Zitong Yang (杨紫童)

zitong@berkeley.edu • https://zitongyang.github.io

Experience

Thinking Machines Lab - *Member of technical staff*
[Research] Synthetic pretraining.

Stanford, CA, U.S.
2025.12 - present

Apple Inc. - *Research scientist (part-time)*
[Apple AI/ML] [Apple Foundation Model] Large-scale synthetic data pretraining.

Cupertino, CA, U.S.
2025.02 - 2025.12

Apple Inc. - *Research scientist (intern)*
[Apple AI/ML] [Apple Foundation Model] Language model synthetic data post-training.

Cupertino, CA, U.S.
2024.06 - 2024.09

Google Inc. - *Research scientist (intern)*
[Google Research] [BigML] Retrieval augmented language model.

New York, NY, U.S.
2022.05 - 2022.09

The Voleon Group - *Quantitive researcher (full-time)*
[Fixed Income Fund] [Research] Causal market impact modeling and alpha forecasting.

Berkeley, CA, U.S.
2021.05 - 2022.05

Lawrence Berkeley National Laboratory - *Undergraduate researcher (part-time)*
[Physics Division][ATLAS] Jet clustering for massive particles with pseudo-rapidity.

Berkeley, CA, U.S.
2016.09 - 2017.05

Education

Stanford University
Doctor of Philosophy in Statistics
Advisors: Emmanuel Candès and Tatsunori Hashimoto

Stanford, CA, U.S.
2022.09 - 2025.12

University of California, Berkeley
Master of Science in Electrical Engineering
Advisors: Yi Ma and Jacob Steinhardt

Berkeley, CA, U.S.
2020.08 - 2021.05

University of California, Berkeley
Bachelor of Arts in Mathematics (Highest honors)
Bachelor of Arts in Computer Science
Bachelor of Arts in Physics

Berkeley, CA, U.S.
2016.08 - 2020.05

Publications

1. Synthetic bootstrapped pretraining
   Zitong Yang*, Aonan Zhang*, Hong Liu, Tatsunori Hashimoto, Emmanuel Candès, Chong Wang, Ruoming Pang
   arXiv preprint, 2025 (Paper)

2. s1: Simple test-time scaling
   Niklas Muennighoff*, **Zitong Yang***, Weijia Shi*, Xiang Lisa Li*, Li Fei-Fei, Hannaneh Hajishirzi, Luke Zettlemoyer, Percy Liang, Emmanuel Candès, Tatsunori Hashimoto
   EMNLP, Oral Presentation , 2025 (Paper, Code, Slides)

3. Synthetic Continued Pretraining
   Zitong Yang*, Neil Band*, Shuangping Li, Emmanuel Candès, Tatsunori Hashimoto
   ICLR, Oral Presentation (1.8% of submitted papers), 2025 (Paper, Code, Slides)

4. Bellman Conformal Inference: Calibrating Prediction Intervals For Time Series
   Zitong Yang, Emmanuel Candès, Lihua Lei
   arXiv preprint, 2024 (Paper, Code)

5. ResMem: Learn what you can and memorize the rest
   Zitong Yang, Michal Lukasik, Vaishnavh Nagarajan, Zonglin Li, Ankit Singh Rawat, Manzil Zaheer,
   Aditya Krishna Menon, Sanjiv Kumar
   NeurIPS, 2023 (Paper, Slides)

6. Predicting Out-of-Distribution Error with the Projection Norm.
   Yaodong Yu*, **Zitong Yang***, Alex Wei, Yi Ma, Jacob Steinhardt
   ICML, 2022 (Paper, Code, Slides, Talk)

7. Understanding Generalization in Adversarial Training via the Bias-Variance Decomposition
   Yaodong Yu*, **Zitong Yang***, Edgar Dobriban, Jacob Steinhardt, Yi Ma
   arXiv preprint, 2021 (Paper, Code, Talk)

8. Exact Gap between Generalization Error and Uniform Convergence in Random Feature Models
   Zitong Yang, Song Mei, Yu Bai
   ICML, 2021 (Paper, Talk)

9. Rethinking the Bias-Variance Dilemma for Generalization of Neural Networks
   Zitong Yang*, Yaodong Yu*, Chong You, Jacob Steinhardt, Yi Ma
   ICML, 2020 (Paper, Talk)

10. Complete Dictionary Learning via L^4-Norm Maximization over the Orthogonal Group
    Yuexiang Zhai, **Zitong Yang**, Zhengyu Liao, John Wright, Yi Ma
    JMLR, 2020 (Paper)

Awards and Honors

- Discretionary research grant from DST Global ($50,000), 2025
- Albion Walter Hewlett Stanford Graduate Fellowship, Stanford University, 2022
- High Distinction in General Scholarship, University of California, Berkeley, 2020
- Highest Distinction in Mathematics, Department of Mathematics, University of California, Berkeley, 2020
- Percy Lionel Davis Award, Department of Mathematics, University of California, Berkeley, 2020
- Pomerantz Endowment Award, Department of Physics ($1000), University of California, Berkeley, 2020
- Summer Undergraduate Research Fellowships ($5000), University of California, Berkeley, 2019

Invited Talks

"Two frontiers in AI scaling"
- CommonWealth Bank of Australia, *AI Frontier Series*, 2025
- Apple, *Foundation Model Tech Talk* , Cupertino, CA, 2025
- Citadel, *GQS*, Chicago, IL, 2025
- BlackRock, *PAIL*, Palo Alto, CA, 2025

"s1: 1000 thoughts elicit test-compute scaling"
- Google DeepMind, *BigML Weekly*, New York, NY, 2025
- Nvidia, *Nemo LLM Reasoning*, Santa Clara, CA, 2025
- Beijing Academy of Artificial Intelligence (BAAI), *Zhiyuan Talk,* 2025

"Scaling language model beyond human data limit"
- Beijing Academy of Artificial Intelligence (BAAI), *Zhiyuan Talk,* 2025
- Stanford University, *Stanford Industrial Affiliates Annual Conference,* Stanford, CA, 2024
- Stanford University, *Statistics Department Seminar,* Stanford, CA, 2024

"Memorization for generalization: practical algorithm from theoretical insights"
- Stanford University, *Stanford Industrial Affiliates Annual Conference,* Stanford, CA, 2023
- Google Research, *BigML Weekly*, New York, NY, 2022

Professional Service

Conference reviewer (13):
- International Conference of Machine Learning (ICML, 10)
- International Conference of Learning and Representation (ICLR, 3)
- IEEE International Symposium on Information Theory (ISIT, 1)

Journal reviewer (2):
- Journal of Machine Learning Research (JMLR, 1)
- Journal of the Royal Statistical Society. Series B (JRSS-B, 1)

Workshop organizer:
- Stanford-Berkeley Joint Colloquium, 2023