

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 machine learning when moving from the sandbox to the real world, primarily at the intersection of various pillars in trustworthy machine learning, including fairness, privacy, adversarial robustness, model compression, etc., 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

Towards More Realistic Extraction Attacks: An Adversarial Perspective

[NON-ARCHIVAL] WORKSHOP ON PRIVACY IN NATURAL LANGUAGE PROCESSING, 2024

Yash More, **Prakhar Ganesh**, Golnoosh Farnadi

An Empirical Investigation into Benchmarking Model Multiplicity for Trustworthy Machine Learning

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**

Preprints/Manuscripts

The Data Minimization Principle in Machine Learning

ARXIV PREPRINT ARXIV:2405.19471

Prakhar Ganesh, Cuong Tran, Reza Shokri, Ferdinando Fioretto

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

Invited Talks

- Feb 2024 **FATE Reading Group, Quebec AI Institute (Mila)**, The Cost of Arbitrariness for Individuals: Examining the Legal and Technical Challenges of Model Multiplicity
- 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**, ACM Conference on Fairness, Accountability and Transparency (FAccT)
- 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
- 2021 **Top 3 Teams**, ASP-DAC System Design Contest

Professional and Volunteer Service

- 2024 **Peer Reviewer**, ACL Rolling Review (ARR), July Cycle
- 2024 **Peer Reviewer**, Neural Information Processing Systems (NeurIPS)
- 2024 **Peer Reviewer**, Widening Natural Language Processing Workshop (WiNLP), EMNLP
- 2024 **Volunteer**, ACM Conference on Fairness, Accountability and Transparency (FAccT)
- 2024 **Peer Reviewer**, Responsible Generative AI Workshop, CVPR
- 2024 **Ethics Reviewer**, ACL Rolling Review (ARR), Feb Cycle
- 2024 **Peer Reviewer**, ACL Rolling Review (ARR), Feb Cycle
- 2024 **Program Committee (PC) Member**, ACM Conference on Fairness, Accountability and Transparency (FAccT)
- 2024 **Peer Reviewer**, Winter Conference on Application of Computer Vision (WACV)
- 2023 **Peer Reviewer**, Algorithmic Fairness through the lens of Time (AFT) Workshop, NeurIPS
- 2023 **Ethics Reviewer**, Neural Information Processing Systems (NeurIPS)
- 2023 **Peer Reviewer**, AI Communications
- 2022 **Peer Reviewer**, Winter Conference on Application of Computer Vision (WACV)
- 2021 **Peer Reviewer**, AAAI Conference on Artificial Intelligence (AAAI)
- 2021 **Peer Reviewer**, Winter Conference on Application of Computer Vision (WACV)
- 2020 **Peer Reviewer**, Computer Speech and Language
- 2020 **Peer Reviewer**, Signal, Image and Video Processing

Teaching/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