

# Alexander Fung

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Pre-doctoral researcher interested in mathematical principles of computation in neural circuits.

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## EDUCATION

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2019 – 2023	<b>B.S.</b> in Electrical Engineering & Computer Science <b>B.A.</b> in Molecular & Cellular Biology GPA: 3.99	UNIVERSITY OF CALIFORNIA, BERKELEY
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## PROFESSIONAL EXPERIENCE

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2023 – present	Research Assistant <i>Fedorenko Lab   McGovern Institute for Brain Research</i> <ul style="list-style-type: none"><li>Computational and neuroimaging approaches investigating the neural basis of language.</li></ul>	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
2022 – 2023	Undergraduate Researcher <i>Bouchard Lab   Lawrence Berkeley National Laboratory</i> <ul style="list-style-type: none"><li>Learning stimulus-evoked response properties in rat auditory cortex.</li></ul>	BERKELEY LAB
2021 – 2023	Undergraduate Researcher <i>Song Lab   Department of Electrical Engineering &amp; Computer Science</i> <ul style="list-style-type: none"><li>Characterizing of protein folding patterns, unsupervised protein structure prediction.</li></ul>	UNIVERSITY OF CALIFORNIA, BERKELEY
2021	Research Intern <i>Glenn Research Center   Space Communications and Navigation Program</i> <ul style="list-style-type: none"><li>Learning signal reliability metrics for delay-tolerant networks.</li></ul>	NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

## HONORS & AWARDS

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2024	School of Science QoL Grant	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
2024	SPOT Award	MCGOVERN INSTITUTE FOR BRAIN RESEARCH
2023	NSF Graduate Research Fellowship*	NATIONAL SCIENCE FOUNDATION
2021	Leslie Lipson Essay Prize	UNIVERSITY OF CALIFORNIA, BERKELEY
2019	HealthHack \$10,000 Grand Prize	SACRAMENTO SCHOOL OF AI

\*Declined.

## PUBLICATIONS

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### Papers

1. Kean, H.\*, **Fung, A.\***, Pramod, R.T., Chomik-Morales, J., Kanwisher, N., Fedorenko, E. (2024). Intuitive Physical Reasoning Is Not Mediated by Linguistic nor Domain-general Abstract Representations. In Prep.
2. Kean, H., **Fung, A.\***, Jagers, P.\*, Benn, Y., Tenenbaum, J., Piantadosi, S., Varley, R., Fedorenko, E. (2024). The Language of Thought is not Language: Evidence from Formal Logical Reasoning. Under Review.
3. **Fung, A.\***, Koehl, A.\*, Jagota, M., Song, Y. (2022). The Impact of Protein Dynamics on Residue-Residue Co-evolution and Contact Prediction. Preprint.
4. Dudukovich, R., Gormley, D., Kancharla, S., Wagner, K., Short, R., Brooks, D., Fantl, J., Janardhanan, S., **Fung, A.** (2022). Towards the Development of a Multi-Agent Cognitive Networking System for the Lunar Environment. *IEEE Journal of Radio Frequency Identification*.
5. Koehl, A.\*, Jagota, M.\*, Erdmann-Pham, D.\*, **Fung, A.**, Song, Y. (2021). Transferability of Geometric Patterns from Protein Self-Interactions to Protein-Ligand Interactions. *Pacific Symposium on Biocomputing*.

### Posters

6. **Fung, A.\***, Zhuang, C.\*, Piantadosi, S., Andreas, J., Fedorenko, E. (2024). Word-Order Error Detection Helps Data-Efficient Language Models Learn Syntax [Poster Presentation]. *Cognitive Computational Neuroscience 2024*.
7. Kean, H., **Fung, A.**, Rule, J., Tenenbaum, J., Piantadosi, S., Fedorenko, E. (2024). Deductive and Inductive Processing Dissociate in the Human Brain [Poster Presentation]. *Cognitive Computational Neuroscience 2024*.

\*Equal contribution.