Prakhar Ganesh

Computer Science · PhD Student

McGill University | Quebec AI Institute (Mila)

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Research Interests: I am interested in the challenges that arise in AI when moving from the sandbox to the real world, primarily at the intersection of multiplicity, fairness, privacy, and security, focusing on uncovering the learning dynamics of neural networks.

Education

McGill University | Quebec AI Institute (Mila)
PhD Computer Science (Thesis) | Advisor: Prof Golnoosh Farnadi — *Jan 2024 - Present*

National University of Singapore (NUS)
Master of Computing (AI specialisation) | Advisor: Prof Reza Shokri — *Aug 2021 - Mar 2023*

Indian Institute of Technology Delhi (IITD)
Bachelor of Technology in Computer Science and Engineering — *Aug 2015 - May 2019*

Work Experience

National University of Singapore (NUS) | Research Intern — *Jan 2023 - Apr 2023*

Alvisual | AI Engineer (Intern) — *Jan 2022 - Mar 2022*

Advanced Digital Sciences Center (ADSC) | Research Engineer — *Jun 2019 - July 2021*

Krida.AI | Engineer (Intern) — *Jan 2019 - May 2019*

WealthNet Advisors | Analyst (Intern) — *May 2018 - July 2018*

Publications

Different Horses for Different Courses: Comparing Bias Mitigation Algorithms in ML
Workshop on Algorithmic Fairness through the Lens of Metrics and Evaluation, NeurIPS 2024
Prakhar Ganesh, Usman Gohar, Lu Cheng, Golnoosh Farnadi

Towards More Realistic Extraction Attacks: An Adversarial Perspective
[Non-archival] Workshop on Privacy in Natural Language Processing, ACL 2024
Yash More, **Prakhar Ganesh**, Golnoosh Farnadi

The Data Minimization Principle in Machine Learning
[Non-archival] Workshop on Generative AI + Law, ICML 2024; Workshop on Regulatable ML, NeurIPS 2024
Prakhar Ganesh, Cuong Tran, Reza Shokri, Ferdinando Fioretto

An Empirical Investigation into Benchmarking Model Multiplicity for Trustworthy Machine Learning: A Case Study on Image Classification
IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), 2024
Prakhar Ganesh

On The Impact of Machine Learning Randomness on Group Fairness
[Best Paper Award] ACM Conference on Fairness, Accountability and Transparency (FAccT), 2023
Prakhar Ganesh, Hongyan Chang, Martin Strobel, Reza Shokri

YOLO-ReT: Towards High Accuracy Real-time Object Detection on Edge GPUs
IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), 2022
Prakhar Ganesh, Yao Chen, Yin Yang, Deming Chen, Marianne Winslett

HiKonv: High Throughput Quantized Convolution With Novel Bit-wise Management and Computation
Asia and South Pacific Design Automation Conference (ASP-DAC), 2022
Yao Chen, Xinheng Liu, **Prakhar Ganesh**, Junhao Pan, Jinjun Xiong, Deming Chen

Compressing Large-Scale Transformer-Based Models: A Case Study on BERT
Transactions of the Association for Computational Linguistics (TACL), 2021
Prakhar Ganesh, Yao Chen, Xin Lou, Mohd. Ali Khan, Yin Yang, Hassan Sajjad, Preslav Nakov, Deming Chen, Marianne Winslett

Learning-based Detection and Characterization of Time Delay Attack in Cyber-Physical Systems
IEEE Transactions on Smart Grid (TSG), 2021
Prakhar Ganesh, Xin Lou, Yao Chen, Rui Tan, David K.Y. Yau, Deming Chen, Marianne Winslett

Assessing and Mitigating the Impact of Time Delay Attack: Case Studies for Power Grid Controls
IEEE Journal on Selected Areas in Communications (JSAC), 2020
Xin Lou, Cuong Tran, Rui Tan, David K.Y. Yau, Zbigniew T. Kalbarczyk, Ambarish Kumar Banerjee, **Prakhar Ganesh**

Invited Talks

Oct 2024 **Responsible AI Week, Quebec AI Institute (Mila),** The Curious Case of Arbitrariness in Machine Learning
Jan 2024 **Saarland University,** On The Impact of Machine Learning Randomness on Model Fairness
May 2023 **Quebec AI Institute (Mila),** On The Impact of Machine Learning Randomness on Model Fairness

Awards and Scholarships

2024 **Travel Grant,** IAPP Privacy Security Risk (PSR) - Student Scholar program
2024 **Travel Grant,** AAAI/ACM Conference on AI, Ethics, and Society (AIES) - Student Program
2024 **Travel Grant,** ACM Conference on Fairness, Accountability and Transparency (FAccT) - Doctoral Consortium
2024 **Doctoral Research Scholarship,** Fonds de recherche du Québec – Nature et Technologies (FRQNT)
2024 **Graduate Research Enhancement And Travel (GREAT) Award,** McGill University
2024 **Excellence Scholarship - EDI in Research Category,** Mila EDI Scholarship Program
2024 **Graduate Excellence Award,** McGill University
2023 **Graduate Scholarship,** Prof. Golnoosh Farnadi, Quebec AI Institute (Mila)
2023 **Best Paper Award,** ACM Conference on Fairness, Accountability and Transparency (FAccT)
2023 **Travel Grant,** ACM Conference on Fairness, Accountability and Transparency (FAccT)
2022 **Winner,** 8-Bit Bias Bounty Competition - Supervised Learning Track

Teaching and Mentorship Experience

2024 **Teaching Assistant,** Fall-COMP-370: Introduction to Data Science, McGill University
2024 **Instructor,** Indigenous Pathfinders in AI
2024 **Teaching Assistant,** AI4Good Lab: Summer ML Bootcamp
2024 **Coding Mentor,** Girls Who Code Hackathon
2024 **Teaching Assistant,** Winter-COMP-553: Algorithmic Game Theory, McGill University

Professional and Volunteer Service

Peer Reviewer | International Conference on Artificial Intelligence and Statistics (AISTATS) *2025*
Peer Reviewer | International Conference on Learning Representations (ICLR) *2025*
Peer Reviewer | Winter Conference on Application of Computer Vision (WACV) *2025, 2024, 2022, 2021*
Peer Reviewer, Ethics Reviewer | Neural Information Processing Systems (NeurIPS) *2024*
Volunteer, Peer Reviewer | ACM Conference on Fairness, Accountability and Transparency (FAccT) *2024*
Peer Reviewer, Ethics Reviewer | ACL Rolling Reviews (ARR) *Feb and July, 2024*
Peer Reviewer | Algorithmic Fairness through the Lens of Metrics and Evaluation (AFME) Workshop, NeurIPS *2024*
Peer Reviewer | Responsible Generative AI Workshop, CVPR *2024*
Ethics Reviewer | Neural Information Processing Systems (NeurIPS) *2023*
Peer Reviewer | Algorithmic Fairness through the Lens of Time (AFT) Workshop, NeurIPS *2023*
Peer Reviewer | AAAI Conference on Artificial Intelligence (AAAI) *2021*

Preprints/Manuscripts

Free Lunch for Co-Saliency Detection: Context Adjustment
ArXiv Preprint arXiv:2108.02093
Lingdong Kong, **Prakhar Ganesh**, Tan Wang, Junhao Liu, Le Zhang, Yao Chen

Restructuring Conversations using Discourse Relations for Zero-shot Abstractive Dialogue Summarization
ArXiv Preprint arXiv:1902.01615
Prakhar Ganesh, Saket Dingliwal

VLSTM: Very Long Short-Term Memory Networks for High-Frequency Trading
ArXiv Preprint arXiv:1809.01506
Prakhar Ganesh, Puneet Rakheja

Nucl2Vec: Local alignment of DNA sequences using Distributed Vector Representation
bioRxiv Preprint doi:10.1101/401851
Prakhar Ganesh, Gaurav Gupta, Shubhi Saini, Kolin Paul