

Karan Grewal

+1 (647) 402-1270
karang@cs.toronto.edu
www.karangrewal.ca
Toronto, Canada

- education* **University of Toronto**
» M.Sc. Computer Science, 2018-20
» B.Sc. Computer Science & Mathematics, 2014-18
- experience* **Princeton University**, Visiting Researcher, *starting May 2019*
» Supervisor: Tom Griffiths
- University of Toronto**, Graduate Researcher, *2018-present*
» Developing computational models of human language evolution.
» Research addresses the cognitive mechanisms that explain population-level changes in language and how these phenomena can be integrated into language systems.
» Supervisor: Yang Xu
- Mila - Montréal Institute for Learning Algorithms**, Research Intern, *Summer 2017*
» Conducted research on artificial neural networks.
» Co-developed meta-adversarial training for Generative Adversarial Nets, which smoothes the discriminator by encouraging intra-class variance as an objective.
» Assisted in experimenting with learning visual representations based on mutual information maximization - accepted as oral presentation at ICLR 2019.
» Supervisor: Yoshua Bengio
- Rubikloud Technologies**, Software Engineering Intern, *Summer 2016*
» Built an internal pipeline to detect and visualize anomalies in client data.
» Worked closely with data scientists and reverse-engineered unspecified sales and promotions evident in retail transaction databases but not explicitly known. This identified clients and products to target in marketing campaigns.
- BMO Financial Group**, Project Management Intern, *Summer 2015*
» Helped several senior technology project managers to coordinate long-term projects to improve internal- and client-facing platforms.
- publications* **Learning Deep Representations by Mutual Information Estimation & Maximization**
RD. Hjelm, A. Fedorov, S. Lavoie, K. Grewal, P. Bachman, A. Trischler, Y. Bengio.
ICLR 2019.
- Variance Regularizing Adversarial Learning**
K. Grewal, RD. Hjelm, Y. Bengio.
ICML 2017 workshop on Implicit Generative Models.
- invited talks* **Layer 6 AI**, *April 2019*
AI Socratic Circles, *April 2019*
Mila, Université de Montréal, *September 2017*
Canadian Undergraduate Computer Science Conference, *June 2017*
- awards* Conference Travel Grant - ICLR, 2019
Vector Scholarship in Artificial Intelligence, 2018
Bell Graduate Scholarship, 2018
University College Alumni Scholarship, 2018

tool kit expert with Python (including NumPy & PyTorch), working knowledge of Java, C, SQL

outreach **MISE - Mathematically Inspired Scientific Education**, Instructor, *Summer 2018*
» MISE is an intensive summer camp based in Ghana for high school students to learn about cutting-edge research in engineering & other sciences.
» Developed an in-depth curriculum and spent three weeks in Accra, Ghana teaching students about machine learning and its applications to computer security.
» Topics included gradient-based optimization, logistic regression classifiers, adversarial examples that can fool classifiers, and how to create more robust classifiers.