Karan Grewal

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Toronto, Canada

Education

2014–2018 **University of Toronto**
GPA: 3.91/4.00 B.Sc., Computer Science, Mathematics

2017 **National University of Singapore**
Academic Exchange (4 months)

Experience

2017–present **Montréal Institute for Learning Algorithms**, Université de Montréal
Machine Learning research supervised by Yoshua Bengio & Devon Hjelm
- Studying generative models through a hierarchical encoder-decoder framework that allows for interpretable latent representations. Previously developed meta-adversarial training to regularize Generative Adversarial Nets. Our method encouraged the discriminator to follow a bimodal Gaussian distribution to alleviate vanishing gradients and mode collapse.

2016–present **Dynamic Graphics Project**, University of Toronto
Human-Computer Interaction research supervised by Khai Truong
- Learning human routine behaviour through activity recognition with topic models. Previously applied natural language understanding techniques and textual data analysis to discern rude conversational behaviour in social contexts; identified major problems that make this task difficult.

2016 **Rubikloud Technologies**
Internship with Data Engineering Team
- Created an internal pipeline to detect patterns and anomalies in client data. Wrote queries to reverse-engineer unspecified retail promotions.

2015 **BMO Financial Group**
Internship in Technology PMO
- Managed long-term projects to improve internal & client-facing platforms.

Papers

2017 **Variance Regularizing Adversarial Learning**
Karan Grewal, R Devon Hjelm, Yoshua Bengio.
ArXiv 1707.00309, in *ICML 2017 workshop on Implicit Generative Models*.

2017 **On the Challenges of Detecting Rude Conversational Behaviour**
Karan Grewal, Khai N. Truong.
ArXiv 1712.09929.

Notable Awards

2017	**Samsung Research Scholarship** Supports Deep Learning research at Montréal Institute for Learning Algorithms.
2015, 2016, 2017	**Dean's List** Honorable mention for students with GPA greater than 3.50.

Talks

2017	Université de Montréal, "Variance Regularizing Adversarial Learning".
2017	Canadian Undergraduate Computer Science Conference, "Rudeness Detection in Two-Person Conversations".

Teaching

Winter 2018	**CSC263 Data Structures & Analysis**, University of Toronto Teaching Assistant
Fall 2016	**CSC343 Introduction to Databases**, University of Toronto Teaching Assistant

Coding

- Python, C, SQL, Theano, Lasagne.

Relevant Coursework

- APM462: Nonlinear Optimization
- CSC384: Artificial Intelligence
- CSC411: Machine Learning
- CSC438: Computability & Logic
- MAT237: Multivariable Calculus
- MAT327: Topology
- MAT357: Real Analysis
- STA4273: Learning Discrete Latent Structure