

I lead a research team at Apodex working on large language models for mathematics and verification. AI systems generate code and proofs faster than anyone can check them; as generation gets cheaper, verification becomes the bottleneck. I have worked on machine learning for formal mathematics since my PhD, from early neural theorem proving (CoqGym) to open-source infrastructure (LeanDojo) and open provers (Goedel-Prover).

EXPERIENCE

Apodex, Redwood City, CA

Mar 2026 – Present

Lead Scientist

- Lead research on the mathematical capabilities of LLMs across the training stack: pre-training data that aims to capture all the math on the web, synthetic mid-training data distilled from research papers, and post-training pushing toward research-level mathematics.
- Second workstream on verification: verifiers that help agents complete long-horizon tasks, applied to AI's own training pipelines, from the correctness of GPU kernels to the quality of training data.
- Direct the research agenda and external academic collaborations on theorem proving and verified code generation.

Meta Fundamental AI Research (FAIR), New York, NY

Jun 2024 – Dec 2025

Research Scientist

- Co-authored *Formal Mathematical Reasoning: A New Frontier in AI* (ICML 2025 position paper; also in *Communications of the ACM*), which lays out the research agenda connecting LLMs with formal methods.
- Advised Goedel-Prover and Goedel-Prover-V2 (COLM 2025, ICLR 2026), theorem provers that set the state of the art among open models at release, outperforming provers 20 $\times$ their size; V2 is downloaded about 10,000 times a month.
- Worked on ProofOptimizer (ICLR 2026), a model that simplifies machine-generated proofs without human demonstrations; collaborations on verified code generation (Verina, ICLR 2026; early adopters include AWS and Harmonic) and neuro-symbolic olympiad problem solving (ICLR 2025, CAV 2025).

California Institute of Technology, Pasadena, CA

Sep 2022 – May 2024

Postdoctoral Fellow

- Built [LeanDojo](#) (NeurIPS 2023), the first open-source infrastructure for theorem proving with LLMs in Lean, used by projects at Meta, ByteDance, and DeepSeek; and Lean Copilot, which runs LLM inference natively inside the Lean proof assistant.
- Autoformalizing Euclidean Geometry (ICML 2024) enabled the first faithful formalization of Euclid's *Elements*, Book I, in a modern proof assistant.

EDUCATION

Princeton University, Princeton, NJ

2022

PhD in Computer Science

University of Michigan, Ann Arbor, MI

2018

MS in Computer Science and Engineering

Tsinghua University, Beijing, China

2016

B.Eng. in Computer Science and B.S. in Mathematics

SELECTED PUBLICATIONS

Full list on [Google Scholar](#): 30+ papers, over 10,000 citations (NeurIPS, ICML, ICLR, COLM, CACM, EMNLP, CVPR, ICCV, ECCV, CAV).

- **LeanDojo: Theorem Proving with Retrieval-Augmented Language Models**

K. Yang, A. Swope, A. Gu, R. Chalamala, P. Song, S. Yu, S. Godil, R. Prenger, A. Anandkumar. NeurIPS 2023.

- **Formal Mathematical Reasoning: A New Frontier in AI**
K. Yang, G. Poesia, J. He, W. Li, K. Lauter, S. Chaudhuri, D. Song. ICML 2025; Communications of the ACM.
- **Goedel-Prover: A Frontier Model for Open-Source Automated Theorem Proving**
Y. Lin*, S. Tang*, B. Lyu, J. Wu, H. Lin, K. Yang, J. Li, M. Xia, D. Chen, S. Arora, C. Jin. COLM 2025.
- **Goedel-Prover-V2: Scaling Formal Theorem Proving with Scaffolded Data Synthesis and Self-Correction**
Y. Lin*, S. Tang*, B. Lyu*, Z. Yang*, et al. ICLR 2026.
- **Goedel-Code-Prover: Hierarchical Proof Search for Open State-of-the-Art Code Verification**
Z. Li*, Z. Yang*, D. He, H. Zhao, A. Zhao, S. Tang, K. Yang, A. Gupta, Z. Su, C. Jin. COLM 2026.
- **ProofOptimizer: Training Language Models to Simplify Proofs without Human Demonstrations**
A. Gu, B. Piotrowski, F. Gloeckle, K. Yang, A. Markosyan. ICLR 2026.
- **Verina: Benchmarking Verifiable Code Generation**
Z. Ye, Z. Yan, T. Kasriel, J. He, K. Yang, D. Song. ICLR 2026.
- **Generating Natural Language Proofs with Verifier-Guided Search**
K. Yang, J. Deng, D. Chen. EMNLP 2022.
- **Learning to Prove Theorems via Interacting with Proof Assistants**
K. Yang, J. Deng. ICML 2019.
- **Stacked Hourglass Networks for Human Pose Estimation**
A. Newell, K. Yang, J. Deng. ECCV 2016. Earlier computer-vision work; carries most of the citation count above.

OPEN SOURCE

Core developer of open-source tooling for machine learning with the Lean and Coq proof assistants:

- [LeanDojo](#) — interacting with Lean from machine-learning pipelines; 800+ GitHub stars.
- [ReProver](#) — retrieval-augmented theorem prover; 300+ stars.
- [Lean Copilot](#) — LLM inference inside Lean for proof automation; 1,300+ stars.
- [CoqGym](#) — learning environment for the Coq proof assistant; 400+ stars.
- [LeanDojo models](#) on Hugging Face — retrieval and tactic-generation models; about 8,000 downloads a month.

SERVICE AND COMMUNITY

- Co-organizer, Workshop on Mathematical Reasoning and AI (MATH-AI) at NeurIPS 2023, 2025, and 2026; co-organizer of the NeurIPS 2023 tutorial on machine learning for theorem proving.
- Area Chair: ICML 2025 & 2026, NeurIPS 2026, ECCV 2024. Reviewer for NSF panels and ERC Advanced Grants.
- Guest co-instructor, *Advanced Large Language Model Agents* (UC Berkeley & MOOC, 2025); guest lecturer at Caltech and CUHK.
- Invited talks at OpenAI, Google, Meta FAIR, the Simons Institute, UC Berkeley, Stanford, CMU, and other universities.
- Mentored students and junior researchers who went on to PhD programs at CMU, Toronto, Cornell, CUHK, and UIUC, and to industry labs.
- Work on AI for mathematics covered in *Scientific American* (2024).

* equal contribution