Geoffrey Roeder's Curriculum Vitae

EDUCATION

Vector Institute for Artificial Intelligence 2016–2018
University of Toronto, Machine Learning Group
M.Sc., Computer Science
Advisor: Prof. David Duvenaud
Research areas: generative models, deep learning, variational inference

2013–2016
University of British Columbia, Machine Learning Lab
B.Sc., Computer Science, Statistics
A+ GPA overall, graduated with first-class honours

2012–2013
Kwantlen Polytechnic University
Certificate in Engineering
A+ GPA overall, awarded merit scholarship

2009 – 2011
University of British Columbia
M.A., Applied Linguistics
Thesis: Climate Change in Modal Adverbials

PROFESSIONAL EXPERIENCE

Twitter UK
Ph.D. Research Intern, Machine Learning and Computer Vision — Sept–Dec 2017
Supervisor: Dr. Ferenc Huszár
Conducted research into optimal optimization methods for black-box function approximation in machine learning

University of Toronto
Graduate Teaching Assistant: Dept of Computer Science — Sept 2016–present
Gave tutorials and assessed students in fourth-year/graduate classes on machine learning, probabilistic graphical models

University of British Columbia
Undergraduate Research Intern: Machine Learning Lab — Summer 2016
Supervisor: Dr. Mark Schmidt
Developed dimensionality reduction and unsupervised learning algorithms compiled into a Matlab toolbox

Undergraduate Teaching Assistant: Dept. of Computer Science — Sept–Dec 2015, Summer 2014
Gave tutorials on third-year computer hardware and operating systems, first-year introduction to program design

2012 – 2013
Research Coordinator: Dept. of Education
Led 3-person team under Dr. Teresa Dobson that designed and conducted UX studies of academic research support software

HONORS AND AWARDS

American Statistical Association's Undergrad Project Competition: *Honorable Mention* 2016
NSERC Undergrad Student Research Award: *$4500* 2016
Dr. John Pearson Memorial Merit Scholarship: *$2000* 2014
Joseph-Armand Bombardier Canada Graduate Scholarship (Master's): *$17,500* 2010

PUBLICATIONS

Grathwohl, Will, Dami Choi, Yuhuai Wu, **Geoffrey Roeder**, and David Duvenaud. (2017). Backpropagation through the Void: Optimizing control variates for black-box gradient estimation. *Deep Reinforcement Learning Symposium (Oral Presentation).* NIPS, 2017. https://arxiv.org/abs/1711.00123.

Roeder, G., Yuhuai Wu, and David Duvenaud. (2017). Sticking the Landing: Simple, Lower-Variance Gradient Estimators for Variational Inference. *Neural Information Processing Systems, 2017*. https://arxiv.org/abs/1703.09194

Roeder, G., Yuhuai Wu, and David Duvenaud. (2016). Sticking the Landing: A Simple Reduced-Variance Gradient Estimator for Automatic Differentiation Variational Inference. *Advances in Approximate Bayesian Inference Workshop*. NIPS, 2016. http://approximateinference.org/accepted/RoederEtAl2016.pdf.

Roeder, G., X. She, M. Schmidt et al. (2016). MatLearn: Fundamental Machine Learning Algorithms in Matlab. Software package. https://www.cs.ubc.ca/~schmidtm/Software/matLearn.html.

Frizzera, L., Radzikowska, M., **Roeder, G.**, Peña, E., Dobson, T.M., Ruecker, S., Rockwell, G. & Brown, S. (2013). Visual workflow interfaces for editorial processes. *Literary and Linguistic Computing*, 28(4), 615-628.

Roeder, G. (2012). Climate models in modal adverbials: representational practice and deep uncertainty in the IPCC summary documents. Master's thesis. University of British Columbia. https://open.library.ubc.ca/cIRcle/collections/ubctheses/24/items/1.0072479.

TALKS

Roeder, G. (2017). Optimizing Control Variates for Black-Box Gradient Estimation. *Machine Learning Group,* University of Cambridge, Cambridge, UK.

Roeder, G. (2017). Design Principles for Generative Design. *Machine Learning Group, University of Toronto*.

CONFERENCE PROCEEDINGS

Roeder, G., Dobson, T., Peña, E., Brown, S., Dergacheva, E., Knechtel, R., and the INKE Research Group (2013*).* Collaboration by Design: Institutional Innovation through Interface Aesthetics*. Proceedings of the 3rd Conference of Japanese Association for Digital Humanities.* Sept 19-21, 2013, Ritsumeikan University, Kyoto, Japan.

Dobson, T., **Roeder, G.**, Peña, E., Dergacheva, E., Brown, S., Heller, B., and the INKE Research Group (2013). Managing the Editorial Process: A Study of Workflow*. Proceedings of Digital Humanities (DH2013).* July 16-19, 2013.

REVIEWING

International Conference on Machine Learning (ICML)	2018
Advances in Approximate Bayesian Inference (NIPS)	2017
Neural Information Processing Systems (NIPS)	2017
International Conference on Learning Representations (ICLR)	2017
Advances in Approximate Bayesian Inference (NIPS)	2016