

# Peiyang Song

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🌐 <https://peiyang-song.github.io/>

## Education

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

## 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 Gretsche, 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 Gretsche, 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**

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## Awards & Honors

8/2023 **Early Research Scholarship**  
4/2023 **Caltech SURF award**  
9/2022 **UCSB Creative Studies Honors**

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## 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*

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## Languages

Programming Python, C++, Lean, Java, C, PASCAL, OCaml, C#  
Ordinary English (TOEFL 117/120), Mandarin (Native)

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## Invited Talks

### **Towards Large Language Models as Copilots for Theorem Proving in Lean**

- 9/2024 3rd Neuro-Symbolic AI Summer School (NeSy) 2024
- 11/2023 CCS Research & Creative Activities Conference (RACA-CON) 2023
- 8/2023 Caltech SURF Seminar Day 2023

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## 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