

Tokyo University of Science, Faculty of Advanced Engineering, Department of Applied Physics

[Position] Postdoctoral Fellow (1 person)

[Hiring Terms] 2 years (From Oct/01/2024 through Sep/30/2026 if annually renewed)

Renewal of contract: When Tokyo University of Science Foundation deems it particularly necessary, taking into consideration the work status, progress of work, rules and regulations, etc.

[Affiliation] Tokyo University of Science, Faculty of Advanced Engineering, Department of Applied Physics

[Work Location]

(Immediately after hiring) 6-3-1 Nijuku, Katsushika-ku, Tokyo 125-8585, Japan

(Scope of change) N/A

[Research Field] Cognitive Neuroscience

[Research Project]

Little is known about the transient neural dynamics during perceptual alternation in binocular rivalry. Although a flash light easily alternates the perception, too much neural responses to the stimulus make it difficult to trace the core process. Recently, our group showed that a visual mismatch stimulus promotes perceptual alternation and pre-attentive visual mismatch negativity in EEG is involved in the transient neural processing from unconscious to conscious perception (Kurita et al., *Front Hum Neurosci*, 2021, 2023). Analyzing the neural activities fluctuated by a mismatch stimulus breaking its temporal regularity, we will be able to focus on the transient neural processing. At the moment when the unconscious stimulus becomes consciously perceived, it is expected that the neural activities between higher and lower cortices become correlated such as phase-synchrony with stronger functional connectivity. The purpose of this project is to elucidate the dynamics of EEG across cortices reflecting the transient neural processing.

[Job Description]

(Immediately after hiring) We are seeking a postdoctoral fellow (PD) who executes psychological experiments on human subjects and analyzes behavioral and EEG data. The PD is subject to design the experimental paradigm with measuring EEG and clarify transient functional connectivity in top-down and bottom-up interactions in the perceptual alternation. Furthermore, we expect that the PD proposes ideas for a computational model for the processing in cooperation with our laboratory's members. We have a shield room and EEG

measurement instruments for the experiments.

(Scope of change) N/A

[Requirements]

Qualifications: PhD degree in Neuroscience or related fields (on Oct/01/2024, Less than 7 years since receiving PhD)

Experiences: Psychological experiments for humans, skills in non-invasive instruments such as EEG or MEG, and skills in analytical methods of EEG (ex. ERP, Wavelet Transformation, and PLI) and statistical tests (ANOVA and t-test).

Others: Much interests in dynamics of neural system. Knowledge of computational models and programming skills are recommended.

[Application Method]

First, please send an E-mail showing applicant's name, institution, and E-mail address to "brainics@rs.tus.ac.jp" (subject: Application for Postdoc). Then, you will receive a reply that shows the submission site URL within a few days. You can submit the PDF files as follows through the indicated site: Cover Letter, Curriculum vitae (The CV format file (Word) is indicated in <https://www.tus.ac.jp/recruitment/teacher-list/>), Publication list, Essays on your studies and future plan (< 5000 characters; Figures can be included), and (A copy of) Certificate of PhD degree. All documents should be written in English. After screening of submitted documents, online interviews will be held with recommendation letters.

[Application Deadline] May/31/2024 (Applications will be closed as soon as a suitable candidate is hired.)

[Wages] 340,000 Yen/Month + Commuting expenses

[Working Hours] 8:30-17:00(Mon.-Fri.), 9:30-12:00 (Sat.), (Break Time) 12:45-13:45

[Holidays] Sunday, National holidays, May/4, Jun/14, and Dec/29-Jan/3

[Contact Information]

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