies 🧠



On November 7th, we were honoured to host **Jacques Carolan** (Programme Director), **Gillian Koehl** (Technical Specialist), and **Tom Yates** (Program Specialist) from **ARIA (Advanced Research and Invention Agency)**, the leading UK government-based research agency providing tremendous support for neurotech research.

With the title 'Precisely Interfacing with the Human Brain at Scale: Unlocking the Next Frontier in Neurotechnologies', they spoke to how principles of physics, engineering, and biology are being applied to help understand the brain and introduced some emerging research in the neurotechnology space.

They also announced some funded programs that all Neurotech enthusiasts can apply to:

1. **Seed Call** (Coming at the start of the new year. **For everyone - undergrads; postdocs; faculty alike!**)
2. **Cambridge University Health Partners** (have a look at external opportunities section below for the launch event)
3. **Pillar VC** (for people with AI background)
4. **Convergent Research**

Further information for application will be updated in ARIA website or [Linkedin](#).

The full recording of this session is available at our Youtube channel! (click the Youtube icon at the bottom or [use this link here](#)).

2. Neurotech x Femtech x Neuroscience Collab Series:

1) Basics of Women Health, & 2) Wearables 🧘‍♀️

This November, we've been diving into the cutting edge of women's health with our **NeuroFemTech Lecture Series!**

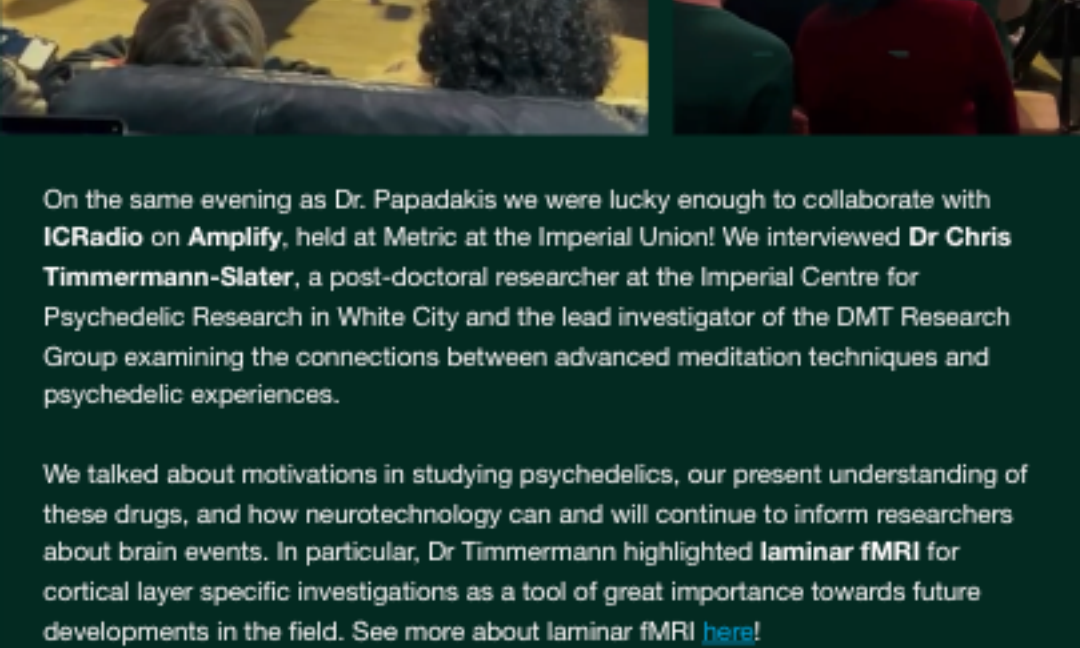
Kicking things off on 14th of November, **Jessica Hobbis** from **ScreenMe** and **Atinuke Awe**, **Founder of Five X More**, took us on an eye-opening journey into the intersection of neuroscience, technology, and intimate health—highlighting how these factors shape our overall wellbeing.

Then, on November 19th, **Emilé Radytė**, **CEO of Sapphire Neuroscience**, joined us for a fascinating deep dive into FemTech advancements. From wearable tech to apps, we explored how innovations are revolutionising menstrual health, fertility, pregnancy, mental wellness, and menopause.

Next, on November 28th we heard from **Emilie Faure**, **Founder and CEO of Juniver**, who spoke about her AI-powered app for aiding eating disorder sufferers, and the process of founding and running a start-up in the health tech space.

A huge thank you to all our speakers for bringing their expertise and passion to this series! We are hosting **two more sessions in this collaborative series**, one with Professor Simon Schultz on **December 5th** and one with the team from **Neubond** coming to speak to us on **December 12th!** (more details below)

3. Dr. Hayriye Cagnan Talk - Brain-Rhythm Orchestrated Therapy 🧠



On November 21st, we had the pleasure of hosting **Dr. Hayriye Cagnan**, the Senior Researcher at Imperial's Department of Bioengineering, for an inspiring talk titled **Brain-Rhythm Orchestrated Therapy**.

In this engaging session, she walked us through her fascinating research on how different brain regions control behaviour in health and disease, and how these insights are paving the way for stimulation-based therapies for neurological and psychiatric conditions. We were captivated by her approach to turning complex neural rhythms into actionable treatments, sparking some lively Q&As.

Huge thanks to Dr. Cagnan for sharing her work!

4. Dr. Michalis Papadakis Talk - Transforming Stroke Treatment with AI 🧠

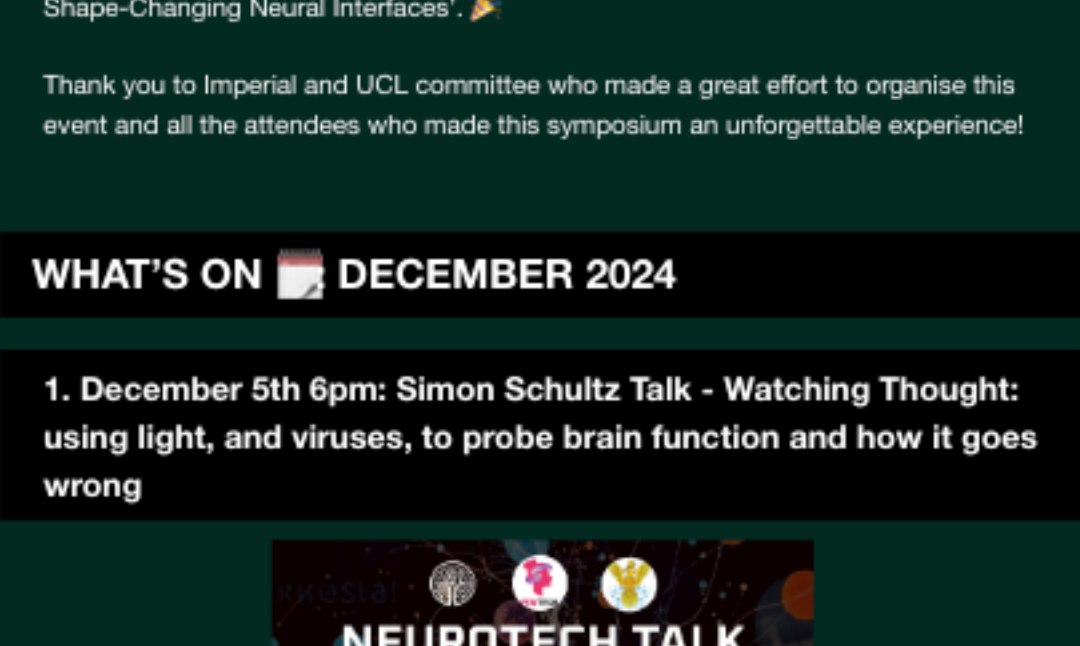


On **Tuesday, 26th November**, we had the privilege of hosting **Dr. Michalis Papadakis**, our Imperial alumnus and now CEO & co-founder of a multi-million-dollar diagnostics company, for an unforgettable evening.

In his inspiring talk, **"Transforming Stroke Treatment with AI,"** Dr. Papadakis shared groundbreaking insights into how artificial intelligence is reshaping stroke recovery and advancing healthcare innovation. We were impressed by his journey from college graduate to successful entrepreneur and industry leader. The event was a fantastic opportunity to learn from his expertise, ask thought-provoking questions, and spark conversations about the future of AI in neurotech.

A massive thank you to Dr. Papadakis for returning to inspire the next generation of innovators!

5. Amplify Live Visualised Podcast - Dr. Christopher Timmermann 🧠



On the same evening as Dr. Papadakis we were lucky enough to collaborate with **ICRadio on Amplify**, held at Metric at the Imperial Union! We interviewed **Dr Chris Timmermann-Slater**, a post-doctoral researcher at the Imperial Centre for Psychedelic Research in White City and the lead investigator of the DMT Research Group examining the connections between advanced meditation techniques and psychedelic experiences.

We talked about motivations in studying psychedelics, our present understanding of these drugs, and how neurotechnology can and will continue to inform researchers about brain events. In particular, Dr Timmermann highlighted **laminar fMRI** for cortical layer specific investigations as a tool of great importance towards future developments in the field. See more about laminar fMRI [here!](#)

Also catch the recording for our [On The Mind podcast on our YouTube channel here!](#)

6. Imperial x UCL Neurotech Symposium 2024 🏛️



Our **first symposium for 2024, the first ever student-led neurotechnology conference in the UK**, was hosted in collaboration with the UCL Surgery and Interventional Science society on their campus, 30th November 2024 from 9:00 to 17:00!

We invited **eleven** amazing speakers from Imperial, UCL, and the Neurotech industry:

1. **Clare Ewell** - 'New Horizons in Neuroimaging: How, When, Where and If'
2. **Parastoo Hashemi** - 'Ex Vivo Electrochemical platforms for Antidepressant Screening'
3. **Ilias Tachtsidis** - 'Brain Haemodynamic and Metabolic in-vivo topical sensing with NIRS: MetaboLight'
4. **Paul Bentley** - 'Boosting Neurorehabilitation: FitBits for the Brain'
5. **Careers Panel** led by Jayla (Outreach Officer)

- **Tom Carlson** [Professor of Assistive Robotics at UCL]
- **Mike Karim** [Co-Founder and former CEO of Oxford Endovascular]
- **Jumpei Kashiwakura** [Co-Founder of Neubond]
- **Shama Rahman** [Founder of NeuroCreate]
- 6. **Edwards Rutkovskis** - 'Selective Vagus Nerve Stimulation'
- 7. **Sadra Sadeh** - 'Decoding The Brain: Modelling Neural Dynamics to Improve Brain Stimulation'
- 8. **Romeo Racz** - 'Pioneering Hyper-Integrated Solutions for Drug-Resistant Brain Disorders'

Our symposium was a hub of groundbreaking insights and innovation, bringing together the brightest minds in the field. We are immensely grateful to the professionals who shared their expertise through informative and inspiring talks, covering a wide array of fields within neurotech—from brain-computer interfaces to therapeutic applications and beyond. The lively careers panel offered invaluable advice for aspiring professors, researchers, and entrepreneurs, leaving attendees motivated and prepared for their next steps.

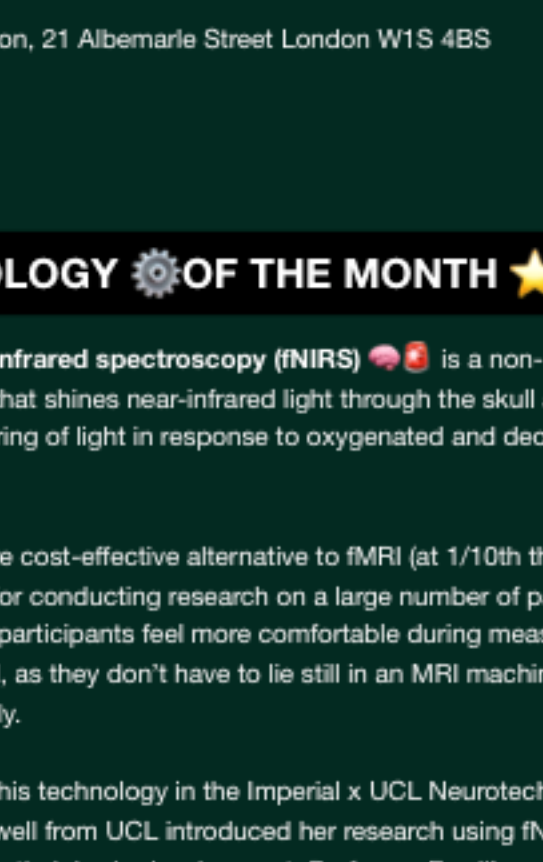
It was heartening to see the attendees and professionals engaging in meaningful networking, exchanging ideas, and building connections that could spark future collaborations. The vibrant discussions and shared passion for neurotech made this event not just informative but also truly memorable.

Also, huge [congrats](#) to the 1st place winner of the **essay competition**, **Alima Nurpeisova**, for her insightful essay about 'Revolutionising Epilepsy Care with Shape-Changing Neural Interfaces'. 🎉

Thank you to Imperial and UCL committee who made a great effort to organise this event and all the attendees who made this symposium an unforgettable experience!

WHAT'S ON 📅 DECEMBER 2024

1. December 5th 6pm: Simon Schultz Talk - Watching Thought: using light, and viruses, to probe brain function and how it goes wrong



Professor **Simon Schultz**, Professor of Neurotechnology and Director of the Centre for Neurotechnology at Imperial, will present his groundbreaking research on using light and viruses to study brain function.

📅 Thursday, 5 Dec 2024, 6:00pm, RSM 1.31

2. December 12th 6pm: Neurotech x Femtech x Neuroscience Collab Series Talk #5: Jumpei Kashiwakura, Co-Founder and CEO of Neubond

Dr **Jumpei Kashiwakura**, Co-Founder and CEO of Neubond, a stroke neurorehabilitation company will be talking about his work on neurorehabilitation, how he started in the Neurotech space, and pitfalls to avoid for prospective entrepreneurs.

📅 Thursday, 12 Dec 2024, 6:00pm, RSM 1.31

🧘‍♀️ **Not many events this month due to winter break** 🧘‍♀️

🌸 **Enjoy your break and look forward for more events at spring term!** 🌸

EXTERNAL NEUROTECH OPPORTUNITIES 📦

1. Student Position in Startup Focused on Brain Health and Nutrition

Seeking a student with an entrepreneurial spirit for a flexible 10-20 hour per week position in a startup focused on holistic brain health, and with additional focus on nutrition.

- Minimum commitment of 3 months, with potential for a longer term role.
- Responsibilities will vary and we are looking for someone who likes to do lots of different things including: preparing for product launch, working with a network of >30 neuroscientist academics, building audience engagement via social media and the website and generally supporting the Founders and team.
- The ideal candidate is adaptable, articulate, passionate about neuroscience / brain health, and entrepreneurial.

Brain Health Network

- A small team has set up Brain Health Network ([link](#)) - a dedicated platform to help people understand and manage brain health through the latest research. A number of years of research and development has also gone into formulating and preparing a nutritional product to help people manage their brain health.
- The ultimate goal is to help people to reduce the risk / delay the onset of dementia by adjusting their lifestyle choices.
- The team have already built a significant audience of people concerned about their brain health, and this will be the first target market once the nutritional product is launched.
- The product will be launched in 2025.

Important information

- You will need to spend some time in London from time to time, to meet and work closely with the team.
- The role will be paid at £15/hour, whether in London or working from home.

How to apply

- Send your CV and 3 reasons why you'd love to do this role and how you can best contribute to the goals of Brain Health Network to oliver.sharman@brain.health

2. Christmas Lecture: Computation and Society: Past, Present and Future

Wed, 4 Dec 2024 18:30 - 21:00 GMT

Rowley House, 1 Wellington Square Oxford OX1 2JA

[Link to tickets](#)

3. UCL Psychology Society - Field Perspectives on Bipolar Disorder and Schizophrenia

Thu, 5 Dec 2024 18:00 - 20:00 GMT

1-19 Torrington Place London WC1E 7HB

[Link to tickets](#)

4. Northeastern University - Neurocollective meetup: What are emotions made of?

Wednesday, December 4 · 6 - 7:30pm GMT

Northeastern University London, 58 Saint Katharine's Way London E1W 1LP

[Link to tickets](#)

5. 2-Photon Optogenetic Mapping of Neocortical Microcircuits

Tuesday, 17 December 2024, Time:12:00 - 13:00 GMT

3.03, Royal School Of Mines, South Kensington Campus

[Link to tickets](#)

6. Cambridge NeuroWorks Launch Event - Powered by ARIA

Wed, 18 Dec 2024 15:30 - 18:30 GMT

Maxwell Centre, JJ Thomson Avenue Cambridge CB3 0HE

[Link to tickets](#)

7. Neuromorphic Computing for Science

Fri, 24 Jan 2025 19:00 - 20:30 GMT

The Royal Institution, 21 Albemarle Street London W1S 4BS

[Link to tickets](#)

★ TECHNOLOGY 🧠 OF THE MONTH ★

Functional near-infrared spectroscopy (fNIRS) 🧠 is a non-invasive neurotechnology that shines near-infrared light through the skull and analyses the absorption/scattering of light in response to oxygenated and deoxygenated haemoglobin.

It is safer and more cost-effective alternative to fMRI (at 1/10th the price), making it more convenient for conducting research on a large number of participants. Another advantage is that participants feel more comfortable during measurements compared to fMRI, as they don't have to lie still in an MRI machine and can move and speak naturally.

We came across this technology in the Imperial x UCL Neurotech Symposium, where Professor Clare Ewell from UCL introduced her research using fNIRS to image infant brains and monitor their brain development. Professor Ewell's research demonstrates how fNIRS is effective for studying samples like babies, who are too sensitive to be placed in an MRI machine.

References:

<https://doi.org/10.1016/j.neuroimage.2024.119979>

★ PAPER 📄 OF THE MONTH ★

Selected paper of December 2024 is:

"Implanted cortical neuroprosthetics for speech and movement restoration" 🧠 (Muirhead et al, 2024)

This paper reviews the development and use of implanted cortical neuroprosthetics (ICNs) designed to help individuals with paralysis, aphasia, or other conditions regain speech and movement by decoding brain signals. It examines current progress, potential applications, technical and ethical challenges, and highlights the importance of these devices for improving communication and mobility in clinical settings.

If you are interested, have a look at the full paper with this [link](#).

★ HACKATHON ANNOUNCEMENT 🚀 ★

We are thrilled to announce our very own Neurotech hackathon for **next month!**

In collaboration with **NeurotechX** and **Entrepreneur First**, we are hosting a 30-hour long lock-in, providing you with the tools and food to build something great.

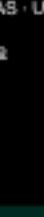
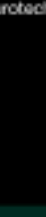
Come with ideas; with dreams; with aspirations for a better tomorrow.... or don't, we will provide everything!

Teams, food, drink, prizes, inspiration and more - we got it all.

🚀 Join us [here now!](#) 🚀

Our website: <https://iclneurotech.co.uk/>

Contact us: neurotech@ic.ac.uk



[View email in browser](#)

ICL Neurotech · Exhibition Road · London, London SW7 2AS · United Kingdom

[update your preferences](#) or [unsubscribe](#)

