Dinghao Luo

Graduate student, Max Planck Florida Institute of Neuroscience
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EDUCATION

Max Planck Florida Institute for Neuroscience, Jupiter, FL, USA May 2021–
PhD candidate, mechanisms of episodic memory
- Advisor: Yingxue Wang, Dr.
- International Max Planck Research School (IMPRS) fellow

University of Cambridge, Cambridge, UK Sept 2017–June 2020
First-Class Honours graduate, BA Biological Natural Sciences at Magdalene College
- Jardine Scholar, fully funded by Jardine Matheson on a merit-based selection
- First-Class graduate, awarded the Bundy Scholarship and the College Prize for Natural Sciences
- Magdalene Scholar, elected based on academic performance

The Affiliated High School of South China Normal University, Guangzhou, China
August 2014–June 2017
Weighted GPA 4.81, ranked first among 131 students

RESEARCH

Graduate thesis, ***PI: Dr. Yingxue Wang***,
Max Planck Florida Institute for Neuroscience, Jupiter, FL, USA May 2021–
- Funded by the International Max Planck Research School program
- Research aim: to understand the moment-to-moment dopaminergic modulation of hippocampus-dependent learned behaviour
  - Performed extracellular recording to isolate and monitor locus coeruleus and hippocampal CA1 neurons
  - Performed optogenetic experiments to determine causal relationships between locus coeruleus activity, CA1 neuronal dynamics, and navigational behaviour
  - Used dual-colour two-photon imaging with state-of-the-art neural sensors to understand dopamine dynamics in the hippocampus and how locus coeruleus axons release dopamine in the CA1 area

Undergraduate thesis and **summer internship**, ***PI: Dr. Ole Paulsen***,
Department of Physiology, Development and Neuroscience, University of Cambridge, Cambridge, UK
July 2019–April 2020
- Research aim: to investigate whether dopamine is essential for a novel LTP induction protocol
  - Used whole-cell patch clamping to study how hippocampal CA1 long-term potentiation rules change with dopamine
  - Found that dopamine reduced the stimulation intensity required for long-term potentiation
  - Collected and analysed electrophysiological data, prepared and defended an undergraduate thesis ('Dopamine Facilitation of CA3–CA1 Behavioural Time-Scale Plasticity') in May, 2020, which received a First-Class mark

Summer internship, ***PI: Dr. Elizabeth Fisher***
Queen Square Institute of Neurology, University College London, London, UK July 2018–August 2018
- Funded by the Genes and Development Summer Studentship of Genetics Society
- Research aim: to determine the causal genes for activity deficits of cathepsin B in amyloid pathology in people with Down Syndrome
  - Used Western Blot to quantify active cathepsin B, pro-cathepsin B and S100B
  - Performed protein activity assays for cathepsin B activity in mouse models of Down Syndrome

Research student, ***PI: Dr. Anne Fontana***,
Syracuse University, Syracuse, NY, USA February 2016–May 2016
- Organised by the Pioneer Academics Research Program
- Research aim: to design an experiment comparing lithium, valproate and aripiprazole for the treatment of bipolar disorder
  - Reviewed literature on the categorisation, time course, correlational factors, and treatments of bipolar disorder, focussing on lithium, valproate and aripiprazole
  - 'Comparison of the Effectiveness of Lithium, Valproate and Aripiprazole for Bipolar Disorder' was nominated for publication in the 2016 edition of *Pioneer Research Journal*

PUBLICATIONS

Wu, Y., Mumford, P., Noy, S., Cleverley, K., Mrzyglod, A., **Luo, D.** *et al.* Cathepsin B abundance, activity and microglial localisation in Alzheimer's disease–Down syndrome and early onset Alzheimer's disease: the role of elevated cystatin B. *Acta Neuropathol. Commun.* 11, 132 (2023). https://doi.org/10.1186/s40478-023-01632-8

PRESENTATIONS

Locus coeruleus dopaminergic modulation of CA1 shapes behavioural timescale dynamics for time integration. Lake Conference, Seattle, WA, USA, 28 September–2 October 2025.

Locus coeruleus regulates hippocampus-dependent integration at single-trial level. Memory Formation Forum, Max Planck Florida Institute for Neuroscience, Jupiter, FL, USA, 18 September 2024.

Phasic locus coeruleus activity regulates hippocampal neuronal dynamics during path integration. Scientific Advisory Board Meeting, Max Planck Florida Institute for Neuroscience, Jupiter FL, USA, 18 January 2024.

Phasic locus coeruleus activity regulates hippocampal integration. MPFI Retreat, Key Largo, FL, USA, 20 October 2023.

An LC–CA1 circuit for initiating path integration. Sunposium, West Palm Beach, FL, USA, 6 March 2025.

The effect of three copies of 40 gene orthologs of chromosome 21 on amyloid pathology in a mouse model. Alzheimer's Research UK Research Conference, Harrogate, UK, 19–20 March 2019. Presented by Paige Mumford.

Mapping the causal gene for cathepsin B activity deficits in Alzheimer's Disease/Down Syndrome. Magdalene College Science Symposium, Cambridge, UK, 18 October 2025.

Mapping the causal gene for cathepsin B activity deficits in DS–AD. Genetics Society Summer Workshop, Edinburgh, UK, 27–30 August 2025.

SCIENCE COMMUNICATION

Translator

Sheldrake, M. *Entangled Life* (Random House, 2020). Chinese translation (《菌络万象》). 后浪出版, 2024.

Writer, editor, proofreader and translator, *Neu-reality (神经现实),*

Chinese education platform for neuroscience, psychology, and philosophy of mind [https://neu-reality.com]
July 2017–December 2021

- Founded and led the 'Neuro-Frontier' (神经前研) section, with sections such as the fortnightly 'Paper Alerts', 'Perspectives'/'Deep-dives'
- Collaboratively founded the podcasting team, 'Neuromancing', available on many podcast platforms
- Wrote original articles, translated content with authorisation from *Quanta*, *Nautilus*, and *Aeon* magazines, edited and proofread original articles and translations for publication on the platform
- Helped organise one offline popular science talk on neuroaesthetics in Beijing (speaker: Dr. Rui Zhu)

OTHER INFORMATION

Languages

- Fluent in Cantonese (native), Mandarin (native), English
- Conversational in German and Spanish

Programming languages

- Familiar with Python
- Trained in R, Java and MATLAB

Musical work

- Composed, recorded and self-published 1 full-length album and 1 extended play on Bandcamp [https://amoxitoxin.bandcamp.com]