Peiyang Song

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EDUCATION

- **California Institute of Technology (Caltech)** — Pasadena, CA
  B.S. in Computer Science — Sep. 2024—Present
- **University of California, Santa Barbara (UCSB)** — Santa Barbara, CA
  B.S. student in Computer Science, College of Creative Studies (CCS) Honors — Sep. 2022—June 2024

  Advisors: Prof. Richert Wang, Prof. Phill Conrad

  GPA: 4.0/4.0, mostly A+

RESEARCH INTERESTS

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

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 2024 LLM-Cognition Workshop

In submission

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

Peiyang Song, Kaiyu Yang, and Anima Anandkumar

NeurIPS 2023 MATH-AI Workshop

In submission

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**

RESEARCH EXPERIENCES

- **Stanford University** — Palo Alto, CA
  Researcher @ Computation & Cognition Lab (CoCoLab) — June 2024—Present
  Advisor: Prof. Noah Goodman (Stanford)
- **California Institute of Technology (Caltech)** — Pasadena, CA
  Research Fellow @ Anima AI+Science Lab — Feb. 2022—Present
  Advisors: Prof. Anima Anandkumar (Caltech), Dr. Kaiyu Yang (Meta)
- **University of California, Santa Barbara (UCSB)** — Santa Barbara, CA
  Researcher @ ArchLab — Nov. 2022—June 2024
  Advisors: Prof. Tim Sherwood (UCSB), Dr. Jeremy Lau (Google)

ACADEMIC SERVICE

- **Reviewer**
  - Conference on Neural Information Processing Systems (NeurIPS)
  - Conference on Neural Information Processing Systems (NeurIPS) MATH-AI Workshop
  - International Conference on Machine Learning (ICML) LLM-Cognition Workshop

AWARDS & HONORS

- **Early Research Scholarship** — Aug. 2023
- **Caltech SURF award** — Apr. 2023
- **UCSB Creative Studies Honors** — Sep. 2022

LANGUAGES

- **Programming Languages:** C++, Python, Lean, Java, C, PASCAL, OCaml, C#
- **Natural Languages:** English (TOEFL 117/120), Mandarin (Native)

TALKS

- **Towards Large Language Models as Copilots for Theorem Proving in Lean**
  - 3rd Neuro-Symbolic AI Summer School (NeSy) 2024 — Sep. 2024
  - CCS Research & Creative Activities Conference (RACA-CON) 2023 Oral Presentation — Nov. 2023
  - Caltech SURF Seminar Day 2023 — Aug. 2023