

UCL Neuroscience Domain



UCL

UCL Neuroscience Symposium 2024

Thursday 20th June



From Molecules to Mind

Welcome

It is my great pleasure to welcome you all to this year's UCL Neuroscience Symposium. This is a particularly special year as the Symposium marks its 15th birthday!



The theme of this year's Symposium is "From Molecules to Mind" – reflecting UCL's outstanding breadth in molecular, cellular, circuit and cognitive neuroscience, and the increasing importance of bridging these levels of inquiry to achieve both deeper understanding and clinical potential in treating neurological and psychiatric disease. Our keynote speakers each reflect aspects of this theme. Prof. Pieter Roelfsema (Netherlands Institute for Neuroscience) seeks to understand the circuit mechanisms of visual perception and cognition, while also using these insights to develop cortical prostheses to restore vision in blindness. The lab of Prof. Karen Duff (UK Dementia Research Institute, UCL) spans discovery science focused on understanding the molecular causes and consequences of tauopathy in Alzheimer's disease, while also seeking to identify and test novel therapeutic targets.

Our plenary speakers showcase the breadth and depth of UCL Neuroscience, with work on the neural basis of social behaviour in zebrafish (Dr. Elena Dreosti), how spatial navigation impacts visual perception (Prof. Aman Saleem), computational approaches to understanding decision-making (Prof. Athena Akrami) and the importance of heart-brain interactions for mental health (Prof. Sarah Garfinkel). The Symposium will also play host to the Early Career and Jon Driver Prize winners' talks. Their identities are under wraps at the time of writing, but they will no doubt showcase the stellar early career scientists we are lucky to have within the Neuroscience Domain.

I would like to take the opportunity to thank the careful and considered guidance and support provided by the Symposium Organising Committee (Peter Kok, Hugo Spiers, Asaph Zylbertal, Selina Wray, Caswell Barry, Mala Shah, Sophie Scott, Katharina Schmack), Gurjit Matharu, Atti Au,

Will Ansell, Ruth Wainman and David Wiseman for their excellent and timely nudges to make sure the right things happened at the right time. The Symposium was the brainchild of the Neuroscience Domain Steering Committee created by Professor Trevor Smart and colleagues 16 years ago to bring together neuroscientists dispersed across UCL. Particular thanks must go to Gurjit Matharu who has juggled all elements of the programme and once again secured this wonderful space in the IoE.

We are also extremely grateful to our sponsors whose generous support allows this Symposium to take place – do make sure to visit their exhibits in Jeffrey Hall during the breaks. I am personally tremendously excited for the day ahead, and I hope you enjoy this sample of UCL Neuroscience – and a journey from molecules to mind.

Professor Steve Fleming, Committee Chair

Introduction to UCL Neuroscience

The Neuroscience Domain has been in existence for 16 years. It was designed and created as an interdisciplinary research theme in Neuroscience spanning across all faculties, departments, divisions and institutes at UCL. One of its many aims is to bring together everyone whose research is relevant to all aspects of neuroscience ranging from fundamental neuroscience (e.g. molecular, cellular and systems) to clinical neuroscience (e.g. neurodegeneration and mental health). Presently, there are over 500 research groups from 30 departments, totalling over 2000 members engaged in neuroscience.

The Domain is led by Professor Trevor Smart (Chair), supported by a steering committee comprising representatives from across the specialities in neuroscience at UCL with support from David Wiseman (UCL Neuroscience Strategic Coordinator), Gurjit Matharu (Events Manager), Will Ansell (Communications Officer), and Ruth Wainman (Research Coordination Officer).

The Domain's broad over-arching key objectives are to:

- Facilitate world-class neuroscience research across UCL
- Train and develop succeeding generations of world class neuroscientists
- Promote communication and engagement in neuroscience, both internally and externally.

Since the Domain's inception it has:

- Coordinated numerous successful, collaborative, interdisciplinary proposals (e.g. UK Dementia Research Institute, ARUK-UCL Drug Discovery Institute, Sainsbury Wellcome Centre for Neural Circuits and Behaviour, Leonard Wolfson Experimental Neurology Centre)
- Developed a strong website presence that serves as a portal to neuroscience Departments at UCL, including research activity and researchers, training and events
- Created a neuroscience careers network committee that works tirelessly to bring events to early-career and later stage researchers and PIs across UCL in many disciplines, as well as neuroscience.
- Developed a comprehensive communication strategy (with over 2000 people now on our mailing list)

- Convened major events that bring together the community as well as smaller more focused symposia and workshops.

Overall, the neuroscience domain is constantly looking to facilitate our research in neuroscience. To find out more, visit the UCL Neuroscience Domain Website:

www.ucl.ac.uk/research/domains/neuroscience

General Information

Meeting name badges

Please wear your registration badge at all times. All participants are required to wear identification badges when attending sessions and when entering the exhibition. If you lose your badge, please go to the registration desk where a new badge will be made for you.

Lunches and refreshments

Tea, coffee and lunches will be served during the official breaks within the Jeffery Hall, Elvin Hall and Drama Studio. If you have indicated you have a special dietary requirement, you will find your lunch on the bar in the Crush Hall.

Mobile phones and devices

As a courtesy to speakers and other participants, all mobile phones must be switched to silent before entering scientific sessions. Any other electronic devices, such as cameras, laptops, and tablets must have all sound effects turned off.

Poster abstracts

The Symposium poster abstracts are available to download as a booklet from the Symposium website

Wi-Fi

Wi-Fi is available for conference participants throughout the venue. The Eduroam network is available to UCL staff and students, as well as member of many other UK and international institutions. You can join the network using your own log in credentials. If you are not on Eduroam, please use the UCL Guest Wi-Fi network.

Security and safety

Please do not leave bags and luggage unattended at any time, whether inside or outside session halls.

Photography

There will be a photographer taking photographs throughout the day.

Programme

08:15 – 09:00 **Registration**

**09:00 –
09:10** **Welcome**

Professor Steve Fleming
Chair, Symposium Programme Committee

**09:10 –
10:35** **Session 1**

Chair: Dr Peter Kok, Principal Research Fellow, The Wellcome Centre for Human Neuroimaging, UCL

9:10 – 10:00 **Professor Professor Pieter Roelfsema, Principal Investigator, Netherlands Institute for Neuroscience in Amsterdam**
Conscious visual perception and how to restore it when the eyes fail

10:00 – 10:05 **Professor Ray Dolan, Director of UCL-Max Planck Centre for Computational Psychiatry and Ageing Research**
Introduction to the Jon Driver Prize

10:05 – 10:20 **Jon Driver Prize Winner: Maxime Beau, PhD Student, Neural Computation Lab, Wolfson Institute for Biomedical Research, UCL**
A deep-learning strategy to identify cell types across species from high-density extracellular recordings and monosynaptic information transmission across the cerebellar output pathway

10:20 - 10:35 **Jon Driver Prize Winner: Eleanor Spens, PhD Student, Computational Neuroscience, UCL**
Learning to imagine: Generative models of memory construction and consolidation

**10:35 –
11:35** **Poster Session 1, trade exhibition & tea/coffee break**

**11:35 –
13:05**

Session 2

**Chair: Professor Mala Shah, Professor of Neuroscience,
Pharmacology, UCL School of Pharmacy**

11:35 – 12:05

**Professor Sarah Garfinkel, Professor of Cognitive
Neuroscience, Institute of Cognitive Neuroscience,
UCL**

Clinical neuroscience and the heart-brain axis

12:05 – 12:35

**Professor Aman Saleem, Professor of Experimental
Psychology, Division of Psychology & Language
Sciences, UCL**

**Visual cortical processing - more than what meets the
eye**

12:35 – 12:50

**Early Career Prize Lecture – Junior Category
Anya Suppermpool, Research Fellow, UCL Ear Institute
Sleep pressure modulates single-neuron synapse
number in zebrafish**

12:50 – 13:05

**Early Career Prize Lecture – Advanced Category
Dr Pip Coen, Principal Research Fellow, Cell &
Developmental Biology, UCL
Mouse frontal cortex mediates additive multisensory
decisions**

Poster session 2, trade exhibition, workshop & lunch

**13:05 –
14:20**

**Lunchtime workshop commences at 13:10 - 13:30,
provided by major sponsor RWD Life Science:**

‘RWD one stop solution for neuroscience’

14:20–
16:10

Session 3

**Chair: Professor Selina Wray, Alzheimer's Research UK
Senior Research Fellow, Neurodegenerative Disease,
UCL Queen Square Institute of Neurology**

14:20 – 14:50

**Dr Elena Dreosti, Senior Research Fellow, Cell &
Developmental Biology, UCL**
**Social swimmers: Zebrafish leading the way in mental
health and pain research**

14:50 – 15:20

**Dr Athena Akrami, Senior Research Fellow, The
Sainsbury Wellcome Centre, UCL**
**Learning and exploiting sensory statistics across
multiple species**

15:20 – 16:10

**Professor Karen Duff, Director of the UK Dementia
Research Institute, UCL**
**Unravelling the contribution of tau to Alzheimer's
disease and frontotemporal dementia**

16:10–
16:20

Prize giving & Closing remarks

Professor Trevor Smart, Chair, UCL Neuroscience Domain

16:20–
17:50

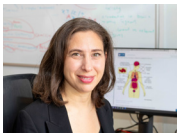
Networking reception, Jeffery Hall

Speaker Profiles



Professor Pieter Roelfsema

Professor Roelfsema received his MD degree in 1991 and his PhD degree in 1995. He moved to the Netherlands Institute for Neuroscience in Amsterdam in 2002 where he was director from 2007-2023. He is professor at the Free University of Amsterdam and at the AUMC in Amsterdam. He received a NWO-VICI award (2008) and two ERC-Advanced grants (2014 and 2022). Professor Roelfsema studies visual perception, plasticity, memory and consciousness in the visual system of experimental animals, humans, and with neural networks. His main question is how neurons in different brain areas work together during seeing and thinking. Professor Roelfsema studies how networks of neurons work together to perceive and solve cognitive tasks and how they configure themselves during learning. He develops the neurotechnology for high-bandwidth visual prostheses for blind people, aiming to restore a rudimentary form of sight. He coordinates the Dutch neurotechnology initiative NeuroTech-NL.



Professor Sarah Garfinkel

Professor Sarah Garfinkel's work centres on the way emotion processing is altered in a range of clinical and neurodevelopmental conditions including anxiety, autism, ADHD, PTSD and dissociation.

The brain and the body are intrinsically and dynamically coupled, and her work investigates how signals from the body, with a particular focus on the heart, can interact with the brain to guide how we think and feel. She investigates emotion-cognition interactions in a variety of different ways, measuring both peripheral signals (using psychophysiology, such as ECG) and centrally (e.g. fMRI).

Professor Garfinkel collaborates with psychiatrists and neurologists to understand the interoceptive mechanisms underlying aberrant emotion processing in clinical and neurological conditions. Her research is fully translational, mapping out basic mechanisms with a view to informing evidence based novel treatments.



Professor Aman Saleem

Professor Aman Saleem started his training with an undergraduate degree in Engineering from the Indian Institute of Technology, Bombay. He then transitioned into neuroscience with a PhD in Computational Neuroscience at Imperial College London, studying information processing in visual systems of flies and rodents. As a postdoc he studied how the visual system functions during locomotion and navigation: discovering how non-visual information is encoded by visual areas of the brain.

Professor Saleem started his own lab as a Sir Henry Dale fellow at the UCL Department of Experimental Psychology in 2017. The lab uses a variety of methodologies including recording hundreds of neurons in the brain using electrophysiology and imaging, computational analyses and modelling of neural systems, developing virtual reality environments, and new naturalistic behavioural paradigms. The lab's main focus is to understand how the brain uses visual information for active behaviours such as navigation.



Dr Elena Dreosti

Dr Elena Dreosti graduated in 2006 with a first-class degree in Medical Biotechnology and Cellular neuroscience from the University of Trieste (Italy). During her internship in the lab of Enrico Cherubini at the ISAS of Trieste, she discovered her passion for neuroscience research. She then moved to Cambridge (UK) to carry out her PhD studies with Leon Lagnado at the Laboratory of Molecular Biology. Here she focused on understanding how visual stimuli are processed within the retina of zebrafish, and she developed the first generation of genetically encoded calcium indicators to monitor synaptic activity, SyGCaMP. Elena was then awarded with a Sir Henry Wellcome Postdoctoral Fellowship to work in the labs of Emre Yaksi in Leuven (Belgium), Michael Orger in Lisbon (Portugal), and Steve Wilson at UCL (London, UK). During this time, she demonstrated that vertebrate brains are endowed with functional asymmetries, and different hemispheres can process different information similarly to human brains.

In 2016 Dr Dreosti started her independent research group as Wellcome Trust & Royal Society Sir Henry Dale Fellow at UCL where she is pioneering the use of zebrafish to study social behaviour in

health and disease. Her passion for training the next generation of scientists led her to join the Cajal Advanced Neuroscience Training Programme in 2020 and to become the Executive Director in 2022. During this time she developed a new series of highly scalable and hands-on courses on the fundamental tools of neuroscience called the NeuroKits.



Dr Athena Akrami

Dr Athena Akrami grew up in Iran and obtained her BA in Biomedical Engineering from Tehran Polytechnic (Amirkabir University of Technology) in Tehran, Iran. She pursued her PhD in Computational Neuroscience at the International School for Advanced Studies (SISSA) in Trieste, Italy, with Alessandro Treves. She continued at SISSA as a postdoctoral fellow, but she switched gears towards experimental neuroscience working with Mathew Diamond. She then moved to the US to pursue another postdoctoral fellowship at Princeton University where she was a Howard Hughes Medical Institute fellow in the lab of Carlos Brody, focusing on parametric working memory in rodents.

Dr Akrami joined the faculty at Sainsbury Wellcome Centre (SWC) at University College London in UK in November 2018. Her Learning, Inference & Memory laboratory at SWC focuses on understanding the fundamental principles of statistical learning – the ability of the brain to discover and exploit relevant regularities and structures in the world in an unsupervised and implicit manner. In all her research programs, experiments are intertwined with hypotheses drawn from theoretical investigations and computational modeling.



Professor Karen Duff

Professor Duff is the Centre Director of the UK Dementia Research Institute at University College London and Professor Emerita at the Department of Pathology at Columbia University Medical Center, New York.

She received her PhD from Sydney Brenner's department at the University of Cambridge in 1991. She undertook postdoc positions in London with Alison Goate from 1991-1992, and John Hardy at the University of South Florida from 1992-1994. She was an Assistant Professor at the University of South Florida from 1993- 1996, Associate Professor at Mayo Clinic Jacksonville from 1996-1998, and Professor at the New York University Nathan Kline Institute from 1998-2006 followed by Columbia University from 2006-2019 where she was deputy director of the Taub Institute.

Professor Duff explores disease mechanisms and tests therapeutic approaches to Alzheimer's Disease, Fronto-Temporal Lobe Dementia and other dementias. Her current interests are exploring the mechanisms involved in the spread of pathogenic proteins within the brain, understanding the basis of selective cellular vulnerability and resilience to tauopathy and developing new mouse and cell models to understand the earliest stages in tau pathogenesis.

Professor Duff has published 140 peer-reviewed research articles and received several prizes including the Potemkin Prize in 2006 and most recently the British Neuroscience Association award for Outstanding Contribution to Neuroscience in 2020 and Fellowship of the UK Academy of Medical Sciences in 2022.

Chair Profiles



Dr Peter Kok

Dr Peter Kok is a principal research fellow and Sir Henry Dale fellow at the Wellcome Centre for Human Neuroimaging, UCL. Before joining UCL, Dr Kok obtained a PhD at the Donders Institute, under the supervision of Dr Floris de Lange, and completed a postdoctoral fellowship in the lab of Professor Nicholas Turk-Browne, first at Princeton University and then at Yale University. Dr Kok is interested in how prior knowledge and expectations influence how we perceive the world, and how this is realised by the brain.



Professor Mala Shah

Professor Mala Shah obtained a First Class (Hons) BSc in Pharmacology from the University of Bath, followed by a PhD at the Department of Pharmacology, University College London during which time she carried out work on characterising the slow afterhyperpolarization in hippocampal neurons. She subsequently won a Wellcome International Prize Travel Research Fellowship to work in Professor Daniel Johnston's laboratory at Baylor College of Medicine (Texas, USA) where she started her work on understanding ion channel properties and function in entorhinal cortical dendrites under physiologic and epileptic conditions. In 2004, she returned to the Department of Pharmacology, University College London as a Senior Research Fellow in Professor David Brown's laboratory and continued her studies on the functional significance of subcellular distribution of ion channels in hippocampal and cortical neurons during normal and epileptogenic conditions through funding received from the Wellcome Trust and Epilepsy Research Foundation. In 2007 she won the prestigious MRC New Investigator Award and joined the Pharmacology Department at UCL School of Pharmacy as a lecturer. In 2010, she obtained the esteemed ERC Starter Independent Grant. Her interests lie in understanding the effects of voltage-gated ion channels and their neuromodulation by neurotransmitters such as acetylcholine and glutamate on the intrinsic and synaptic activity of neurons and neuronal circuits.



Professor Selina Wray

Professor Selina Wray is a Professor of Molecular Neuroscience in the Department of Neurodegenerative Disease, UCL Queen Square Institute of Neurology. Her work focussing on understanding the molecular mechanisms of Alzheimer's disease and other forms of dementia using patient-derived stem cell models.

Selina received her degree in Biochemistry and Biological Chemistry from the University of Nottingham in 2004 and was awarded her PhD in 2008 from Kings College London. She joined UCL Queen Square Institute of Neurology in 2009, supported by Alzheimer's Research UK Junior and Senior fellowships, establishing her own group in 2015. She was awarded the 2018 ARUK David Hague Early Career Researcher of the Year award and the 2024 Suffrage Science International Life Sciences award.

Exhibitors



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British Neuroscience Association

The British Neuroscience Association (BNA) is the largest UK organisation connecting, representing and promoting neuroscience

and neuroscientists across the globe.

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UCL Translational Research Office

UCL Translational Research Office (TRO) is an integral part of UCL's biomedical research powerhouse. As an expert team of applied scientists and business developers, we support our researchers in realising their translational ambition by offering strategic advice, funding support, and bridging the gap with industry to help establish collaborations that drive the pipeline of therapeutic, device and diagnostic innovations.

Learn more: www.ucl.ac.uk/translational-research/translational-research-office



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WPI manufacture and supply a comprehensive range of Neuroscience products, from consumables right up to and including complete set ups for Electrophysiology, Microinjection, Cell & Tissue Analysis and Animal Physiology research projects.

Poster Exhibition

We are pleased to showcase research posters from colleagues across the UCL Neuroscience Domain.

Posters will be displayed during the whole event in the locations shown below. They will be presented over two formal sessions, during which time presenters are expected to stand by their posters.

Session 1 – 10:35 – 11:35 (odd numbers)

Session 2 – 13:05 – 14:20 (even numbers)

2024 Research Poster Prize

The 10 posters shortlisted for the 2024 Research Poster Prizes are highlighted in **green** and will all be displayed in the Jeffery Hall Foyer.

In order to be considered for the prize, those shortlisted must stand next to their posters during the breaks so you can answer the Judging Panel's questions. The winning Research Posters will be presented with their certificate at the end of the symposium.

Cognition and Behaviour

(Posters 1 - 28, Elvin Hall) - 28 posters

Perception; learning; memory; attention; language; emotion; decision making and reasoning; cognitive development; cognitive ageing; social cognition; animal cognition and behaviour; motivation and emotion.

Developmental Neuroscience

(Posters 29 - 37, Elvin Hall) – 9 posters

Brain patterning; synaptogenesis; neurogenesis; gliogenesis; stem cells; axon and dendrite development; cell death; development of motor, sensory and limbic systems; transplantation and regeneration.

Disorders of the Nervous System

(Posters 38 – 59, Elvin Hall) – 22 posters

Translational mechanisms; neurological, neurodegenerative, psychiatric, developmental and sensory disorders; trauma; neuro-oncology; drug abuse.

Homeostatic and Neuroendocrine Systems

(Poster 60 Elvin Hall) – 1 poster

Neuroendocrine; neuroimmunology, autonomic regulation, biological rhythms and sleep.

Neural Excitability, Synapses and Glia: Cellular Mechanisms (Posters 61 - 66, Elvin Hall) – 6 posters

Neurotransmitters; signalling molecules; ion channels; receptors; transporters; synaptic plasticity; network interactions; intrinsic membrane properties; glia-neuron interactions.

Novel Methods, Resources and Technology Development

(Posters 67 - 81, Drama Studio) – 15 posters

Molecular, biochemical and genetic techniques; genomics, proteomics and systems biology; staining; imaging; optical methods; optogenetics; electrophysiology; software; bioinformatics; computation.

Sensory and Motor Systems

(Posters 82 – 99, Drama Studio) – 18 posters

Multisensory integration; audition; vision; vestibular systems; pain; somatosensation; spinal cord injury; motor pattern generation; motor neurons; cerebellum; basal ganglia; posture and gait; voluntary movements; brain/machine interfaces.

Other (History of Neuroscience, Public Awareness of Neuroscience, Resource Posters)

(Posters 100 – 103, Drama Studio) – 4 posters

Research Posters

Cognition and Behaviour

Elvin Hall

1. **Yaniv Abir - Max Planck UCL Centre for Computational Psychiatry and Ageing Research**

Reinforcement learning mechanisms of antidepressant treatments (RELMED)
2. **Benjy Barnett - Wellcome Centre for Human Neuroimaging**

Creating something out of nothing: Symbolic and non-symbolic representations of numerical zero in the human brain
3. **Lioba Berndt - Applied Computational Psychiatry Lab**

The effects of a mindfulness-based decentering intervention on momentary changes in self-esteem after social feedback
4. **Elin Bonyadi - Department of Speech, Hearing and Phonetic Sciences**

How does hearing loss affect cognitive influences on speech-in-noise perception?
5. **George Booth - Cortexlab/UCL Institute of Ophthalmology**

Dynamic and additive audiovisual integration in mice
6. **Sarah Bühle - UCL Institute of Cognitive Neuroscience**

Neurocognitive mechanisms of threat-of-shock induced impairments in encoding emotional faces in anxiety patients
7. **Susana Colinas Fischer - Cell and Developmental Biology**

Interactions between punishment and reward in a circuit for associative learning in *C. elegans*
8. **Nadine Dijkstra - Department of Imaging Neuroscience**

Perceptual reality monitoring as metacognitive inference on sensory precision
9. **Daniel Dobolyi - Wolfson Institute for Biomedical Research**

Neural computations underlying the generalization of information for adaptive behaviour
10. **Dorottya Hetenyi - UCL Queen Square Institute of Neurology**

Pre-stimulus alpha oscillations encode stimulus-specific visual predictions
11. **Nadia Hosseinizadeh - Cognitive Studies Department**

Investigating the mechanisms of global confidence
12. **Zimo Huang - UCL Research Department of Neuroscience, Physiology and Pharmacology**

Human hippocampal theta oscillations code distance to a goal during spatial planning
13. **Luna Teresa Huestegge - UCL Institute of Cognitive Neuroscience**

The causal role of sensory strength in dissociating imagination from reality

14. **Krisztina Jedlovsky - UCL Division of Biosciences**
Expected volatility and belief updating in paranoia – a reinforcement learning approach
15. **Alizee Kastler - Cell and Developmental Biology**
Social interaction increases tolerance to noxious stimuli in zebrafish
16. **Rudy Kirchner - Faculty of Brain Sciences**
Emotions Speak Louder, Than Words: Naturalistic fMRI Study of Non-Verbal Emotional Cues in Forthcoming Word Prediction
17. **Agnès Landemard - UCL Institute of Ophthalmology**
Modulation of brainwide activity by arousal
18. **Beth Longley - UCL Institute of Cognitive Neuroscience**
The relationship between interoception, olfaction, emotion, and dissociation
19. **Karyna Mishchanchuk - Sainsbury Wellcome Centre**
Abstract contextual representations in ventral hippocampus support hidden state inference
20. **Perside Ngani - Institute of Intelligent Systems and Robotics**
The link between cognitive, affective, and spatial perspective taking in patients with spatial impairments
21. **Jakub Onys - Max Planck Centre for Computational Psychiatry and Ageing Research**
Large language model response consistency and contextual sensitivity across self-report psychiatric questionnaires - a building block of a framework to understand thought dynamics
22. **David Orme - UCL Research Department of Neuroscience, Physiology and Pharmacology**
Hippocampal role in updating and use of value and structure in an odour sequence task
23. **Arjun Ramaswamy - Department of Imaging Neuroscience**
Electrophysiological Correlates of Reinforcement Learning in the Human Ventral Tegmental Area
24. **Kirsten Rittershofer - School of Psychological Sciences**
Time-resolved EEG decoding of perceptual surprise
25. **Nick Simpson - UCL Division of Psychology and Language Sciences**
Similar perceptual repulsion effects for lifelong and recently learned expectations
26. **Ella Svahn - UCL Research Department of Neuroscience, Physiology and Pharmacology**
Ventral hippocampal acetylcholine integrates past outcomes to guide flexible decision making
27. **Oliver Vikbladh - UCL Institute of Cognitive Neuroscience**
Consolidation of Sequential Planning
28. **Emma Ward - UCL Division of Psychology and Language Sciences/ Experimental Psychology**

Surprise impairs perception of surprising and incidental events

Developmental Neuroscience

Elvin Hall

29. Arta Aghaeipour - Department of Neurodegenerative Diseases
Localization of Dystrophin isoforms in the mouse brain: insights into neuropsychiatric comorbidities in Duchenne muscular dystrophy
30. Jonathan Ashmore - UCL Research Department of Neuroscience, Physiology and Pharmacology
How to hear at high frequencies: what's the tectorial membrane got to do with it?
31. Juliette Champaud - UCL Research Department of Neuroscience, Physiology and Pharmacology
The relationship between GABA concentration and spectral oscillatory dynamics in the neonatal brain
32. Javier de Andrés - UCL Ear Institute
The role of Tcf/Lef transcription factors in the formation of inner ear sensory organs
33. Xhuljana Durmishi - UCL Institute of Ophthalmology
HepaCAM regulates Müller Glia morphological complexity in the developing zebrafish retina.
34. Deborah Hofmeyr - IOE, UCL's Faculty of Education and Society
Using fNIRS to understand the interplay between SES, language and executive function: a toddler intervention study

35. Jiabo Lan - UCL School of Pharmacy
Promoting peripheral nerve regeneration by inhibiting Phosphodiesterase (PDE) 4.
36. Konstantina Tetorou - UCL Great Ormond Street Institute of Child Health
Interactome analysis of dystrophin isoforms in the mouse brain
37. Konstantina Tetorou - UCL Great Ormond Street Institute of Child Health
Brain involvement in Duchenne muscular dystrophy

Disorders of the Nervous System

Elvin Hall

38. Alaa Alhamdi - Department of Pharmacology
Targeting peroxisome proliferator-activated receptor gamma receptor (PPAR- γ) as a therapeutic target to enhance neurite outgrowth in a 3D Co-Culture Model
39. Reem Alkharji - UCL Developmental Biology and Cancer
Dystrophin mutations affect human neuron and astrocyte behaviour
40. Ellen Appleby - Department of Pharmacology
The effect of calcium channel antagonism in SSRI discontinuation: an immunohistochemical investigation in mice.
41. Emily Atkinson - Department of Pharmacology
An immunomodulatory encapsulation system for the delivery of human iPSC-derived dopaminergic neuron progenitors in Parkinson's disease

42. **Melanie Bonyadi - UCL Institute of Healthy Ageing**
Investigating the effects of lipid manipulations in a Gba1b knockout Drosophila model
43. **Audrey Crystalia - UCL Division of Biosciences**
Uncovering Wnt antagonist Dkk3 role in synaptic loss in Alzheimer's Disease
44. **Ahmad Danial - UCL Department of Medicine**
The 100 Most Influential Papers on Lewy Body Dementias: A Bibliometric Analysis
45. **Perlina Desai - UK Dementia Research Institute at UCL**
Using proximity labelling to investigate astrocytic protein profile changes in response to amyloid pathology in a mammalian model of Alzheimer's disease
46. **Karl Frontzek - UCL Queen Square Institute of Neurology**
Splicing Dysregulation In Parkinson's Disease Pathogenesis
47. **Amruth Gadey - UCL Queen Square Institute of Neurology**
Resting state gamma-band power in schizophrenia
48. **Amy Geard - Department of Pharmacology**
AAV9-Mediated Gene Therapy In A Knock-In Mouse Model Of Infantile Neuroaxonal Dystrophy
49. **Hanna Hakansson - UCL Research Department of Neuroscience, Physiology and Pharmacology**
Investigating the link between mitochondrial dysfunction and the integrated stress response in Parkinson's disease pathology
50. **Meriç Başak Lenk - The UCL Division of Psychiatry**
Disentangling delirium: a genome-wide association study and meta-analysis on delirium tremens
51. **Alessandro Marinelli - Department of Neuroinflammation, UCL**
Preliminary investigation of excitation/inhibition balance in visual snow syndrome
52. **Angela Misak - UCL Research Department of Neuroscience, Physiology and Pharmacology**
Behavioural characterisation of the AppNL-G-F knock-in mouse model of Alzheimer's disease in the presence and the absence of the human tau transgene
53. **Praveen Mummaneni - Department of Neurological Surgery**
Inflammatory brachial plexitis mimics postoperative iatrogenic neurological deficits
54. **Jiaxin Pei - UCL Research Department of Neuroscience, Physiology and Pharmacology**
Effects of CYFIP2 and its pathogenic mutant R87C on neuronal development
55. **Georgia Ppasia - UCL Research Department of Neuroscience, Physiology and Pharmacology -**
Plaque-induced synaptic targeting by microglia in an Alzheimer's disease mouse model

56. **Silvia Purro - UCL Institute of Prion Diseases**

AD knockin mouse models are a robust model to study A β influence on tau pathology

57. **Dervis Salih - UK Dementia Research Institute at UCL**

Genetic variation associated with human longevity and Alzheimer's disease risk act through microglia and oligodendrocyte cross-talk

58. **Rob Wykes - Department of Clinical and Experimental Epilepsy**

Ketamine prevents the inverse haemodynamic response to spreading depolarization in ischaemic cortical tissue.

59. **Yuheng Zeng - UCL Queen Square Institute of Neurology**

Structural connectivity changes in the ventral stream after posterior cerebral artery stroke causing sight loss

Homeostatic and Neuroendocrine Systems

Elvin Hall

60. **Nikhil Mummaneni - National Institute of Neurological Disorders and Stroke**

Cushing's disease patients demonstrate sex-dependent corticotrophin stimulated brain F-fluorodeoxyglucose uptake

Neural Excitability, Synapses and Glia

Elvin Hall

61. **Isabel Bravo-Ferrer - Cell and Developmental Biology**

Characterization of astrocyte secreted factors that protect synapses from degeneration.

62. **Gozde Caan - The UCL Division of Psychiatry**

Altered expression of sensory neuron sodium channels in the absence of Nav1.7

63. **Emma Clark - Cell and Developmental Biology**

Visualising the spatial range of neuropeptide action

64. **Alexander Mascarenhas - UCL Research Department of Neuroscience, Physiology and Pharmacology**

Sulfite oxidase in astrocyte mitochondria generates nitric oxide during brain hypoxia

65. **Haojie Sun - UCL School of Pharmacy**

Unconventional intracellular signaling pathway underlying cholinergic muscarinic receptor-induced axonal action potential threshold plasticity in hippocampal neurons

66. **Megan Tomlin - Cell and Developmental Biology -**

Concomitant changes in glial cells and synapse integrity in an Alzheimer's disease mouse model

Novel Methods, Resources and Technology Development

Drama Studio

67. **Padraig Gleeson - UCL Research Department of Neuroscience, Physiology and Pharmacology**
Integrating model development across computational neuroscience, cognitive science and machine learning using the Model Description Format - MDF
68. **Olivia Goff - Clinical and Experimental Epilepsy**
Development of a chimeric GPCR as a potential new autoregulatory gene therapy for focal, refractory epilepsy
69. **Aanandita Kothurkar - UCL Institute of Ophthalmology**
Iterative bleaching extends multiplexity (IBEX) imaging facilitates simultaneous identification of all cell types in the vertebrate retina
70. **Praveen Mummanen - Department of Neurological Surgery**
Machine learning powered calculators for the prediction of post-operative arm and neck pain in patients with cervical spondylotic myelopathy: a quality outcomes database study
71. **Brooke Nairn - UCL Ear Institute**
Refining the TeleRehabilitation Decision Support System for stroke patients: a patient-centric approach
72. **Jannette Nassar Arbid - Department of Medical Physics and Biomedical Engineering**
A novel fMRI contrast: resting-state functional quantitative susceptibility mapping (rsfQSM)
73. **Shereen Nizari - Centre for Advanced Biomedical Imaging**
Using non-invasive MRI to inform therapy by characterising fluid movement in the diseased brain
74. **Sahil Patel - Department of Clinical and Experimental Epilepsy**
GRANPA: G-protein coupled Receptor Activated by Non-Prescription Agent - next generation chemogenetics with gene therapy potential
75. **Laura Porta - Sainsbury Wellcome Centre**
Derotator: a Python package to solve rotation artifacts in 3-photon calcium imaging
76. **Bayard Rogers - The UCL Division of Psychiatry**
Evaluating frontoparietal network topography for diagnostic markers of Alzheimer's disease
77. **Karin Shmueli - Department of Medical Physics and Biomedical Engineering**
Rapid high-resolution MRI for integrated structural and functional magnetic susceptibility and electrical conductivity mapping in the human brain
78. **Nikoloz Sirmipilatzte - Sainsbury Wellcome Centre**
Movement: a python toolbox for analysing pose tracking data

79. Haeun Sun - UCL Queen Square
Institute of Neurology

Could intracranial stimulation in epilepsy be a platform for developing novel targets for psychiatric Deep Brain Stimulation?

80. Rania-Iman Virjee - UCL Institute of
Cognitive Neuroscience

Investigating the heart-beat evoked potential: bridging gaps and building consensus in methodological approaches

81. Joseph Ziminski - Sainsbury
Wellcome Centre

Datashuttle: a toolbox for neuroscience project management and standardisation

Sensory and Motor Systems

Drama Studio

82. Laura Andreoli - UCL Research
Department of Neuroscience,
Physiology & Pharmacology
Influence of Early Life TRPV1-fibre
Activation on Sensorimotor Circuit
Development

83. Shanice Bailey - Sainsbury Wellcome
Centre

Multisensory processing of social
information in the medial amygdala

84. Celian Bimbard - UCL Institute of
Ophthalmology

The structure of population activity in
mouse visual cortex is stable for weeks

85. Antonia Constantinescu - UCL
Research Department of Neuroscience,
Physiology and Pharmacology

The postnatal development of
corticospinal projections in mice

86. Julie Fabre - UCL Queens Square
Institute of Neurology

Visual and visuomotor signals across
the basal ganglia axis

87. Mansoureh Fahimi Hnazaee -
Department of Neuroimaging

Generators of the frequency-following
response in the subthalamic nucleus:
implications for non-invasive deep
brain stimulation

88. Karolina Farrell - Francis Crick Institute
Excitatory-inhibitory dynamics in
auditory cortex during hallucination-
like perception

89. Elizabeth Freeman - UCL Ear Institute
Ears tuned for love: exploring the
molecular control of the African
malaria mosquito's hearing

90. Zainab Khan - Department of Clinical
and Movement Neurosciences

Novel investigation of upper limb non-
use in chronic stroke.

91. Gokce Korkmaz - Department of
Neuroinflammation, Queen Square
Multiple Sclerosis Centre

In Action Execution and Observation
the Cerebellum Exerts a Differential
Control over the Excitatory/Inhibitory
Dynamics of Inter-Regional Effective
Connectivity

92. Anyi Liu - UCL Institute of
Ophthalmology

Apical dendrites drive surround
responses in visual cortex

Other (History of Neuroscience, Public Awareness of Neuroscience, Resource Posters

Drama Studio

93. **Kaho Magami - UCL Ear Institute**
The susceptible brain: How short interruptions affect long term auditory scene representations – evidence from EEG
94. **Jay Mavi - Department of Natural Sciences**
Source localisation of pain-related activity in the developing neonatal brain
95. **Sherylanne Newton - UCL Ear Institute**
Absence of Embigin causes multi-system failure in C57BL/6N mice due to interaction with Cdh23-ahl
96. **Eleni Petridou - UCL Research Department of Neuroscience, Physiology and Pharmacology**
Actions have consequences: how does the brain use sensory feedback to adapt behaviour across time and complexity scales?
97. **Irene Salgarella - Laboratory for Molecular Cell Biology**
Neural Mechanisms Underlying The Onset of Parenting By Sensitization
98. **Sina Tootoonian - Sensory Circuits and Neurotechnology Laboratory**
Understanding the input-output transformation of the olfactory bulb
99. **Giulia Zuccarini - UCL Research Department of Neuroscience, Physiology & Pharmacology**
Neural circuits underlying hunting sequence generation in larval zebrafish.
100. **Philippa Chapman - UCL Research Department of Neuroscience, Physiology and Pharmacology**
On the regulation of arterial blood pressure by an intracranial baroreceptor
101. **Janet Clark - Division Intramural Research Program**
UCL-NIMH Joint Doctoral Training Program in Neuroscience
102. **Igor Tatarnikov - Sainsbury Wellcome Centre**
The BrainGlobe initiative - developing open-source computational neuroanatomy tools
103. **Laetisha Witoyo - Institute for Global Health**
Examining factors that may affect the career success of consultant neurologists in the United Kingdom

Prize Winners

Jon Driver Prize Winners



Maxime Beau, PhD Student, Neural Computation Lab (Michael Häusser), Wolfson Institute for Biomedical Research, UCL

A deep-learning strategy to identify cell types across species from high-density extracellular recordings and monosynaptic information transmission across the cerebellar output pathway

Maxime Beau is a PhD student in Michael Häusser's lab developing deep-learning approaches for cell-type classification and studying long-range information transmission in the cerebellum. Beginning his training in Paris in a competitive MD-PhD programme at Université Paris Descartes, he undertook a neuroscience MSc at UPMC and École Normale Supérieure before joining UCL.



Eleanor Spens, PhD Student, Computational Neuroscience, UCL

Learning to imagine: Generative models of memory construction and consolidation

Eleanor Spens is a computational neuroscience PhD student supervised by Prof. Neil Burgess at the ICN, following an MPhysPhil in Physics and Philosophy at Oxford and MSc in Cognition and Computation at Birkbeck. Alongside my studies I have worked in a range of machine learning related roles in the Civil Service.

Prize Winners

Early Career Prize Lecture Winner – Junior Category

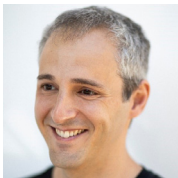


Anya Suppermpool, Research Fellow, UCL Ear Institute

Sleep pressure modulates single-neuron synapse number in zebrafish

Growing up in Thailand, Anya has been fascinated by the molecular and cellular underpinnings of behaviours. She started using zebrafish in research during her undergraduate years at King's College London and subsequent Masters degree at UCL with Steve Wilson and Jason Rihel. Funded by a UCL Scholarship, she continued to study zebrafish sleep and synapse dynamics in the Rihel lab, earning her PhD in 2021. Anya is currently a Research Fellow with Marta Andres at the UCL Ear Institute, where she investigates the circuits that underlie mosquito mating behaviour.

Early Career Prize Lecture Winner – Advanced category



Dr Pip Coen, Principal Research Fellow, Cell & Developmental Biology, UCL

Mouse frontal cortex mediates additive multisensory decisions

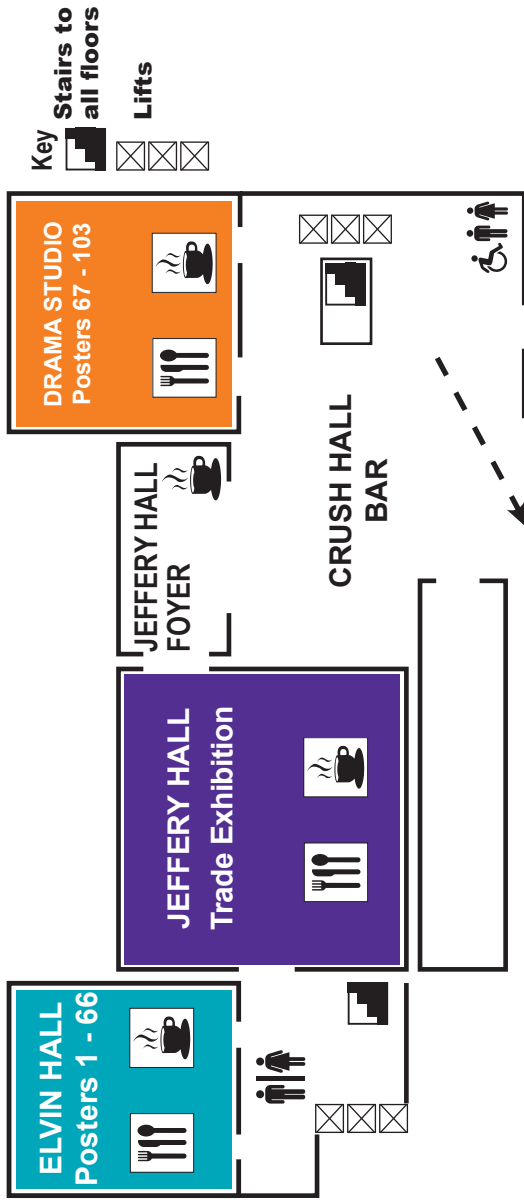
Philip Coen first became interested in multisensory decision-making during his PhD work in *Drosophila* with Mala Murthy at Princeton University. He then joined the laboratory of Matteo Carandini and Kenneth Harris at UCL and developed an audiovisual behavioural task for head-fixed mice. He combined this behaviour with the technical and biological tools available in mice to identify the underlying brain regions and neural computations. In Autumn 2023, Philip will start his independent group in the CDB department at UCL with a Wellcome CDA award. He will use chronic electrophysiology and optogenetics to map audiovisual integration across learning, circuits, and behaviours.

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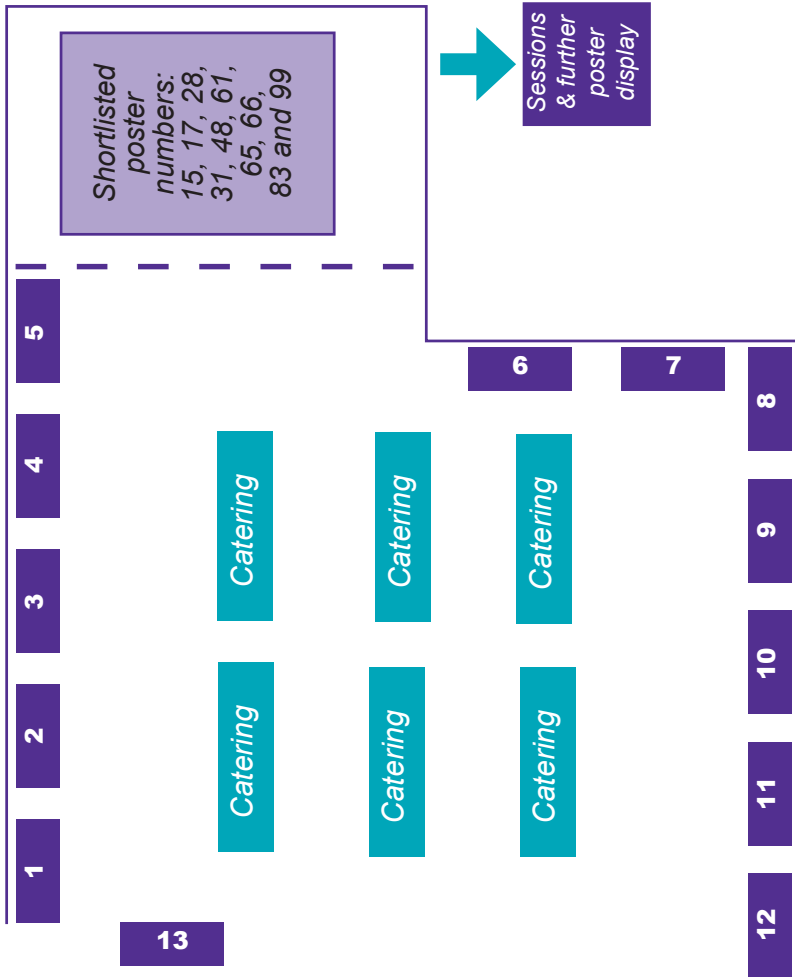


Elvin Hall – (Posters 1– 66)
Cognition and Behaviour (Posters 1–28)
Developmental Neuroscience (Posters 29–37)
Disorders of the Nervous System (Posters 38–59)
Homeostatic and Neuroendocrine systems (Poster 60)
Neural Excitability, Synapses and Glia: Cellular Mechanisms (Posters 61 - 66)

Drama Studio – (Posters 67–103)
Novel Methods, Resources and Technology Development (Posters 67 - 81)
Sensory and Motor Systems (Posters 82 - 99)
Other e.g. history of neuroscience, public awareness of neuroscience, resource posters (Posters 100 - 103)

Jeffery Hall Floor Plan

Jeffery Hall



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Further poster display

UCL Neuroscience Symposium

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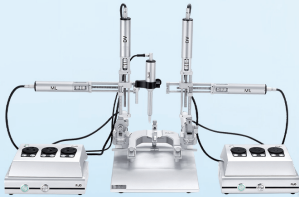
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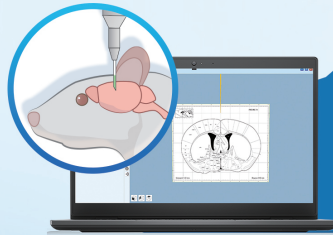
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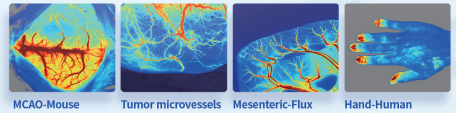
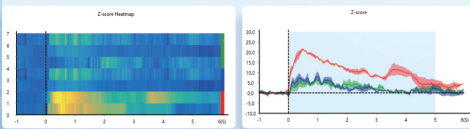
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