

Join Us!

We're excited to welcome enthusiastic learners and aspiring researchers passionate about understanding the brain, mind, and behavior.

We offer two ways to engage with the lab: a **brief visit** to join our academic activities, or a longer commitment to **become a lab member** through our staged pathway.

Brief Visits — Joining Our Academic Activities

We welcome visitors with an interest in neuroscience to join our lab's academic activities, held on **Monday (10:00–12:00)** and **Wednesday (13:00–16:00)**. These activities include our book club (where we read and discuss neuroscience textbooks in detail), journal club, and lab meetings (where members present updates on their current research projects). Visitors are free to participate — ask questions and join the academic discussion.

If you plan to visit, please **email us at least one day in advance** (state your background and purpose for visiting). Our schedule varies, and lab members are occasionally offsite on a given day.

Long-term Visits — Becoming a Lab Member

Currently, we do not have an active project requiring a research assistant, though this may change in the future. Requests to join the lab or seek mentorship for neuroscience ideas and projects far exceed our capacity. Mentoring a student from a general interest in neuroscience to publishable, high-quality research work requires regular meetings, training, and careful supervision — a strong, sustained commitment from both mentor and student over long periods (months to a year or more).

To manage this, we organize prospective students into three stages. Progression between stages is **merit-based, not time-based**, and lab members and PIs evaluate readiness at each stage.

Stage A — Exploring interests The student has a general interest in neuroscience or a broad direction they'd like to pursue (for example, decoding analysis on EEG data, or studying ADHD from a computational framework).

Expectation: **Actively participate in our Monday and Wednesday academic meetings** to familiarize yourself with the lab's research interests and how neuroscience studies are conducted. This is also a chance to discuss your interests with lab members.

Stage B — Defining the question The student has familiarized themselves with the literature and current findings relevant to their research questions. They understand how to form scientific questions, recognize the limitations of their methods, and can identify clear gaps in the literature — perhaps even beginning to form specific, falsifiable questions. They have also shown strong commitment to the research and to lab activities.

Expectation: **A mid-level mentor** (a senior student or PhD) is assigned to help actively mentor the project.

Stage C — Building the project The student has demonstrated high potential, and their prospective project has a clear research protocol: objectives, methods, and expected outcomes or alternative hypotheses.

Expectation: **A principal investigator is assigned** based on expertise, interest, and availability. You'll hold regular meetings with both your mid-level mentor and your PI, with **clear timelines to complete the project or produce posters for relevant conferences**. At this stage, we may also involve you in government grants or recommend ways to financially support your project.

A note on fit: We care about building a supportive team environment, and our community is a safe and comfortable place for everyone. We therefore value a prospective member's ability to get along with our existing staff as much as their academic skill. We celebrate diversity, and respect and empathy are non-negotiable.

How to Apply

To apply for lab membership, please email us with:

- Your **CV**
- A **one-page summary** covering:
 - Who are you?
 - What topics are you interested in?
 - Why do you want to join us?
 - When and for how long do you plan to visit?
 - How would this experience benefit you? (Your expectations and goals)
- For novice students interested in neuroscience: A **certificate of completion** for our Brain Building Block series

- Note: *completion of the brain building block is not required for those with a strong background in neuroscience (e.g., masters/PhDs/postdocs) or Brain Code Camp alumni. Please refer to the **Helpful Background** section below.*

Helpful Background

You don't need to master all of the below — but familiarity across these areas will help you get more out of the experience and progress through the stages. We've marked each area by depth: *Should know* (foundational), *Good to know* (helpful), and *Wow, really?* (impressive to have). In order to meaningfully participate in their lab academic activities, we recommend having basic backgrounds (*Should know*) in at least one or two domains (Cognitive, Clinical, Computational, or Neuroscience).

Cognitive

- ***Should know:*** Perception, attention, working memory / executive function, long-term memory, language, emotion, decision making, social cognition
- ***Good to know:*** Classic paradigms (e.g., Posner cueing, N-back, Go/No-Go, visual search, semantic priming, etc.)
- ***Wow, really?*** Psychophysics, Behavioral Modelling

Clinical

- ***Should know:*** Classical syndromes: Amnesia, aphasia, neglect, etc.
- ***Good to know:*** Anatomy localization and disease models (e.g., hippocampus, dual-pathway, Wernicke-Geschwind)
- ***Wow, really?*** State-of-the-art disease models (e.g., connectome models of neurodegeneration, dynamical systems model of psychiatric disorders), Advances in clinical treatments (e.g., Network targeted neuromodulation)

Computational

- ***Should know:*** Model fitting, Cross-validation
- ***Good to know:*** Computational models of the brain and behavior, Statistical assumptions in brain data (e.g., spatiotemporal autocorrelations, heteroskedasticity)
- ***Wow, really?*** Representational geometry, manifolds, brain networks

Neuroscience

- ***Should know:*** Brain anatomy and physiology
- ***Good to know:*** Strengths and limitations of EEG, fMRI, TMS, etc.

- **Wow, really?** Specific analysis pipeline of these methods (e.g., ERP for EEG, resting state network parcellation for fMRI etc.)

Related skills in programming and data-science

- *Commonly used:* Python, R, MATLAB, JavaScript, HTML/CSS, C# (Python and MATLAB is our most used language for data analysis)
- *Should know:* Data handling (e.g. using pandas, understanding data shape), basic statistics
- *Good to know:* using the terminal, statistical analytic tools, data visualization with matplotlib
- *Wow, really?* Neuroscience or data-science specific toolkit (e.g., Freesurfer for neuroimaging, MNE for EEG analysis, scikitlearn, Pytorch)

Our Philosophy on AI

We are not an artificial intelligence lab.

Our main objective is to understand the principles governing the brain and behavior at a fundamental level. Because of this, we are not interested in uses of AI that only detect, cluster, or classify patterns in brain data, behavior, or disease without offering mechanistic insight into why those patterns arise — the "black box" approach. If you have a strong machine learning background and want to focus on developing these tools, an AI-focused lab would be a better fit (such as CU-AIM).

What interests us is AI used in service of mechanistic understanding. For example, we have used the VGG-16 convolutional neural network to quantify the low-level versus high-level visual features of stimuli in our task paradigms. This lets us test whether the effects observed in our psychophysical experiments can be attributed to those specific visual features.

By contrast, an example that does not align with our interests would be using deep learning to predict and cluster stroke patients into subgroups — a purely descriptive result with no mechanistic explanation.

Funding and Financial Support

We currently have no active project requiring additional research assistants. All our researchers are funded by government grants, which involve work such as organizing academic lectures,

providing services to Thai businesses, and outreach to stimulate the Thai economy. These grants then indirectly fund the research and conference activities at our lab.

For this reason, foreign students who don't communicate fluently in Thai cannot participate in these government projects and so won't receive financial support through these usual channels (see recommendations for foreign students below). This is the current status quo and may change in the future.

For Foreign Students and Postdocs

We are currently unable to provide working visas for foreign students or postdocs seeking to join the lab. We recommend applying to a **Chulalongkorn master's/PhD program**, which provides a student visa to stay legally, along with stipends and benefits that may include housing and healthcare. For program information, see <https://www.chula.ac.th/en/academics/programs/>.

Ambitious students and postdocs may also be interested in the **C2F fund**, which provides additional stipends but requires high-impact publication output (see <https://c2f.chula.ac.th/>). We also encourage you to seek external funding from international funding bodies.