

EDUCATION

University of California, Berkeley Ph.D. in Neuroscience with concentrations in Computation and Cognition, GPA: 3.96/4.00	Berkeley, CA 2021–2026
Cornell University B.A. in Computer Science and Mathematics, Minor in Cognitive Science, GPA: 4.01/4.30	Ithaca, NY 2017–2020

WORK EXPERIENCE

Allen Institute for Artificial Intelligence PhD Research Intern	Seattle, WA May 2024 - August 2024
---	---------------------------------------

- Developed a system to improve the interpretability, transparency, and controllability of LLM safety moderation.
- Performed prompt engineering, taxonomy development, batched inference, crowdsourcing, symbolic knowledge distillation, supervised fine-tuning, and evaluation on large language models (LLMs).

PUBLICATIONS

- [1] **J.-J. Li**, V. Pyatkin, M. Kleiman-Weiner, L. Jiang, N. Dziri, A. Collins, J. S. Borg, M. Sap, Y. Choi, and S. Levine, “SafetyAnalyst: Interpretable, transparent, and steerable LLM safety moderation”, *In submission to ICLR*, 2024.
- [2] **J.-J. Li** and A. Collins, “An algorithmic account for how humans efficiently learn, transfer, and compose hierarchically structured decision policies”, *Cognition*, 2024.
- [3] **J.-J. Li**, C. Shi, L. Li, and A. G. Collins, “Dynamic noise estimation: A generalized method for modeling noise fluctuations in decision-making”, *Journal of Mathematical Psychology*, vol. 119, p. 102842, 2024.
- [4] T.-F. Pan, **J.-J. Li**, B. Thompson, and A. Collins, *Latent variable sequence identification for cognitive models with neural bayes estimation*, 2024. arXiv: 2406.14742 [cs.LG].
- [5] D. S. Jin, O. Agdali, T. Yadav, S. I. Kronemer, S. Kunkler, S. Majumder, M. Khurana, M. C. McCusker, I. Fu, A. Khalaf, K. L. Christison-Lagay, S. L. Aerts, Q. Xin, **J.-J. Li**, S. H. McGill, M. J. Crowley, and H. Blumenfeld, “Neural mechanisms of awareness of action”, *bioRxiv*, 2024.
- [6] **J.-J. Li**, C. Shi, L. Li, and A. G. Collins, “A generalized method for dynamic noise inference in modeling sequential decision-making”, in *Proceedings of the Annual Meeting of the Cognitive Science Society*, 2023.
- [7] C. McCafferty, B. F. Gruenbaum, R. Tung, **J.-J. Li**, X. Zheng, P. Salvino, P. Vincent, Z. Kratochvil, J. H. Ryu, A. Khalaf, K. Swift, R. Akbari, W. Islam, P. Antwi, E. A. Johnson, P. Vitkovskiy, J. Sampognaro, I. G. Freedman, A. Kundishora, A. Depaulis, F. David, V. Crunelli, B. G. Sanganahalli, P. Herman, F. Hyder, and H. Blumenfeld, “Decreased but diverse activity of cortical and thalamic neurons in consciousness-impairing rodent absence seizures”, *Nature Communications*, vol. 14, no. 1, pp. 1–19, 2023.
- [8] **J.-J. Li**, L. Xia, F. Dong, and A. G. Collins, “Credit assignment in hierarchical option transfer”, in *Proceedings of the Annual Meeting of the Cognitive Science Society*, 2022.
- [9] J. Ding, **J.-J. Li**, and M. Xu, “Classification of murmurs in pcg using combined frequency domain and physician inspired features”, in *2022 Computing in Cardiology (CinC)*, IEEE, vol. 498, 2022, pp. 1–4.

SKILLS

- **Programming:** Python, Java, Julia, C, C++, Swift, Bash, Shell, OCaml
- **Data Science:** R, Numpy, SciPy, pandas, Matplotlib, Seaborn, MATLAB, SPM, FSL
- **Machine Learning:** TensorFlow, scikit-learn, PyTorch, OpenAI Gym, MuJoCo, CUDA, Kaggle, Google Colab
- **Natural Language Processing:** Large Language Models, Prompt Engineering, Fine-Tuning, Crowdsourcing
- **Experimental Design:** PsychoPy, Psychtoolbox, jsPsych, Amazon MTurk, EEGLAB, Persyst, EyeLink
- **Operating Systems:** Linux, Unix, Windows
- **Web Development:** HTML, CSS, JavaScript, Heroku
- **Database Management:** SQL, Microsoft Excel, RAID
- **Other:** LaTeX, Adobe Illustrator, Adobe Photoshop, GitHub

RELEVANT COURSES

- **Machine Learning:** Deep Unsupervised Learning, LLMs and Cognition, Deep Reinforcement Learning, Computer Vision, Intro to Machine Learning, Large-Scale Machine Learning, Computational Genetics
- **Software Engineering:** Object-Oriented Design and Data Structures (Honors), Algorithms, Computational Problem Solving, Operating Systems, Database Systems, Database Systems Practicum
- **Mathematics and Statistics:** Numerical Analysis, Biological Statistics, Basic Probability, Applicable Abstract Algebra, Linear Algebra (Honors), Multi-variable Calculus
- **Neuroscience:** Methods in Computational Modeling for Cognitive Science, Computational Psychology, Clinical Neuroscience, Developmental Psychology, Biopsychology, Cellular and Developmental Neuroscience

SCHOLARSHIPS AND AWARDS

- | | |
|---|-----------|
| • Society for Neuroscience Trainee Professional Development Award | 2024 |
| • CogSci Conference Travel Grant | 2023 |
| • Milton I. and Florence Mack Neurology Research Fund | 2021–2022 |
| • Summer Undergraduate Research Fellowship, Caltech | 2018 |

PRESENTATIONS

Invited talks

Dynamic noise modeling in decision-making	Uniklinikum Würzburg
Cognitive and Computational Neuroscience in Development Psychiatry Research Group	June 2024

Conference talks

Dynamic noise modeling in decision-making	Tahoe, CA
Berkeley Neuroscience Conference	October 2023
A generalized method for dynamic noise inference	Sydney, Australia
CogSci Conference	July 2023
Credit assignment in the transfer of hierarchical options	Toronto, Canada
CogSci Conference	July 2022

Conference posters

Modeling how humans learn, transfer, and compose hierarchical policies Society for Neuroscience Conference	Chicago, IL October 2024
Modeling the emergence of instrumental learning in an odor-based 2AFC task Cognitive Computational Neuroscience Conference	Boston, MA August 2024
Modeling how humans learn, transfer, and compose hierarchical policies Cognitive Computational Neuroscience Conference	Boston, MA August 2024
Credit assignment in the learning and transfer of hierarchical options Cognitive Neuroscience Society Conference	San Francisco, CA April 2022