Riki Shimizu

Department of Electrical Engineering
Columbia University
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Education

Columbia University, New York, NY
M.S./Ph.D. in Electrical Engineering, expected May 2029.

Duke University, Durham, NC

B.S.E. in Biomedical Engineering, **B.S.E.** in Electrical and Computer Engineering**, B.S.** in Mathematics with Distinction for senior thesis "Unveil Sleep Spindles with Concentration of Frequency and Time (ConceFT)." *Cum laude.* May, 2024.

Journal Publications

- **Shimizu, R**. Wu, H-T. Unveil Sleep Spindles with Concentration of Frequency and Time (ConceFT). *Physiological Measurement.* 2024

Conference Presentations/Publications

- Huang, Z. **Shimizu, R.** Feld, J. Sokhadze, E. Chhatbar, P. Feng, W. Individualized electric field modeling for transcranial electrical stimulation in stroke patients. *International Society for Neuroregulation & Research Conference*. 2023
- Huang, Z. **Shimizu, R.** Feld, J. Sokhadze, E. Chhatbar, P. Feng, W. Personalized electric field modeling for transcranial electrical stimulation on stroke patients: a comparison of open-source pipelines, with versus without manual stroke delineation. *International Brain Stimulation Conference*. 2023
- Kim, T. **Shimizu, R**. Malkan, P. Park, C. Heffron, L. Penner, A. Feld, J. Feng, W. Chhatbar, P. Transcranial magnetic stimulation (TMS) responses show differential recovery pattern between upper and lower limb in stroke patients over subacute phase. *International Brain Stimulation Conference*. 2021.
- Chhatbar, P. Kim, T. Malkan, P. **Shimizu, R**. Park, C. Heffron, L. Penner, A. Feld, J. Feng, W. Interhemispheric inhibition (IHI) findings using ipsilateral silent period (iSP) in two stroke patients during acute and subacute phases after stroke. *International Brain Stimulation Conference*. 2021.

Fellowships and Awards

Blavatnik Presidential Fellowship, Columbia University, 2024-2025

PRUV Mathematics Fellowship, Duke University, 2023-2024

Rhodes Information Initiative Data+ Research Grant, Duke University, 2022-2023

Tau Beta Pi Honor Society, 2022-Present

Yanai Tadashi Foundation Scholarship, 2020-2024

Research Experience

2024—Present Columbia University, Neural Acoustic Processing Lab

2023—2024 Duke University, Medical Information and Signal, Theory and Application Lab

2022—2023 Duke University, Applied Machine Learning Lab

2021—2023 Duke University, Neuromodulation and Stroke Recovery Lab

Professional Experience

Meltin MMI Co., Ltd. Tokyo, Japan. ***Software Engineering Intern*.** From May 2022 to August 2022.
- Developed a software system that simulates nerve regeneration with sieve electrodes following nerve injuries.
- Conducted comprehensive research on literature about diffusion-reaction models and stochastic propagation models of various biological cells and translated them to 1000 lines of Python codes.
- Drastically reduced the cost and time of new electrode prototype testing for this technology startup.

M3, Inc. Tokyo, Japan. ***Market Analysis & Associate Consultant*.** From May 2020 to July 2020.
- Assisted Alibaba Damo Technology Co., Ltd to get approval from PMDA for their Covid19 AI diagnostic algorithm.
- Researched AI diagnostic algorithms, collecting information from the FDA's database and attending the academic conferences hosted by Radiological Society of North America.
- Promoted the use of remote radiological interpretation services to regional hospitals.