

Lei Luo

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EDUCATION

King's College London, PhD in Biostatistics and Health Informatics Oct 2023 –

- **Project:** Identifying relationships between transdiagnostic mental health dimensions and brain-based markers in adolescents with anxiety and depression

King's College London, MSc in Neuroscience Sept 2021 – Sep 2022

- "3+1" Joint Undergraduate and Master Training Program at King's College London and Southern University of Science and Technology.

- **Dissertation:** "A novel convolutional neural network approach for classifying brain states under image stimuli"

Southern University of Science and Technology, BSc in Bioscience Sept 2018 – Sep 2021

- **Dissertation:** "The exploration of abnormal calcium level changes in vascular pericytes under potassium-stimulation"

PROFESSIONAL EXPERIENCE

PhD project, Social, Genetic & Developmental Psychiatry Centre; Academic Neuroscience Centre (King's College London) Oct 2023 –

- Under the supervision of Professor Daniel Stahl, Dr Raquel Iniesta and Dr Toby Wise
- Aim to identify relationships between transdiagnostic mental health dimensions and brain-based markers in adolescents with anxiety and depression disorders

Summer School, Peking University Health Science Centre Jun 2025 - Jul 2025

- Engaged in the 2025 Joint Summer School on "AI for Medicine" Peking University Health Science Centre, Keio University, King's College London and Karolinska Institute

Master project, Dr Toby Wise laboratory, King's College London Mar 2022 – Sep 2022

- Optimized the MEG aversive state reactivation model (Logistic regression).
- Developed a CNN architecture, applied LSTM RNN and transfer learning to predict and classify brain states under image stimuli

Internships, Professor Hou Shengtao laboratory, Southern University of Science and Technology Sep 2019 - Jun 2022

- Studied connectome and functional connectivity of human brain under 40hz light flicker.
- Extracted, isolated and cultured pericytes from mice and try to build a system for recognizing pericytes from all cells with deep neural network.
- Participated in The National College Student Innovation and Entrepreneurship Training Program in China, with the topic "rhythmic light flicking can save hippocampal γ and protect ischemic neurons by affecting pericytes".
- Engaged in the lipidomic research of stroke. Learned cell culture techniques and experiment with calcium imaging, immunofluorescence methods. Learned the cardiac perfusion techniques and construction method of creating mouse tMACO models.
- Designed and did behavioral experiments for example water maze, Y maze, novel object recognition.

Student assistant, Southern University of Science and Technology - Queensland University Joint Neuroscience and Nervous Engineering Research Center Oct 2019 - Oct 2021

- Cooperated to organize the national scientific seminars. Periodically biweekly contacted with researchers, typeset and post the announcement for each seminar.

Winter School, Chinese Institute for Brain Research, Beijing Jan 2021 - Feb 2021

- Engaged in the winter school of the Chinese Institute for Brain Research, Beijing

Internships, Professor Xiao Guozhi laboratory, Southern University of Science and Technology

Jun 2019 - Sep 2019

- Gained foundational laboratory knowledge and conducted a series of experiments using model animals.
- Contributed to the primary project by conducting planned experiments weekly.
- Determined my interest in neuroscience.

Publications

40 Hz light flicker alters human brain EEG microstates and complexity implicated in brain diseases Dec 2021

<https://doi.org/10.3389/fnins.2021.777183>

Transdiagnostic functional neuroimaging connectivity features in depression and anxiety in adolescence: a systematic review Sep 2025

<https://doi.org/10.1016/j.neubiorev.2025.106309>

Delineating and validating transdiagnostic factors of adolescent psychopathology measurement in the Adolescent Brain Cognitive Development (ABCD) study 2025

In progress

Awards

Student Opportunity Fund from King's College London 2025

Traveling fund for 2025 Joint Summer School on "AI for Medicine" Peking University Health Science Centre, Keio University, King's College London and Karolinska Institute 2025

Early Career Researcher Fund in Biostatistics and health informatics department at King's College London 2025

K-CSC Scholarship 2023 - 2027

Mingde Scholarship 2021

Studying Abroad Program Scholarships for Undergraduates in Southern University of Science and Technology 2021, 2022

Third Prize Scholarship in Zhicheng College of the Southern University of Science and Technology 2019

The Third Prize of the National High School Mathematics Competition 2018

SKILLS, CERTIFICATIONS & OTHERS

Programming Skills: Python and R (used in data analysis and computational modeling), Java (courses), C and C++ (learning)

Languages: Mandarin (Bilingual or native proficiency), Jiang-Huai (Bilingual or native proficiency), English (Complete professional competence), Cantonese (Limited working proficiency), German (Elementary proficiency)

Lab Skills: EEG data collecting; electrophysiology experiments (patch-clamp); calcium imaging; mouse tMCAO model construction; neurons extraction; immunofluorescence; frozen and vibratome section; cardiac perfusion techniques; etc.

Lab Certifications:: MRI safety training course certificate of attendance, certificate to work with laboratory animals

Club: Membership in the high performance computing and big data analytics center for computational science and engineering in Southern University of Science and Technology.