Jordan Lei

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Experience

New York University   **Aug 2021 – Present**
PhD Candidate / Researcher - Ma Lab   *New York, NY*
- My research focus is understanding the **neural and cognitive mechanisms of complex planning in humans**
- I use **reinforcement learning** and **deep learning models** to understand how people and animals think ahead:
  - *How do monkeys plan?* Analyzed behavioral and eye-movement data from macaque monkeys playing four-in-a-row, a complex planning task. Presented at COSYNE 2024.
  - *How does uncertainty affect planning effort?* Built and deployed an end-to-end online experiment with JavaScript, recruited participants online, published and presented work at CogSci 2024.
- Awards: 2023 Training Program in Computational Neuroscience Grant, 2021 IVADO PhD Excellence Scholarship (declined), 2021 Henry M. MacCracken Fellowship

University of Pennsylvania   **May 2020 – May 2021**
Researcher - Gold Lab, Kording Lab   *Philadelphia, PA*
- Created a deep learning model of visual attention. Incorporated convolutions, recurrence, encoder-decoder architectures, and custom loss functions to build a model that replicates key features of biological attention, including inhibition of return and magnitude shifts in tuning curves. Work submitted as master's thesis.
- Compared biologically plausible and artificial learning algorithms. Analyzed common failure modes of biologically plausible Hebbian learning agents and backpropagation, such as catastrophic forgetting.
- Awards: Lila R. Gleitman MINDCORE Summer Fellowship

Unilever   **May 2019 – Aug 2019**
Finance Intern, Sales & Operations Planning   *Englewood Cliffs, NJ*
- Worked with Sales and Operations Planning to speed up the cash flow reporting process. Created a full-stack web application in Python to automate reporting of statement of cash flows for Sales and Operations Planning – reduced cash flow reporting time by over 80% and made the process interoperable with Microsoft Excel.

Tovala   **May 2018 – Aug 2018**
Finance & Data Science Intern   *Chicago, IL*
- Tovala is a startup in the smart devices and meal-delivery space. Estimated customer acquisition costs and analyzed the efficacy of their online advertising and created a predictive model of packaging costs.

Education

New York University | GPA: 3.9/4.0   **2021 - Present**
PhD Candidate, Neuroscience
> **Thesis** (in progress)**:** "Neural and Cognitive Mechanisms of Complex Planning", Advisor: Wei Ji Ma
> Teaching: NEURL-GA.2201 Mathematical Tools for Neuroscience

University of Pennsylvania | GPA: 4.0/4.0, Summa Cum Laude   **May 2021**
MSE, Computer Science
> **Thesis:** "Object-Based Attention Through Internal Gating", Advisor: Konrad Kording
> Teaching: CIS 522 Deep Learning (Lead TA)

University of Pennsylvania | GPA: 3.9/4.0, Summa Cum Laude   **May 2020**
BS in Engineering, Computer Science, School of Engineering and Applied Sciences
BS in Economics, Operations/Information/Decisions, The Wharton School
> Jerome Fisher Program in Management and Technology (M&T), National Merit Scholar, Penn Undergraduate Research Mentorship Fellow, Bell Senior Society
> Teaching: CIS 519 Machine Learning

Skills & Interests

- **Skills:** Deep Learning, Computer Vision (Convolutional Neural Networks, Autoencoders), Natural Language Processing (Recurrent Neural Networks, Transformers), Neuroscience, Cognitive Science, Generative Models (GANs)
- **Computer Languages:** Python (PyTorch, TensorFlow, Keras), MATLAB, Java, C/C++, JavaScript (React)
- **Interests:** Life drawing at museums, community organizing (co-President of student council, lead web designer for *Growing Up in Science*), podcasts (favorites: *Dear Hank & John, SciShow Tangents*), competitive swimming