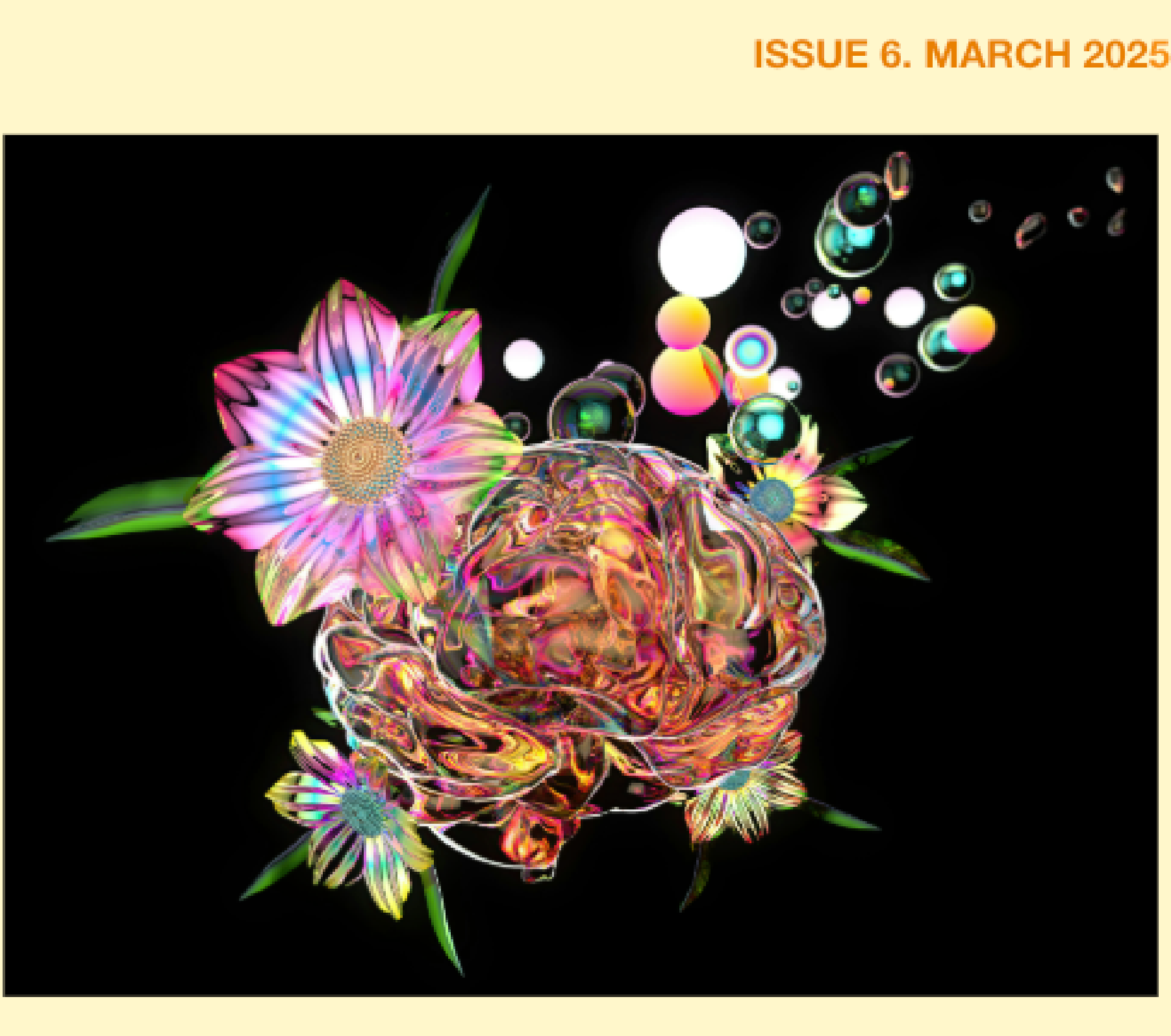
ICL Neurotech Monthly Newsletter

ISSUE 6. MARCH 2025

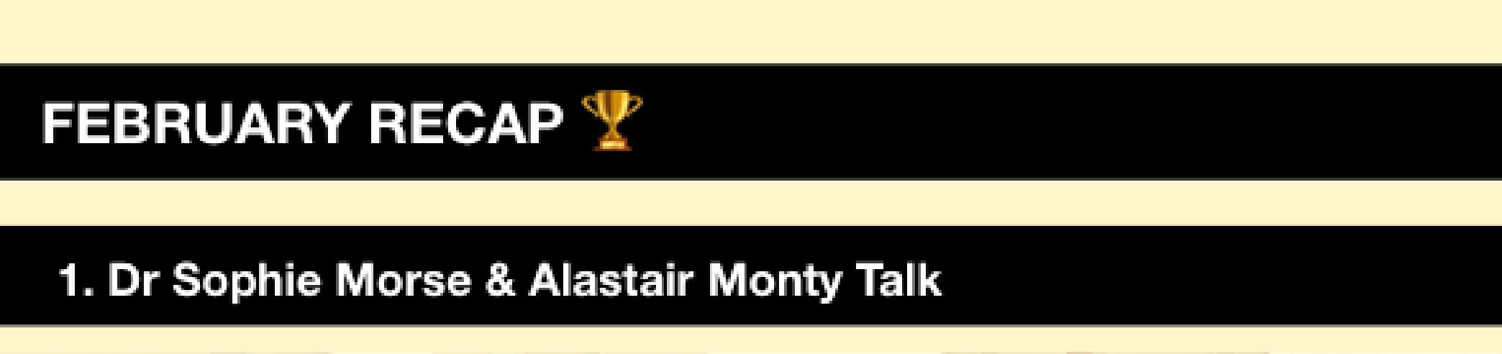


NEWSLETTER TLDR

1. 🔊 Reflecting on Dr. Sophie Morse, Alastair Monty, and Prof. Tom Carlson's Talks
2. 📅 Mar 2025 Events - Dr. Dorian Haci Talk
3. ⭐ Tech/Paper of the month - Functional Ultrasound Imaging & Robot-Assisted Arm Training (RAAT)

FEBRUARY RECAP 🏆

1. Dr Sophie Morse & Alastair Monty Talk



We hosted a **Focused-Ultrasound themed** talk on 6th of February, inviting two renowned speakers **Dr. Sophie Morse** from UK Dementia Research Institute and **CEO Alastair Monty** from Mendea technologies.

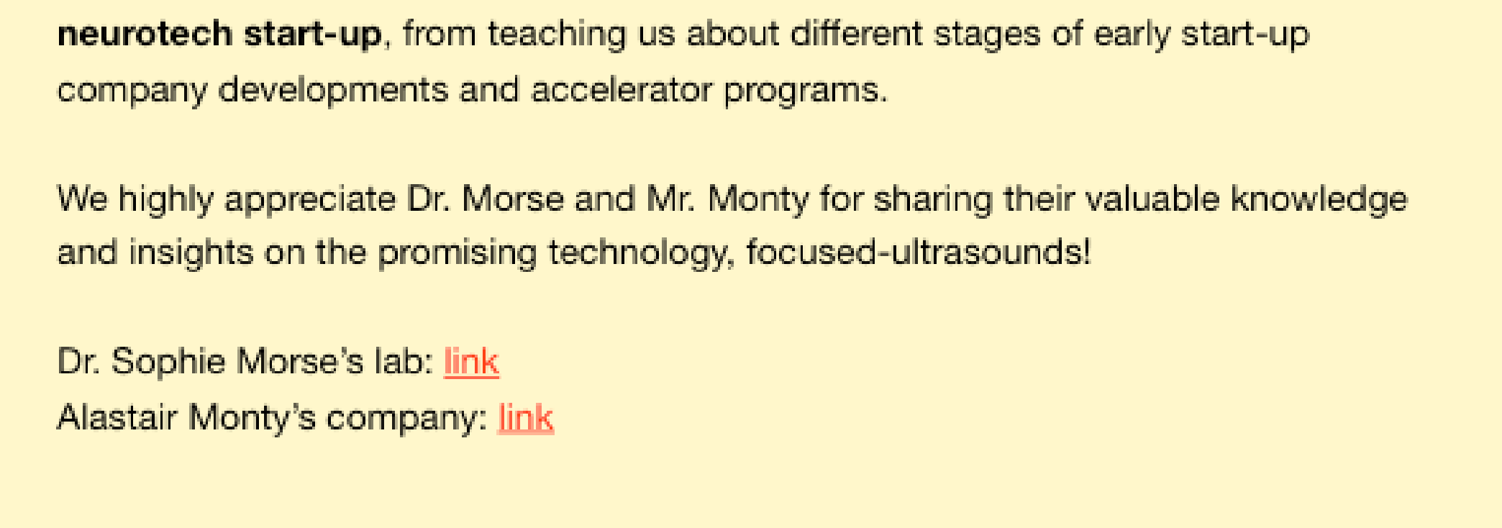
Dr. Morse took us through how therapeutic ultrasound can non-invasively stimulate cells in our brain and treat various neurological diseases. She introduced us to **high intensity ultrasound** which could treat tumours, essential tremors, and Parkinson's Disease and **low intensity ultrasound** which could treat tumours, Alzheimer's disease, depression, addiction, and epilepsy. Ultrasound therapy has key benefits on activating the brain's innate immune cells, reducing inflammation, and helping to overcome the blood brain barrier to deliver drugs to the brain.

Mr. Monty introduced us to the development of focused-ultrasound device for **wearable neuromodulation**. He also shared his industry insight on **founding a neurotech start-up**, from teaching us about different stages of early start-up company developments and accelerator programs.

We highly appreciate Dr. Morse and Mr. Monty for sharing their valuable knowledge and insights on the promising technology, focused-ultrasounds!

Dr. Sophie Morse's lab: link
Alastair Monty's company: link

2. Professor Tom Carlson Talk - Exploring Assistive Robotics



On 27th of February, we had the pleasure of hearing from **Professor Tom Carlson** from **UCL** about his research journey in **assistive robotics and rehabilitative engineering**. His work focuses on achieving a balance between fully autonomous systems and human-controlled robotics, a concept known as **Shared Control**.

One of the key outcomes of this approach was the development of an **assistive wheelchair** that combines human input with pre-trained software and algorithms. This combination significantly reduces accidents and improves safety. However, this technology was initially limited to indoor environments with pre-mapped locations. To overcome these limitations, Prof. Carlson and his team expanded their research to include **crowd dynamics** and **leveraged advancements in sensor technology and machine learning**. This allowed the wheelchair to operate more effectively in unmapped outdoor environments. They also introduced **user-friendly features,** such as scanning for tables and table heights in indoor settings, enabling the wheelchair to automatically align with tables.

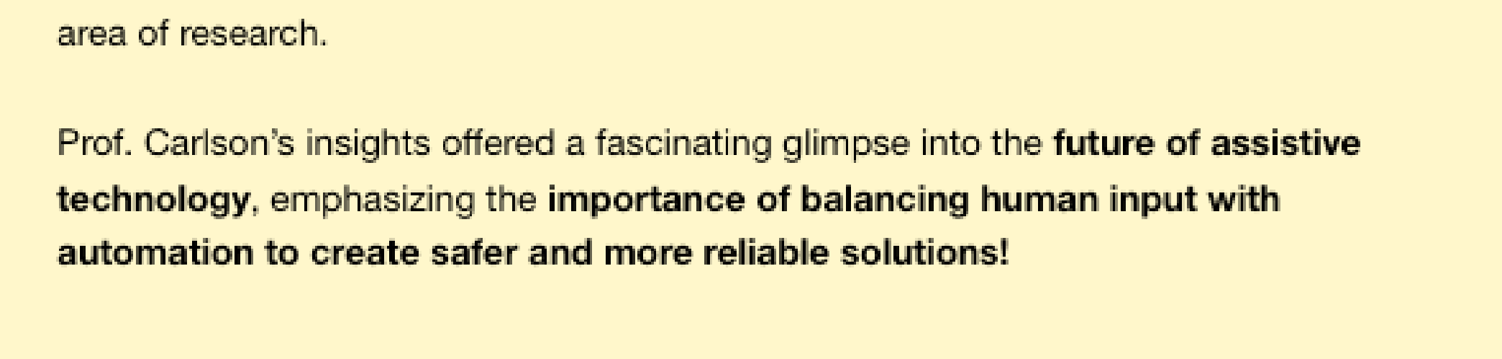
The conversation also touched upon the potential of **Brain-Computer Interfaces (BCIs)** in enhancing shared control for assistive and rehabilitative technologies. Prof. Carlson highlighted the growing potential of BCIs in providing reliable and intuitive control for users.

For those interested in advancing their knowledge in this field, Prof. Carlson mentioned the availability of a **specialized program**: the **"Rehabilitation Engineering and Assistive Technologies MSc" at UCL.** This course offers an excellent opportunity for **aspiring postgraduate students** to delve into this evolving area of research.

Prof. Carlson's insights offered a fascinating glimpse into the **future of assistive technology**, emphasizing the **importance of balancing human input with automation to create safer and more reliable solutions!**

WHAT'S ON 📅: MARCH 2025

1. Chips Over Pills: The Future of Neurotech - Dr. Dorian Haci, CEO & Co-Founder of MintNeuro


Chips Over Pills:
The Future of Neurological Intervention
Scalable Semiconductors & Next-Gen Neural Implan
mintneuro
Dr Dorian Haci, PhD.
Founder and CEO, MintNeuro
Featured in London
Chips Over Pills: The Future of Neurotech🧠 Dorian Haci, PhD | CEO & Co-Founder of MintNeuro
MAR 13
Thursday 13 March
18:15 - 19:15
Imperial College London
London, England

Are you someone who is fascinated by the brain and the **future of neurotechnology**? Are you an **aspiring entrepreneur** wondering how to scale their business? If so, register for this event!

We are excited to announce that **Dr. Dorian Haci, PhD, CEO and Co-Founder of MintNeuro** will be coming to Imperial to share about the company's upcoming projects with Motif Neurotech, Imperial College, Oxford University, and more! Fresh off securing **£17 million in ARIA grants**, he'll also share his journey from an Imperial student to a neurotech founder and what it takes to build a company in this space.

Time: 6:15 - 7:15 UKT
Date: Thursday, 13th March 2025
Location: RSM 1.31, Imperial College
Free for all, **please email us for livestream link if you want to join from overseas**

EXTERNAL NEUROTECH OPPORTUNITIES 💼

1. Neurotechnology and The Law Symposium & Course 👩‍⚖️

Welcome to
The Centre for
Neurotechnology and Law
Where Neuroscience Meets Jurisprudence

Embark on a transformative learning journey with "**Neurotechnology and the Law**," a comprehensive course designed to explore the intricate relationship between advancements in neurotechnology and the legal frameworks that govern them. Over the span of **6 months**, students will engage with world-leading experts in the field, participate in **thought-provoking discussions**, and **gain practical knowledge that bridges neuroscience and legal studies**. This course offers a unique opportunity to understand how neurotechnology impacts various industries, personal rights, and ethical standards.

Symposium Link
Course Link

2. Full-Stack Engineer Recruitment

A cutting-edge AI-driven healthcare startup in Cambridge that has secured seed funding is looking for a Full-Stack Engineer to join their growing team.

About the Role:
As a Full-Stack Engineer, you'll play a key role in shaping and building the platform, working across the stack to develop scalable, high-performance solutions. You'll be involved in everything from designing intuitive front-end experiences to architecting robust backend systems and deploying infrastructure on Azure.

What You'll Do
✅ Build & Scale – Design and develop end-to-end solutions, taking features from concept to production.
✅ Front-End Development – Create intuitive, responsive interfaces using React.js, ensuring a seamless user experience.
✅ Back-End Development – Lead backend development with FastAPI (Python), focusing on performance and scalability.
✅ DevOps & Cloud – Manage deployments, implement CI/CD workflows, and ensure platform reliability on Azure.
✅ Data Management – Architect and optimize PostgreSQL databases, ensuring security, integrity, and performance.
✅ Strategic Impact – Influence product direction and technical decisions to help shape the future of AI in healthcare.

What We're Looking For
🔹 Experience: At least 2+ years in full-stack development, with a strong focus on Python (FastAPI) and React.js.
🔹 Tech Skills:
Backend: Python, FastAPI, RESTful API design.
Frontend: React.js, TypeScript/JavaScript, HTML5, CSS3.
Database: PostgreSQL (schema design, optimization).
Cloud & DevOps: Azure (preferred), CI/CD, Git/GitHub, containerization.
🔹 Mindset: Self-starter, proactive, comfortable making architectural decisions.
🔹 Communication: Ability to explain technical concepts to non-technical stakeholders and collaborate across teams.

Compensation & Benefits
💰 Competitive salary + meaningful equity options
🏥 Private health insurance
🚀 Opportunity to shape an AI-driven healthcare platform with real-world impact

Email: **tanmay@getseenventures.com**

3. Cleaveland NeuroDesign Entrepreneurs Workshop

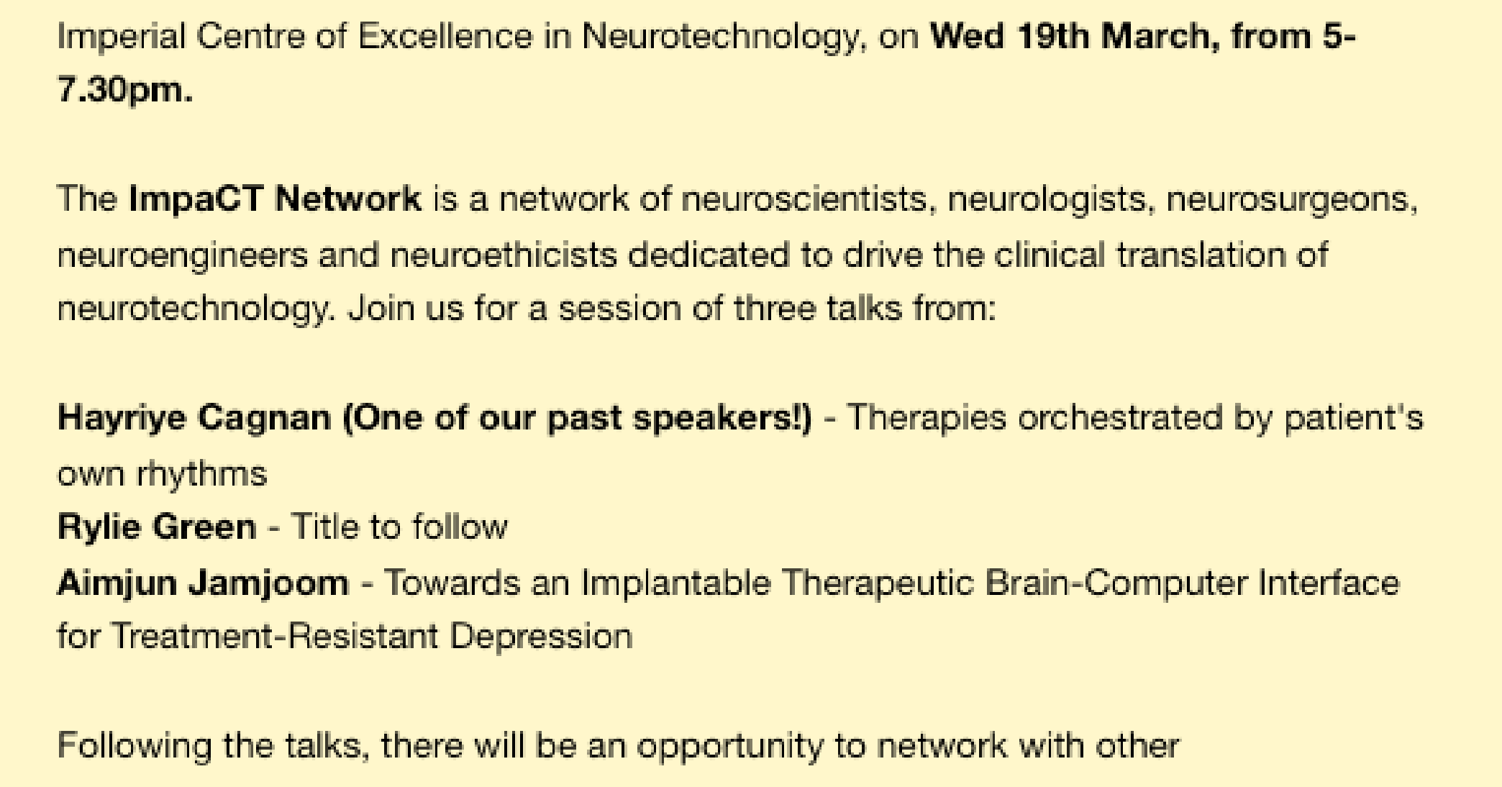
The Entrepreneurs Workshop is a weekend course for graduate students and early professionals to understand the BioDesign process. Participants will be formed into teams and provided with a clinical need. Using a combination of mentorship and didactic lectures, you will identify a need, invent a solution, design a business strategy and model, and then pitch your solution to a panel of judges.

The 2025 European Workshop will take place in Lugano from June 12-15 2025.

Applications for 2025 Europe are now open!

Link

4. 9th London Impact Meeting - Imperial College London



9th London Impact Meeting- Imperial College London
19th March 2025, 1700 - 1930
Imperial College London
Seminar Room 122, Sir Alexander Fleming Building Imperial College Rd London SW7 2AZ

Join us for three seminars from:

Dr Hayriye Cagnan - Senior Lecturer, Department of Bioengineering, Imperial College London
Therapies orchestrated by patient's own rhythms

Mr Aimjun Jamjoom - Consultant Neurosurgeon, Clinician Scientist and Founder of HeadOn Health
Towards an Implantable Therapeutic Brain-Computer Interface for Treatment-Resistant Depression

Professor Rylie Green - Head of the Department of Bioengineering, Department of Bioengineering, Imperial College London
Title to follow

Following the talks, there will be an oppurtunity to network with other neurotechnology enthusiasts and catch up on all the latest progress within London.

We invite you to register for the 9th London ImpaCT Network meeting, hosted by the Imperial Centre of Excellence in Neurotechnology, on **Wed 19th March, from 5-7.30pm.**

The **ImpaCT Network** is a network of neuroscientists, neurologists, neurosurgeons, neuroengineers and neuroethicists dedicated to drive the clinical translation of neurotechnology. Join us for a session of three talks from:

Hayriye Cagnan (One of our past speakers!) - Therapies orchestrated by patient's own rhythms
Rylie Green - Title to follow
Aimjun Jamjoom - Towards an Implantable Therapeutic Brain-Computer Interface for Treatment-Resistant Depression

Following the talks, there will be an opportunity to network with other neurotechnology enthusiasts and catch up on all the latest progress within London. To find out more about the event, speakers and network, and to register, please visit:
Link to book

5. Is diabetes getting on your nerves?

Monday, March 24 · 6 - 7:30pm GMT
Blizard Institute - 4 Newark Street London E1 2AT

Link to tickets

6. UCL Joint Brain Tumour & CRUK CoL Radiation Research Centre Seminar

Tue, 1 Apr 2025 10:00 - 12:00 BST
Rayne Institute, 5 University Street London WC1E 6JF

Link to tickets

7. Encode AI London Hackathon and Research Conference

April 11 · 11am - April 13 · 4:30pm GMT+1
London TBC

Link to tickets

8. British Neuroscience Association Conference

27th - 30th April, 2025
King's Dock, Port of Liverpool, Kings Dock St, Liverpool L3 4FP

Link to tickets
Early Bird deadline: 31st Jan
Early bird fee (Note: Ticket £100+ quite expensive)

9. UCL Neuroscience Symposium 2025

Wed, 18 Jun 2025 09:00 - 18:00 BST
20 Bedford Way London WC1H 0AL

Link to tickets

⭐ TECHNOLOGY ⚙️ OF THE MONTH ⭐

Functional Ultrasound Imaging is a method for imaging transient changes in blood volume in the whole brain. By measuring the vascular signal, it is possible to make inferences on the neuronal activity, modeling as a convolution with a 'transfer function'

It is known to provide a **better spatial and temporal resolution** of brain imaging compared to **fMRI or PET**, using the combination of **real-time imaging, tissue motion filtering, and volumetric imaging**. Also, in neuroscience studies using animal models like rats, it has an advantage that it can measure brain activities in **freely moving species** too.

As discussed in the focused-ultrasound talk by Dr. Morse and Mr. Monty, it has lots of **potential clinical applications**, such as tumours, Parkinson's Disease, Alzheimer's disease, depression, addiction, and epilepsy!

References:
https://www.nature.com/articles/nmeth.1641
https://www.annualreviews.org/docserver/fulltext/neuro/45/1/annurev-neuro-111020-100706.pdf?expires=1741659151&id=id&accname=guest&checksum=4DEBAF95D6EE6A1E6B913DF08EC1D28F

⭐ PAPER 📄 OF THE MONTH ⭐

Selected paper of March 2025 is:

"Tailoring Robot-Assisted Arm Training to Individuals with Stroke: Bridging Neuroscience Principles and Clinical Practice 💪 (Morone et al., 2025)"

As an extension for Prof. Carlson's talk on assistive robotics, we wanted to introduce other applications of assistive robotics in medical settings. This paper introduces **robot-assisted arm training (RAAT)** as rehabilitation approach for stroke survivors, focusing on personalising the robotic therapy based on individual characteristics and clinical needs. It allows us to explore potential advancements of the assistive robotics technology, such as its integration with **AI and VR**, incorporating **dual tasking,** and transition to **home-based therapy** from hospital-based.

Have a look at the full paper with this link

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