Yang Cao

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Intro

I'm a 12-th grade high school student at Wyoming Seminary. I'm currently advised by Zhao Song from UC Berkeley. I am currently seeking admission to undergraduate Computer Science programs in the United States for Fall 2026. Please feel free to contact me via email if you would like to discuss potential opportunities.

Education

Wyoming Seminary   Kingston, PA
High school student   Aug 2023 – May 2026

Skills

Programming C++, JavaScript, TypeScript, Java, Python, PyTorch, LaTeX, Typst
Tools Docker, (Neo)vim, Git, macOS, Linux
Languages English (Fluent), Mandarin (Native), Japanese (Daily OK), Spanish (Learning)

Open Source Projects

My Repository

- **R6Bot_KOOK**   Jan 2022 – Nov 2022
  - Online game stats query bot
  - Commercialized, $500+ USD profit
- **KO-ON-Bot**   Sep 2022
  - Online music player in voice channel
  - Stars: 60+
- **SORSA**   Sep 2024
  - Implementation for SORSA fine-tuning method
  - Stars: 40+
- **Grams**   Nov 2024
  - Implementation for Grams optimizer
  - Stars: 10+

My Contribution

- **PyTorch PR #127714**   Dec 2024
  - Merged into main branch
  - Implemented `torch.nn.Modules.set.submodules()` method

Research Interests

- Large Language Models
- Machine Learning Theory
- Optimization
- Differential Privacy.

Academic Service

Reviewer

- IEEE Transactions on Intelligent Transportation Systems — Jun 2025

Talks

- Parameter-Efficient Fine-Tuning with Low-Rank Transformer — Jun 2024
  Advanced Research Lab, Tsinghua University High School
- Gradient Descent with Adaptive Momentum Scaling — Apr 2025
  Science Research Group, Wyoming Seminary

Awards

- Excel Research Award — Jun 2024
  Tsinghua University High School
- The Paul Kafrissen Memorial Computer Award — May 2025
  Wyoming Seminary

Publications

Conference Proceedings

CIKM 2025

- Force Matching with Relativistic Constraints: A Physics-Inspired Approach to Stable and Efficient Generative Modeling
  Yang Cao, Bo Chen, Xiaoyu Li, Yingyu Liang, Zhizhou Sha, Zhenmei Shi, Zhao Song, Mingda Wan.

Workshops Papers

ICLR 2025 Workshop

- Video Latent Flow Matching: Optimal Polynomial Projections for Video Interpolation and Extrapolation
  Yang Cao, Zhao Song, Chiwun Yang.
- Grams: Gradient Descent with Adaptive Momentum Scaling
  Yang Cao, Xiaoyu Li, Zhao Song.

Preprints

2025

- Towards High-Order Mean Flow Generative Models: Feasibility, Expressivity, and Provably Efficient Criteria
  Yang Cao, Yubin Chen, Zhao Song, Jiahao Zhang

2024

- SORSA: Singular Values and Orthonormal Regularized Singular Vectors Adaptation of Large Language Models
  Yang Cao, Zhao Song.