Nona Rajabi

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Summary

Interdisciplinary researcher in applied machine learning in neuroscience and cognitive science with a particular interest in multimodal representation learning.

Skills

- **Programming Languages:** Python, C, MATLAB
- **Machine Learning and Data Science:** PyTorch, Tensorflow, Pandas, NumPy, Scikit-learn, SciPy, WandB, Slurm GPU Clusters
- **DevOps & Version Control:** GIT, Docker, Azure
- **Applications:** Machine Learning, Deep Learning, Computer Vision, LLM, VLM, Multimodal Representation Learning, EEG, fMRI, Statistical Tests, Neuroscience, Data Analysis, Signal Processing, Experiment Design

Education

- **KTH Royal Institute of Technology** — *Nov. 2021 - Present*
  PhD in Computer Science (Supervisor: Professor Danica Kragic) — Stockholm, Sweden
- **Sharif University of Technology** — *Sep.2019-Sep.2021*
  MSc in Electrical Engineering (Bioelectric) — Tehran, Iran
- **Sharif University of Technology** — *Sep.2015-Aug.2019*
  BSc in Electrical Engineering — Tehran, Iran

Research Experience

- **EPFL NeuroAI Lab. [🌐]** — *Sep. 2025 - Nov 2025*
  Visiting PhD Student — Lausanne, Switzerland
  ◦ Developing a multimodal brain-vision-language foundation model to translate from each modality to the other.
- **Convergent Technologies Research Institute (University of Tehran) [🌐]** — *Feb. 2020 - Feb. 2021*
  Research Assistant — Tehran, Iran
  ◦ Developed a light-weight machine learning and signal processing framework to control a car in a simulated environment with EEG signals.
- **National University of Singapore (NUS) [🌐]** — *Feb. 2020 - Feb. 2021*
  Research Assistant — Singapore, Singapore
  ◦ Developing a plugin to parse custom network packet formats specified in P4 language for Wireshark [GitHub].

Teaching Experience

- **KTH Royal Institute of Technology** — *2022-2025*
  Teaching Assistant — Stockholm, Sweden
  ◦ Image Analysis and Computer Vision (DD2423), Machine Learning (DD2421)
- **Sharif University of Technology** — *2018-2021*
  Teaching Assistant — Tehran, Iran
  ◦ EEG Signal Processing, Advanced Programming, Digital Logic Circuits

Selected Publications

For a full list of publications, please visit my Google Scholar profile.

1. **Rajabi, N.**, Ribeiro, A. H., Vasco, M., Taleb, F., Björkman, M., & Kragic, D. "Human-Aligned Image Models Improve Visual Decoding from the Brain." *Forty-Second International Conference on Machine Learning (ICML)*, 2025.
2. **Rajabi, N.**, Ribeiro, A. H., Vasco, M., & Kragic, D. (2025, April). Deep Learning Amplified Early Stopping Bias: Overestimating Performance on Small Datasets. In *ICASSP 2025-2025 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)* (pp. 1-5). IEEE.
3. **Rajabi, N.**, Chernik, C., Reichlin, A., Taleb, F., Vasco, M., Ghadirzadeh, A., Björkman, M., & Kragic, D. (2023, July). Mental Face Image Retrieval Based on a Closed-Loop Brain-Computer Interface. In *International Conference on Human-Computer Interaction* (pp. 26-45). Cham: Springer Nature Switzerland.
4. **Rajabi, N.***, Khanna, P.*, Kanik, S. U. D., Yadollahi, E., Vasco, M., Björkman, M., Smith, C. & Kragic, D. (2023, August). Detecting the Intention of Object Handover in Human-Robot Collaborations: An EEG Study. In *2023 32nd IEEE International Conference on Robot and Human Interactive Communication (RO-MAN)* (pp. 549-555). IEEE.
5. **Rajabi, N.**, Zanettin, I., Ribeiro, A. H., Vasco, M., Björkman, M., Lundström, J. N., & Kragic, D. (2025). Exploring the feasibility of olfactory brain–computer interfaces. *Scientific Reports*, *15*(1), 1-13.
6. Xia, H., Zhang, Y., **Rajabi, N.**, Taleb, F., Yang, Q., Kragic, D., & Li, Z. (2024). Shaping high-performance wearable robots for human motor and sensory reconstruction and enhancement. *Nature Communications*, *15*(1), 1760.
7. Taleb, F., Vasco, M., **Rajabi, N.**, Björkman, M., & Kragic, D. (2024). Can Foundation Models Smell Like Humans?. In *ICLR 2024 Workshop on Representational Alignment*.

Service

- **Scientific Conferences and Journals** *2023-Present*
  Reviewer
  - Multimodal Representation Learning (MRL) workshop at ICLR 2023, IEEE RO-MAN 2024, HCII 2025, PervasiveHealth 2025, Frontiers in Applied Mathematics and Statistics (Journal) 2025, Medical Image Analysis (Journal) 2025.
- **KTH Royal Institute of Technology** *Jun. 2025-Present*
  Supervisor
  - Supervising Artur Gasparyan (research engineer at KTH) to build a generative diffusion model to reconstruct the observed images from EEG signals.

Honors and Awards

- **ELSA Mobility Grant** *June 2025*
  European Lighthouse on Safe and Secure AI (ELSA)
  - Travel grant from the European Lighthouse on secure and safe AI (ELSA) to support my PhD visit to EPFL, Switzerland.
- **Best Paper Blitz** *May 2022*
  The Strategic Research Area Neuroscience (StratNeuro)
  - For my paper presentation in the StratNeuro PhD retreat event.
- **Rank 1^{st} in Bioelectric Master's Program** *Sep. 2021*
  Sharif University of Technology
  - Ranked 1st in cohort by GPA, MSc in Bioelectric Engineering, Class of 2019.
- **Rank 29^{th} in University Entrance Exam** *Sep. 2015*
  Konkoor
  - Ranked 29^{th} in the university entrance exam among more than 300,000 high school students.