JING LI

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Research interests: Computational psychiatry; reinforcement learning & Bayesian cognitive modeling; self-efficacy/capability calibration; reward generalization

Education

Icahn School of Medicine at Mount Sinai — New York, NY Expected May 2027

PhD, Neuroscience

- Thesis: Dynamic self-efficacy and capability calibration in sequential decision-making and reward generalization; clinically grounded instability as a window into robust-learning failure modes
- Selected training: Machine Learning; Computational Psychiatry

Duke University — Durham, NC May 2019

BS, Neuroscience; Minor, Psychology

Methods & Technical Skills

Reinforcement learning; Bayesian inference; computational cognitive modeling; simulation; behavioral task design; statistical modeling (GLMs, hierarchical models); Python; R

Summer Schools (Selected Projects & Presentations)

Deep Learning & Reinforcement Learning Summer School 2025

- Project & presentation: *Offline-to-online RL (learning from past experience)* — implemented SAC with advantage-weighted action selection; studied robustness issues spanning offline OOD generalization and online overestimation bias

Analytical Connectionism Summer School 2024

- Project & presentation: *Self-taught curriculum for generative learning* — translated infant-learning design principles (simple/complex distribution, predictability, burstiness) into a self-taught training schedule that adaptively increased diffusion/denoising difficulty and dataset complexity

Research Experience

Icahn School of Medicine at Mount Sinai — New York, NY Aug 2022 – Present

Graduate Student Researcher

Advisor: Angela Radulescu (Mount Sinai)

Research Affiliate: Mark Ho (NYU)

- Develop reinforcement learning and Bayesian models where self-efficacy is a belief state over latent competence that regulates valuation, planning, and goal selection
- Showed that miscalibrated self-efficacy belief updates yield attractor-like instability resembling manic- and depressive-like patterns and altered reward generalization in simulation
- Designed and deployed an online gamified reward-generalization behavioral task (N = 163); identified behavioral signatures of reward overgeneralization associated with mania-risk measures
- Build behavioral tasks to probe self-efficacy belief updating using motor-control paradigms

Brigham and Women's Hospital — Boston, MA Aug 2020 – May 2022

Research Assistant

- Built pipelines for lesion-network mapping and functional neuroimaging processing to identify circuits associated with depression, tics, and pain
- Supported a symptom-specific TMS trial targeting severe anxiety; integrated neuronavigation and quantified individual variability in treatment response

Carney Center for Computational Brain Sciences — Providence, RI May – Aug 2019

Research Intern

- Modeled approach/avoidance behavior in major depressive disorder vs controls using HDDM; identified signatures consistent with reduced reward sensitivity
- Studied how mis-specified heuristics can stabilize maladaptive beliefs, motivating later work on capability-belief miscalibration

Selected Publications

- Li, J., & Radulescu, A. (2024). Dynamic self-efficacy as a computational mechanism of mania emergence. Proceedings of the Annual Meeting of the Cognitive Science Society
- Kletenik, I., et al. (2023). Multiple sclerosis lesions that impair memory map to a connected memory circuit. Journal of Neurology
- Ganos, C., et al. (2022). A neural network for tics: Insights from causal brain lesions and deep brain stimulation. Brain
- Kim, N., et al. (2022). Network effects of brain lesions causing central post-stroke pain. Annals of Neurology

Workshop Papers, Posters, and Extended Abstracts

- Li, J., Ho, M., & Radulescu, A. (2025). A Dual-beta Framework of Self-efficacy in Reinforcement Learning. RLDM, Dublin, Ireland
- Li, J., & Radulescu, A. (2024). Self-efficacy update in reinforcement learning: Impact on goal selection for Q-learning agents. IMOL Workshop at NeurIPS, Vancouver, Canada
- Li, J., & Radulescu, A. (2024). Dynamic self-efficacy updating as a computational mechanism of mania emergence. Computational Psychiatry Conference, Dublin, Ireland
- Li, J., & Radulescu, A. (2024). Dynamic self-efficacy leads to optimistic overgeneralization. Cognitive Computational Neuroscience (CCN), Boston, MA

Teaching & Mentoring

Icahn School of Medicine at Mount Sinai — New York, NY Jan 2025 – Apr 2025

Teaching Assistant

- Led tutorials in R and Python; taught GLMs and Bayesian multilevel models; mentored graduate students on computational workflows

Summer Program in Computational Psychiatry Education — New York, NY Summer 2024

Mentor

- Mentored an undergraduate student on a research project and presentation; advised on analyzing behavioral data to measure reward generalization