Matthew Sebastian Ho

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Education

University of California, San Diego Sep 2024 – Present
Ph.D. in Computer Science
Advisor: Lianhui Qin · GPA: 4.00

University of California, Santa Barbara Oct 2020 – Dec 2023
B.S. in Computer Science
Advisor: William Wang · GPA: 4.00

Awards

Chancellor's Award for Excellence in Undergraduate Research, UCSB (2023)
National Merit Scholar (2020)

Experience

Microsoft Research Deep Learning Group Sep 2025 – Present
Research Intern, Part-Time (*Mentor: Michel Galley*)
- Constructing new benchmarks and methods for LLM Memory, Reasoning, and Human + AI Collaboration

UCSB NLP Group Sep 2021 – Jun 2024
Undergraduate Researcher (*Mentors: William Wang, Michael Saxon, Sharon Levy*)
- Led team on explanation-focused LLM reasoning benchmark (10,000+ examples).
- Designed MTurk workflow with custom JS validation and Rails backend.
- Implemented scalable evaluation pipelines using PyTorch, HuggingFace, and Pyserini.
- First-author of ICLR 2023 paper selected for oral presentation (Top 1.2%, of 4019 submissions).

Benchling Jun 2023 – Sep 2023
Software Engineer Intern, Big Data Infrastructure
- Implemented batching in the Data Warehouse sync pipeline, reducing retried jobs by 92%.
- Reduced sync latency via PostgreSQL query optimizations and Celery job scheduling changes.
- Built "Ask Notebook" tool (hackathon winner) using Llama 2 + RAG (via Chroma).

Amazon Jun 2022 – Sep 2022
Software Development Engineer Intern
- Built data revision viewing service used across 6+ teams with AWS Lambda, API Gateway, CDK, and React.

ServiceNow Jun 2021 – Sep 2021
Software Engineer Intern

Publications

Ho, M. et al. *WikiWhy: Answering and Explaining Cause-and-Effect Questions.*
International Conference on Learning Representations (ICLR), 2023. Oral (Top 1.2%, of 4019 submissions).

Ho, M. et al. *Proof Flow: Preliminary Study on Generative Flow Network Language Model Tuning for Formal Reasoning.*
NeurIPS 2024 System 2 Reasoning at Scale Workshop.

Ho, M. et al. *ArcMemo: Abstract Reasoning Composition with Lifelong LLM Memory.*
Preprint (under review).

Skills

Languages: Python, C++, Java, JavaScript, OCaml
ML / LLM: PyTorch, PyTorch Lightning, HuggingFace, Chroma
Tools: WandB, Hydra, Git, Pandas, Matplotlib
Cloud / Systems: AWS, Celery, PostgreSQL