Prakhar Ganesh

Computer Science · PhD Student

McGill University | Quebec AI Institute (Mila)

✉ prakhar.ganesh@mila.quebec | ⌂ https://prakharg24.github.io/

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, and privacy, with a focus 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

Systemizing Multiplicity: The Curious Case of Arbitrariness in Machine Learning
AAAI/ACM Conference on AI, Ethics, and Society (AIES), 2025
Prakhar Ganesh, Afaf Taïk, Golnoosh Farnadi

From Model Multiplicity to Prompt Multiplicity: Emerging Arbitrariness Concerns in the Age of GenAI
[Student Abstract] AAAI/ACM Conference on AI, Ethics, and Society (AIES), 2025
Prakhar Ganesh

Towards More Realistic Extraction Attacks: An Adversarial Perspective
Transactions of the Association for Computational Linguistics (TACL), 2025
[Non-archival] Workshop on Privacy in Natural Language Processing (PrivateNLP), ACL 2024
Yash More*, **Prakhar Ganesh***, Golnoosh Farnadi

Rethinking Hallucinations: Correctness, Consistency, and Prompt Multiplicity
[Non-archival] Workshop on Building Trust in Language Models and Applications, ICLR 2025
Prakhar Ganesh, Reza Shokri, Golnoosh Farnadi

The Data Minimization Principle in Machine Learning
ACM Conference on Fairness, Accountability and Transparency (FAccT), 2025
[Contributed Talk] [Non-archival] Workshop on Regulatable ML, NeurIPS 2024
[Non-archival] Workshop on Generative AI + Law (GenLaw), ICML 2024
Prakhar Ganesh, Cuong Tran, Reza Shokri, Ferdinando Fioretto

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

Model Multiplicity for Responsible AI
[Student Abstract] AAAI/ACM Conference on AI, Ethics, and Society (AIES), 2024
Prakhar Ganesh

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
[Presented at] Association for Computational Linguistics (ACL), 2022
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

June 2025 **AI Perspective Student Program, IVADO**, Algorithmic Fairness: A Hands-on Introduction
May 2025 **Summer School in Responsible AI and Human Rights, Mila**, Technical Mitigation Strategies
Oct 2024 **Responsible AI Week, 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 **EQUAL Lab, Mila**, On The Impact of Machine Learning Randomness on Model Fairness

Awards, Scholarships, and Grants

2025 **TA Excellence Award**, School of Computer Science - McGill University
2025 **Travel Grant**, AAAI/ACM Conference on AI, Ethics, and Society (AIES) - Student Program
2025 **Winner**, Upper Bound - AI Research Pitch Competition
2025 **Travel Grant**, ACM Conference on Fairness, Accountability and Transparency (FAccT) - Doctoral Consortium
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

2025 **Course Lecturer**, (Co-teaching w/ Prof Jackie Cheung) Fall-COMP-424: Artificial Intelligence, McGill University
2025 **Instructor**, Indigenous Pathfinders in AI
2025 **Teaching Assistant**, AI4Good Lab: Summer ML Bootcamp
2025 **Teaching Assistant**, Winter-COMP-598: Responsible AI, McGill University
2025 **Bridge Mentor**, CSGS x CSUS Bridge Mentorship Program, McGill University
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

Organizational Experience

2026	**AAAI Tutorial and Lab Forum**, The Many Faces of Multiplicity in Machine Learning	
2025	**ACM FAccT Tutorial and Off-Session Social**, The Many Faces of Multiplicity in Machine Learning	

Professional and Volunteer Service

PEER REVIEWER | AAAI CONFERENCE ON ARTIFICIAL INTELLIGENCE (AAAI)	*2026, 2021*
PEER REVIEWER | WIDENING NATURAL LANGUAGE PROCESSING (WiNLP) WORKSHOP, EMNLP	*2025*
PEER REVIEWER, ETHICS REVIEWER | NEURAL INFORMATION PROCESSING SYSTEMS (NeurIPS)	*2025, 2024, 2023*
VOLUNTEER, PEER REVIEWER | ACM CONFERENCE ON FAIRNESS, ACCOUNTABILITY AND TRANSPARENCY (FAccT)	*2025, 2024*
PEER REVIEWER | AAAI/ACM CONFERENCE ON AI, ETHICS, AND SOCIETY (AIES)	*2025*
PEER REVIEWER | INTERNATIONAL CONFERENCE ON MACHINE LEARNING (ICML)	*2025*
PEER REVIEWER | BUILDING TRUST IN LLMS AND LLM APPLICATIONS WORKSHOP, ICLR	*2025*
PEER REVIEWER | INTERNATIONAL CONFERENCE ON ARTIFICIAL INTELLIGENCE AND STATISTICS (AISTATS)	*2025*
VOLUNTEER, PEER REVIEWER | INTERNATIONAL CONFERENCE ON LEARNING REPRESENTATIONS (ICLR)	*2025*
PEER REVIEWER | WINTER CONFERENCE ON APPLICATION OF COMPUTER VISION (WACV)	*2025, 2024, 2022, 2021*
AREA CHAIR | ACL ROLLING REVIEWS (ARR)	*Dec, 2024*
PEER REVIEWER, ETHICS REVIEWER | ACL ROLLING REVIEWS (ARR)	*Feb and June, 2024*
PEER REVIEWER | ALGORITHMIC FAIRNESS THROUGH THE LENS OF METRICS AND EVALUATION (AFME) WORKSHOP, NeurIPS	*2024*
PEER REVIEWER | RESPONSIBLE GENERATIVE AI WORKSHOP, CVPR	*2024*
PEER REVIEWER | ALGORITHMIC FAIRNESS THROUGH THE LENS OF TIME (AFT) WORKSHOP, NeurIPS	*2023*

Preprints/Manuscripts/Under Review

Position: A Unified Framework for Prompt Privacy is Elusive and Misleading
UNDER REVIEW
Prakhar Ganesh*, Yash More*, Marco Romanelli, Ferdinando Fioretto, Golnoosh Farnadi

Data as a Lever: A Neighbouring Datasets Perspective on Predictive Multiplicity
UNDER REVIEW
Prakhar Ganesh, Hsiang Hsu, Golnoosh Farnadi

SoK: Data Minimization in Machine Learning
ARXIV PREPRINT arXiv:2508.10836
Robin Staab*, Nikola Jovanovic*, Kimberly Mai, **Prakhar Ganesh**, Martin Vechev, Ferdinando Fioretto, Matthew Jagielski

Say It Another Way: A Framework for User-Grounded Paraphrasing
ARXIV PREPRINT arXiv:2505.03563
Cléa Chataigner*, Rebecca Ma*, **Prakhar Ganesh**, Afaf Taïk, Elliot Creager, Golnoosh Farnadi

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