Darshan Thaker

Curriculum Vitae

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Education

2020-Current **PhD, Computer Science**, *University of Pennsylvania*, Philadelphia, PA.
Advisor: Dr. René Vidal. Research Interests: Inverse Problems, Controllable Generation of Deep Generative Models, Adversarial Robustness

2018-2019 **Master of Science, Computer Science**, *Columbia University*, New York, NY, *GPA: 3.83 / 4.0*.
MS Thesis Track advised by Dr. John Wright

2014–2018 **Bachelor of Science, Computer Science**, *The University of Texas at Austin*, Austin, TX, *GPA: 3.81 / 4.0*.
Turing Scholars Honors Student

2014–2018 **Bachelor of Science, Mathematics**, *The University of Texas at Austin*, Austin, TX, *GPA: 3.81 / 4.0*.
Concentration in Pure Mathematics

Publications

10. B. Liang, L. Peng, J. Luo, **D. Thaker**, K. Chan, and R. Vidal. *SECA: Semantically Equivalent & Coherent Attacks for Eliciting LLM Hallucinations*. Neural Information Processing Systems (NeurIPS), 2025.
arXiv:2510.04398
9. **D. Thaker**, A. Goyal, and R. Vidal. *Frequency Guided Posterior Sampling for Diffusion-Based Image Restoration*. International Conference of Computer Vision (ICCV), 2025.
arXiv:2411.15295
8. B. Liang, K. Chan, **D. Thaker**, J. Luo, and R. Vidal. *KDA: A Knowledge-Distilled Attacker for Generating Diverse Prompts to Jailbreak LLMS*. In Submission, 2024.
arXiv:2502.05223
7. J. Luo, T. Ding, K. Chan, **D. Thaker**, A. Chattopadhyay, C. Callison-Burch, and R. Vidal. *PaCE: Parsimonious Concept Engineering for Large Language Models*. Neural Information Processing Systems (NeurIPS), 2024.
arXiv:2406.04331
6. **D. Thaker**, P. Giampouras, and R. Vidal. *A Linearly Convergent GAN Inversion-based Algorithm for Reverse Engineering of Deceptions*. Preprint, 2023.
arXiv:2306.04756.
5. **D. Thaker***, P. Giampouras*, and R. Vidal. *Reverse engineering ℓ_p attacks: A block-sparse optimization approach with recovery guarantees*. International Conference on Machine Learning (ICML), 2022.
arXiv:2203.04886.
4. Q. Ma, S. Ge, D. He, **D. Thaker**, and I. Drori. *Combinatorial Optimization by Graph Pointer Networks and Hierarchical Reinforcement Learning*. AAAI Workshop on Deep Learning on Graphs: Methodologies and Applications, 2020.
arXiv:1911.04936.

3. I. Drori, **D. Thaker**, A. Srivatsa, D. Jeong, Y. Wang, L. Nan, F. Wu, D. Leggas, J. Lei, W. Lu, W. Fu, Y. Gao, S. Karri, A. Kannan, A. Moretti, C. Keasar, and I. Pe'er. *Accurate protein structure prediction by embeddings and deep learning representations*. Machine Learning in Computational Biology, 2019. arXiv:1911.05531.
2. **D. Thaker**. *Understanding the Convergence of Adversarial Training for Overparameterized Linear Neural Networks*. Columbia University Masters Thesis, 2019.
1. **D. Thaker**. *Generating Synthetic Question-Answer Pairs for Transfer Learning in Biomedical Question Answering*. UT Austin Undergraduate Honors Thesis, 2018.

Work Experience

Summer 2025 **Research Intern**, Siemens Healthineers, Princeton, NJ.
- Mentor: Dr. Mariappan Nadar.
- Worked on utilizing diffusion models for MRI reconstruction.

Fall 2023 **Teaching Assistant**, University of Pennsylvania, Philadelphia, PA.
- Teaching Assistant for *Deep Generative Models* course taught by Prof. René Vidal.

Spring 2020 **Research Intern**, Salesforce Research, Palo Alto, CA.
- Mentor: Dr. Yu Bai.
- Worked on obtaining a better understanding of feature learning in deep neural networks and a theoretical understanding of transfer learning.

2019 **Course Assistant**, Columbia University, New York, NY.
- Spring 2019: Course Assistant for *Deep Learning* taught by Prof. Iddo Drori.
- Fall 2019: Course Assistant for *Analysis of Algorithms* taught by Prof. Alexandr Andoni. Recipient of CA Fellowship with full tuition waiver for excelling as a Course Assistant

Summer 2018 **Research Intern**, The Curious AI Company, Helsinki, Finland.
- Researched techniques for modeling uncertainty in model-based reinforcement learning applied to factory control
- Trained various uncertainty models such as Bayesian neural network models for quantifying prediction uncertainty

Summer 2017 **Software Engineering Intern**, Facebook Inc., Menlo Park, CA.
- Worked on Page Ranking for Facebook Search on improving ranking of modules (Pages, Groups, People, etc.)
- Trained new result-level ranking machine learning models and integrated them into the Search pipeline to rank and split modules using this ranker

Summer 2016 **Software Engineering Intern**, Google Inc., Menlo Park, CA.
- Worked on the Location team on online segmentation of location data
- Adapted algorithm from a heuristic-based clustering approach to one that uses machine learning

Summer 2015 **Machine Learning Intern**, Symantec: Center for Advanced Machine Learning, Mountain View, CA.
- Collaborated with a mentor to develop a robust machine learning classifier using gradient boosted decision trees to identify targeted malicious e-mail attacks
- Project selected as one of top 12 company-wide projects from a group of $\approx$ 200 interns

Honors and Awards

- Course Assistant Fellowship, Columbia University Fall 2019
- Turing Scholar Honors, UT Austin 2018
- University Honors, UT Austin 2014-2018
- AWS-AI ASSET Fellow, University of Pennsylvania 2024
- ICCV Doctoral Consortium, 2025