Zinan Lin

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Education

Carnegie Mellon University — **Pittsburgh, PA, USA**
Ph.D. Candidate, Department of Electrical and Computer Engineering — *2017–Present*
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

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 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

Carnegie Mellon University (Graduate Research Assistant) **Pittsburgh, PA, USA**
Advisors: Giulia Fanti, Vyas Sekar *Sep. 2017–Present*
- Topic: Generative Adversarial Networks (GANs)

Tsinghua University (Research Assistant) **Beijing, China**
Advisor: Yongfeng Huang *Dec. 2016–Jun. 2017*
- Topic: fast steganalysis of VoIP streams using recurrent neural network (bachelor thesis)

University of California, Santa Barbara (Research Assistant) **Santa Barbara, CA, USA**
Advisor: Ben Zhao *Jun. 2016–Sep. 2016*
- Topic: large-scale automatic Sybil attacks and vulnerability measurement on mobile services

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–Present*
- 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*

Publications

[1] 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.

[2] **Zinan Lin**, Hao Liang, Giulia Fanti, and Vyas Sekar. "RareGAN: Generating Samples for Rare Classes". In: *Thirty-Sixth AAAI Conference on Artificial Intelligence **(AAAI)***. 2022. URL: https://www.aaai.org/AAAI22Papers/AAAI-12916.LinZ.pdf.

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

[4] **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.

[5] **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.

[6] 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.

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

[8] **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.

[9] **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.

[10] **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.

[11] **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.

[12] **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.

[13] 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.

[14] **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.