

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, 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 **Computer Science Teaching Assistant 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

Professional and Volunteer Service

PEER REVIEWER AAAI CONFERENCE ON ARTIFICIAL INTELLIGENCE (AAAI)	2026, 2021
PEER REVIEWER WIDENING NATURAL LANGUAGE PROCESSING (WNLN) 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

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
Cl  a Chataigner*, Rebecca Ma*, **Prakhar Ganesh**, Afaf Taik, 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

BIOXIV PREPRINT DOI:10.1101/401851
Prakhar Ganesh, Gaurav Gupta, Shubhi Saini, Kolin Paul