

Prakhar Ganesh

COMPUTER SCIENCE · PHD STUDENT

Université de Montréal (UdeM) | Quebec AI Institute (Mila)

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Research Interests : I am attracted to 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

Université de Montréal (UdeM) | Quebec AI Institute (Mila)

COMPUTER SCIENCE, DOCTORATE | ADVISOR: PROF GOLNOOSH FARNADI

Sep 2023 - 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

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

Awards and Scholarships

- 2023 **Graduate Scholarship**, Prof. Golnoosh Farnadi, Quebec AI Institute (Mila)
- 2023 **UdeM Exemption Grant**, University of Montréal
- 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

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

Professional Service

- 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