Zinan Lin

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Employment

Microsoft Research — **Redmond, WA, USA**
Senior Researcher — *Oct. 2022-Present*

Education

Carnegie Mellon University — **Pittsburgh, PA, USA**
Ph.D., Department of Electrical and Computer Engineering — *2017–2023*
Secondary Master in Machine Learning, School of Computer Science
Secondary Master in Electrical and Computer Engineering
Ph.D. advisors: Giulia Fanti and Vyas Sekar
Grade: 4.0/4.0

Tsinghua University — **Beijing, China**
Bachelor of Engineering, Department of Electronic Engineering — *2013–2017*
Grade: 92/100. Rank: 5/195

Honors and Awards

NeurIPS Outstanding Paper & Oral, with Boxin Wang, Weixin Chen, Hengzhi Pei, Chulin Xie, Mintong Kang, Chenhui Zhang, Chejian Xu, Zidi Xiong, Ritik Dutta, Rylan Schaeffer, Sang T. Truong, Simran Arora, Mantas Mazeika, Dan Hendrycks, Yu Cheng, Sanmi Koyejo, Dawn Song, Bo Li — *2023*

NeurIPS Oral (Synthetic Data Generation with Generative AI Workshop), with Sivakanth Gopi, Janardhan Kulkarni, Harsha Nori, Sergey Yekhanin — *2023*

Top Reviewers (Top 2.6%) in NeurIPS 2023, https://nips.cc/Conferences/2023/ProgramCommittee — *2023*

AAAI Scholarship, granted by Association for the Advancement of Artificial Intelligence — *2022*

Outstanding Reviewer (Top 8%) in NeurIPS 2021, https://nips.cc/Conferences/2021/ProgramCommittee — *2021*

IMC Best Paper Finalist, with Alankar Jain, Chen Wang, Giulia Fanti, Vyas Sekar — *2020*

Top Reviewers (Top 7.6%) in ICML 2020, https://icml.cc/Conferences/2020/Reviewers — *2020*

Cylab Presidential Fellowship, granted by Carnegie Mellon University — *2020*

Siemens FutureMakers Fellowship, granted by Siemens — *2019*

Best Reviewers (Top 400) in NeurIPS 2019, https://nips.cc/Conferences/2019/Reviewers — *2019*

NeurIPS Spotlight, with Kiran Thekumparampil, Ashish Khetan, and Sewoong Oh *2018*

Presidential Fellowship, granted by Carnegie Mellon University *2017*

Carnegie Institute of Technology Dean's Fellow, granted by Carnegie Mellon University *2017*

Outstanding Bachelor Thesis, granted by Tsinghua University *2017*

Meritorious Winner (9% Worldwide), COMAP's Math Contest in Modeling *2015, 2016, 2017*

National Scholarship, granted by the government of China *2014, 2015, 2016*

Tsinghua Spark Class Fellowship (Top 1%), for top students on scientific research *2015*

The First Prize, National Physics Contest for College Student *2014*

Experience

NVIDIA (Research Intern) **Santa Clara, CA, USA**
Host: Ming-Yu Liu, Xun Huang *May 2021–Dec. 2021*
- Topic: Denoising Diffusion Probabilistic Models (DDPM)

Google (Research Intern) **Mountain View, CA, USA**
Host: Yundi Qian *May 2020–Aug. 2020*
- Topic: compiler optimizations with reinforcement learning

Microsoft Research Asia (Research Intern) **Beijing, China**
Managers: Fei Gao, Taifeng Wang *Mar. 2017–Jun. 2017*
- Topic: a large-scale empirical study of optimization methods

Luogu Website (Cofounder and Developer) **China**
https://www.luogu.com.cn/ *2013*
- One of the biggest online judges in China.

Skills

Programming Languages

C, C++, Python, Java, (Visual) Basic, Pascal, Haskell, MATLAB, Mathematica, PHP, JavaScript, HTML, CSS, SQL, Verilog, Assembly, bash, shell, LaTeX, etc.

Machine Learning Frameworks

TensorFlow, PyTorch, Theano, Keras, Blocks, CNTK, etc.

Teaching Assistant

CMU 18752: Estimation, Detection and Learning **Pittsburgh, PA, USA**
Instructor: Rohit Negi *Spring 2020, Spring 2021*

Services

I am serving as a reviewer/PC member for:

Conference on Neural Information Processing Systems (NeurIPS) *2019, 2020, 2021, 2022, 2023*

International Conference on Machine Learning (ICML) *2020, 2021, 2022, 2023, 2024*

International Conference on Learning Representations (ICLR)	*2021, 2022, 2023, 2024*
Computer Vision and Pattern Recognition Conference (CVPR)	*2022, 2023, 2024*
International Conference on Computer Vision (ICCV)	*2023*
European Conference on Computer Vision (ECCV)	*2022*
International Symposium on Information Theory (ISIT)	*2020, 2021*
Artificial Intelligence and Statistics (AISTATS)	*2021*
ICAIF Workshop on Synthetic Data for AI in Finance	*2022*
ACM CoNEXT NativeNI Workshop	*2022*
NeurIPS SyntheticData4ML Workshop	*2022*
Transactions on Machine Learning Research	
Transactions on Pattern Analysis and Machine Intelligence	
IET Image Processing	
Transactions on Dependable and Secure Computing	
Neural Networks	
IEEE Access	
IEEE/ACM Transactions on Networking	
IEEE Transactions on Big Data	
International Journal of Intelligent Systems	

Publications (* denotes equal contribution)

[1] **Zinan Lin**, Sivakanth Gopi, Janardhan Kulkarni, Harsha Nori, and Sergey Yekhanin. "Differentially Private Synthetic Data via Foundation Model APIs 1: Images". In: *International Conference on Learning Representations **(ICLR)*** (2024). URL: https://arxiv.org/abs/2305.15560.

[2] Xuefei Ning*, **Zinan Lin***, Zixuan Zhou*, Huazhong Yang, and Yu Wang. "Skeleton-of-Thought: Large Language Models Can Do Parallel Decoding". In: *International Conference on Learning Representations **(ICLR)*** (2024). URL: https://arxiv.org/abs/2307.15337.

[3] Xinyu Tang, Richard Shin, Huseyin A. Inan, Andre Manoel, Fatemehsadat Mireshghallah, **Zinan Lin**, Sivakanth Gopi, Janardhan Kulkarni, and Robert Sim. "Privacy-Preserving In-Context Learning with Differentially Private Few-Shot Generation". In: *International Conference on Learning Representations **(ICLR)*** (2024). URL: https://arxiv.org/abs/2309.11765.

[4] Arturs Backurs, **Zinan Lin**, Sepideh Mahabadi, Sandeep Silwal, and Jakub Tarnawski. "Efficiently Computing Similarities to Private Datasets". In: *International Conference on Learning Representations **(ICLR)*** (2024). URL: https://openreview.net/forum?id=HMe5CJv9dQ.

[5] Junyi Zhu, **Zinan Lin**, Enshu Liu, Xuefei Ning, and Matthew B. Blaschko. "Rescaling Intermediate Features Makes Trained Consistency Models Perform Better". In: *International Conference on Learning Representations **(ICLR)** (TinyPapers)* (2024).

[6] Ronghao Ni, **Zinan Lin**, Shuaiqi Wang, and Giulia Fanti. "Mixture-of-Linear-Experts for Long-term Time Series Forecasting". In: *International Conference on Artificial Intelligence and Statistics **(AISTATS)*** (2024). URL: https://arxiv.org/abs/2312.06786.

[7] Lin Zhao, Tianchen Zhao, **Zinan Lin**, Xuefei Ning, Guohao Dai, Huazhong Yang, and Yu Wang. "FlashEval: Towards Fast and Accurate Evaluation of Text-to-image Diffusion Generative Models". In: *The IEEE/CVF Conference on Computer Vision and Pattern Recognition **(CVPR)*** (2024).

[8] Enshu Liu*, Xuefei Ning*, **Zinan Lin***, Huazhong Yang, and Yu Wang. "OMS-DPM: Optimizing the Model Schedule for Diffusion Probabilistic Models". In: *Proceedings of Machine Learning and Systems **(ICML)***. 2023. URL: https://arxiv.org/abs/2306.08860.

[9] Boxin Wang, Weixin Chen, Hengzhi Pei, Chulin Xie, Mintong Kang, Chenhui Zhang, Chejian Xu, Zidi Xiong, Ritik Dutta, Rylan Schaeffer, Sang T Truong, Simran Arora, Mantas Mazeika, Dan Hendrycks, **Zinan Lin**, Yu Cheng, Sanmi Koyejo, Dawn Song, and Bo Li. "DecodingTrust: A Comprehensive Assessment of Trustworthiness in GPT Models". In: *Advances in Neural Information Processing Systems **(NeurIPS)***. 2023. URL: https://arxiv.org/abs/2306.11698.

[10] **Zinan Lin***, Shuaiqi Wang*, Vyas Sekar, and Giulia Fanti. "Summary Statistic Privacy in Data Sharing". In: *arXiv preprint arXiv:2303.02014* (2023). URL: https://arxiv.org/abs/2303.02014.

[11] Da Yu, Arturs Backurs, Sivakanth Gopi, Huseyin Inan, Janardhan Kulkarni, **Zinan Lin**, Chulin Xie, Huishuai Zhang, and Wanrong Zhang. "Training Private and Efficient Language Models with Synthetic Data from LLMs". In: ***NeurIPS Workshop on Socially Responsible Language Modelling Research*** (2023).

[12] Da Yu, Sivakanth Gopi, Janardhan Kulkarni, **Zinan Lin**, Saurabh Naik, Tomasz Lukasz Religa, Jian Yin, and Huishuai Zhang. "Selective Pre-training for Private Fine-tuning". In: *arXiv preprint arXiv:2305.13865* (2023). URL: https://arxiv.org/abs/2305.13865.

[13] **Zinan Lin**. "Data Sharing with Generative Adversarial Networks: From Theory to Practice". PhD thesis. Carnegie Mellon University, 2022. URL: https://zinanlin.me/bio/PhD_thesis.pdf.

[14] **Zinan Lin***, Shuaiqi Wang*, Vyas Sekar, and Giulia Fanti. "Distributional Privacy for Data Sharing". In: ***NeurIPS 2022 Workshop on Synthetic Data for Empowering ML Research***. URL: https://openreview.net/forum?id=6oVAzFsHLFK.

[15] Yucheng Yin, **Zinan Lin**, Minhao Jin, Giulia Fanti, and Vyas Sekar. "Practical GAN-based Synthetic IP Header Trace Generation using NetShare". In: *ACM Special Interest Group on Data Communication **(SIGCOMM)***. 2022. URL: https://dl.acm.org/doi/10.1145/3544216.3544251.

[16] **Zinan Lin**, Hao Liang, Giulia Fanti, and Vyas Sekar. "RareGAN: Generating Samples for Rare Classes". In: *AAAI Conference on Artificial Intelligence **(AAAI)***. 2022. URL: https://ojs.aaai.org/index.php/AAAI/article/view/20715.

[17] Yucheng Yin, **Zinan Lin**, Minhao Jin, Giulia Fanti, and Vyas Sekar. "PcapShare: Exploring the Feasibility of GANs for Synthetic Packet Header Trace Generation". In: *International Conference on COMmunication Systems and NETworkS **(COMSNETS)** (demo)*. 2022. URL: https://www.comsnets.org/demos_exhibits.html.

[18] **Zinan Lin**, Vyas Sekar, and Giulia Fanti. "Why Spectral Normalization Stabilizes GANs: Analysis and Improvements". In: *Advances in Neural Information Processing Systems* ***(NeurIPS)***. 2021. URL: http://arxiv.org/abs/2009.02773.

[19] **Zinan Lin**, Vyas Sekar, and Giulia Fanti. "On the Privacy Properties of GAN-generated Samples". In: *International Conference on Artificial Intelligence and Statistics* ***(AISTATS)***. PMLR. 2021, pp. 1522–1530. URL: https://arxiv.org/abs/2206.01349.

[20] Todd Huster, Jeremy E.J. Cohen, **Zinan Lin**, Kevin Chan, Cho-Yu Jason Chiang, and Vyas Sekar. "Pareto GAN: Extending the Representational Power of GANs to Heavy-Tailed Distributions". In: *Proceedings of Machine Learning and Systems* ***(ICML)***. 2021. URL: http://proceedings.mlr.press/v139/huster21a.html.

[21] Mircea Trofin, Yundi Qian, Eugene Brevdo, **Zinan Lin**, Krzysztof Choromanski, and David Li. "MLGO: a Machine Learning Guided Compiler Optimizations Framework". In: *arXiv preprint arXiv:2101.04808* (2021). URL: https://arxiv.org/abs/2101.04808.

[22] **Zinan Lin**, Kiran Koshy Thekumparampil, Giulia Fanti, and Sewoong Oh. "InfoGAN-CR and ModelCentrality: Self-supervised Model Training and Selection for Disentangling GANs". In: *Proceedings of Machine Learning and Systems* ***(ICML)***. 2020, pp. 7775–7786. URL: https://arxiv.org/abs/1906.06034.

[23] **Zinan Lin**, Alankar Jain, Chen Wang, Giulia Fanti, and Vyas Sekar. "Using GANs for Sharing Networked Timeseries Data: Challenges, Initial Promise, and Open Questions". In: *Proceedings of the Internet Measurement Conference* ***(IMC)***. 2020. URL: http://arxiv.org/abs/1909.13403.

[24] **Zinan Lin**, Ashish Khetan, Giulia Fanti, and Sewoong Oh. "PacGAN: The Power of Two Samples in Generative Adversarial Networks". In: *IEEE Journal on Selected Areas in Information Theory* ***(JSAIT)*** 1.1 (2020), pp. 324–335. URL: https://ieeexplore.ieee.org/document/9046238.

[25] **Zinan Lin**, Soo-Jin Moon, Carolina M. Zarate, Ritika Mulagalapalli, Sekar Kulandaivel, Giulia Fanti, and Vyas Sekar. "Towards Oblivious Network Analysis using Generative Adversarial Networks". In: *Proceedings of the 18th ACM Workshop on Hot Topics in Networks* ***(HotNets)***. ACM. 2019. URL: https://dl.acm.org/doi/10.1145/3365609.3365854.

[26] **Zinan Lin**, Ashish Khetan, Giulia Fanti, and Sewoong Oh. "PacGAN: The Power of Two Samples in Generative Adversarial Networks". In: *Advances in Neural Information Processing Systems* ***(NeurIPS)***. 2018, pp. 1498–1507. URL: https://arxiv.org/abs/1712.04086.

[27] Kiran K Thekumparampil, Ashish Khetan, **Zinan Lin**, and Sewoong Oh. "Robustness of Conditional GANs to Noisy Labels". In: *Advances in Neural Information Processing Systems* ***(NeurIPS)***. 2018, pp. 10271–10282. URL: https://arxiv.org/abs/1811.03205.

[28] **Zinan Lin**, Yongfeng Huang, and Jilong Wang. "RNN-SM: Fast Steganalysis of VoIP Streams Using Recurrent Neural Network". In: *IEEE Transactions on Information Forensics and Security* ***(TIFS)*** 13.7 (July 2018), pp. 1854–1868. ISSN: 1556-6013. DOI: 10.1109/TIFS.2018.2806741. URL: http://ieeexplore.ieee.org/document/8292900.