Peiyang Song

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Education

6/2026 **California Institute of Technology** Pasadena, CA
B.S. in Computer Science
GPA: 4.0/4.0, Machine Learning Track

Research Interests

Machine Learning · Natural Language Processing · Automated Reasoning · Neuro-Symbolic AI

Work Experience

6/2024 – Present **Stanford University** Palo Alto, CA
Researcher @ Stanford AI Lab (SAIL) and Computation & Cognition Lab
Advisors: Prof. Noah Goodman (Stanford), Gabriel Poesia (Stanford)

2/2023 – Present **California Institute of Technology** Pasadena, CA
SURF Research Fellow @ Anima AI+Science Lab
Advisors: Prof. Anima Anandkumar (Caltech), Dr. Kaiyu Yang (Meta)

11/2022 – 6/2024 **University of California, Santa Barbara** Santa Barbara, CA
Researcher @ Computer Architecture Lab (ArchLab)
Advisors: Prof. Timothy Sherwood (UCSB), Dr. Jeremy Lau (Google)

Selected Publications

Preprint **Temporal Activation and Real-Soft-Max Functions**
Peiyang Song, Rhys Gretsch, Jeremy Lau, and Timothy Sherwood
In submission

Preprint **In-Context Learning May Not Elicit Trustworthy Reasoning: A-Not-B Errors in Pretrained Language Models**

Pengrui Han*, Peiyang Song*, Haofei Yu, Jiaxuan You (* Equal Contribution)
ICML Workshop on LLMs and Cognition, 2024

Preprint **Towards Large Language Models as Copilots for Theorem Proving in Lean**
Peiyang Song, Kaiyu Yang, and Anima Anandkumar
NeurIPS Mathematical Reasoning and AI (MATH-AI) Workshop, 2023

ASPLOS 2024 **Energy Efficient Convolution with Temporal Arithmetic**
Rhys Gretsch, Peiyang Song, Advait Madhavan, Jeremy Lau, and Timothy Sherwood
ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), 2024

NeurIPS 2023 **LeanDojo: Theorem Proving with Retrieval-Augmented Language Models**
Kaiyu Yang, Aidan Swope, Alex Gu, Rahul Chalamala, Peiyang Song, Shixing Yu, Saad Godil, Ryan Prenger, and Anima Anandkumar
Neural Information Processing Systems (NeurIPS), 2023, **Oral presentation**

Awards & Honors

8/2023 **Early Research Scholarship**

4/2023 **Caltech SURF award**

9/2022 **UCSB Creative Studies Honors**

Selected Media

2024 **Lean Copilot: An AI Tool that Allows Large Language Models (LLMs) to be used in Lean for Proof Automation**
MarkTechPost

2023 **Can LLMs Generate Mathematical Proofs that can be Rigorously Checked?**
MarkTechPost

Languages

Programming Python, C++, Lean, Java, C, PASCAL, OCaml, C#

Ordinary English (TOEFL 117/120), Mandarin (Native)

Invited Talks & Tutorials

Tutorial: Neuro-Symbolic Theorem Proving with Lean

9/2024 3rd Neuro-Symbolic AI Summer School (NeSy) 2024

Research Talk: Towards An AI Mathematician

11/2023 CCS Research & Creative Activities Conference (RACA-CON) 2023

8/2023 Caltech SURF Seminar Day 2023

Academic Services

Reviewer Conference on Neural Information Processing Systems (NeurIPS)
International Conference on Learning Representations (ICLR)
NeurIPS Mathematical Reasoning and AI (MATH-AI) Workshop
NeurIPS Workshop on Behavioral Machine Learning
ICML Workshop on LLMs and Cognition