Gaétan Marceau Caron, Ph.D.

website: http://gmarceaucaron.github.io/ email: marceaug@gmail.com

Research Interest Deep learning, Riemannian optimization, machine learning & evolutionary algorithms

Work Experience

MILA R&D (Canada) 2017 – Present
Research Engineer
Technology transfer between the MILA research lab
and the industrial partners

Thales Theresis (France) 2016 (4 months)
Research Engineer
Application of Deep Learning
to real-world multi-modal datasets (cyber-security, video and sound)

INRIA-SACLAY - LRI - Paris-Saclay University (France) 2014 – 2016
Postdoctoral Scientist in the TAO team
Research on Riemannian optimization and variational inference
for Deep Learning
Joint work with Yann Ollivier

INRIA-Saclay & Thales Air Systems (France) 2011-2014
Ph.D. Thesis
Optimization and uncertainty handling in air traffic management
Under the supervision of Marc Schoenauer, Pierre Savéant,
Areski Hadjaz and Yann Lebars

Thales Air Systems (France) 6 months - 2010
Research Intern
Analyzing trajectories of European airspace for the estimation
of complexity measures
Under the supervision of Areski Hadjaz

LAMSADE Laboratory - Paris Dauphine (France) 5 months - 2009
Research Intern
Implementing a Multi-agent simulator for the problem
of resource allocation without compensations
Under the supervision of Nicolas Maudet,
Yann Chevaleyre and Tristan Cazenave

Space Codesign, Polytechnique Montréal (Canada) 5 months - 2008
Software Engineer Intern
Under the supervision of Guy Bois

Quosséça Lab, Polytechnique Montréal (Canada) 10 months - 2006-2007
Research Intern
Under the supervision of Gilles Pesant

Education

Paris-Sud XI University (France) 2011 - 2014
Ph.D. in Computer Science

Pierre et Marie Curie (Paris VI) University (France) 2010
Master of Computer Science, Artificial Intelligence
2nd year specialization of ENSTA Paristech

ENSTA ParisTech (France) 2008 - 2010
Master of Engineering, Mathematics and Computer Science

Polytechnique Montréal (Canada) 2005 - 2008
Bachelor of Engineering in Computer Science
Graduated with highest honors

Qualification

Expertises: Deep Learning, Optimization, Evolutionary Optimization

Languages: French (Mother tongue), English (Advanced)

Programming Languages: C++, Python, Lua, Java

Libraries and Tools: Torch, Theano, Chainer, Eigen, Boost, iPython/numpy/scipy/scikit, MatLab, LaTeX

Teaching experience

Tutorials for a Deep Learning course (12 hours) 2015
Master AIC - Paris-Saclay University
Teachers: Alexandre Allauzen, Michele Sebag & Yann Ollivier

Tutorials for Advanced Machine Learning (12 hours) 2015
Master 2 - Centrale-Supelec University
Teacher: Guillaume Charpiat

Tutorial for a Deep Learning course (5 hours) 2016
Master AIC - Telecom Paristech University
Teacher: Alexandre Allauzen

Awards

Code consolidator fellowship from Center for Data Science of Paris-Saclay 2015
Research Intern

Doctoral scholarship from FQRNT 2011-2014
Research Intern

Master scholarship from FQRNT 2011
Research Intern

Research initiation scholarship of Polytechnique Montréal 2007-2008
Research Intern

Scholarship of the Director of Polytechnique Montréal 2005
Research Intern

Publications

Preprints

G. Marceau Caron, Y. Ollivier: Practical Riemannian Neural Networks.
CoRR abs/1602.08007 (2016)

Conference Proceedings

G. Marceau Caron & M. Schoenauer, *Racing Multi-Objective Selection Probabilities*, 13th International Conference on Parallel Problem Solving from Nature (September 2014), Ljubljana, Slovenia

G. Marceau Caron, P. Savéant & M. Schoenauer, *Computational methods for probabilistic inference of sector congestion in Air Traffic Management*, ISIATM2013 (June 2013), Toulouse, France

G. Marceau Caron, P. Savéant & M. Schoenauer, *Multiobjective Tactical Planning under Uncertainty for Air Traffic Flow and Capacity Management*, 2013 IEEE Congress on Evolutionary Computation (June 2013), Cancun, Mexico

G. Marceau Caron, P. Savéant & M. Schoenauer, *Strategic Planning in Air Traffic Control as a Multiobjective Stochastic Optimization Problem* (online), 10th USA/Europe Seminar on ATM R&D (June 2013), Chicago, USA

G. Marceau Caron, P. Savéant & M. Schoenauer, *Multiobjective Pre-Tactical Planning under Uncertainty for Air Traffic Control*, 3rd International Conference on Application and Theory of Automation in Command and Control Systems (May 2013), Naples, Italy

G. Marceau Caron, P. Savéant & M. Schoenauer, *Increasing Air Traffic - What is the Problem?*, 2nd SESAR Innovation Days (November 2012), Braunschweig, Germany

G. Marceau Caron, P. Savéant & M. Schoenauer, *Online Learning for Ground Trajectory Prediction*, 2nd SESAR Innovation Days (November 2012), Braunschweig, Germany

G. Marceau Caron & A. Hadjaz, *Beta-mesh-A dynamic 3D mesh modelization*, American Control Conference 2011 (June 2012) San Francisco, USA

T. Cazenave, Y. Chevaleyre, G. Marceau Caron & N. Maudet, *Troc Combinatoire Monte-Carlo*, ROADEF (February 2010), Toulouse, France

Conference Workshops

G. Marceau Caron, P. Savéant & M. Schoenauer, *Increasing Air Traffic - What is the Problem?*, Satellite Meeting Complexity paradigms for Smart, Green and Integrated Transport 2012 of ECCS2012 (September 2012), Brussels, Belgium

Conference Posters

G. Marceau Caron, P. Savéant & M. Schoenauer, *Multiobjective optimization for reducing delays and congestion in air traffic management*, Genetic and evolutionary computation (GECCO '13 Companion), (July 2013), Amsterdam, The Netherlands