Justin J. Beland Toronto, Canada
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Education

- **University of Toronto** Toronto, ON
  Ph.D., Institute for Aerospace Studies *September 2016 - Present*
- **University of Toronto** Toronto, ON
  M.Eng., Institute for Aerospace Studies *January 2014 - June 2016*
- **Western University** London, ON
  B.Sc., Physics *September 2009 - April 2013*
- **Western University** London, ON
  B.E.Sc., Structural Engineering *September 2007 - April 2013*

Research Interests

- **Bayesian "Robust" Optimization** *September 2016 - Present*
  The focus of my work is mainly concerned with the development of efficient probabilistic approaches for intelligent systems to make sequential decisions under uncertainty. This work extends the architecture of Bayesian optimization to cases where the parameters governing the objective function are random.
- **Data-Driven Particle Swarm Optimization Using Surrogates** *September 2015 - June 2016*
  In this project I developed a particle swarm optimization algorithm to be used in an internal code in the Computational Modeling and Design Optimization Under Uncertainty Group at the University of Toronto. This code would apply a naïve approach to optimize a Gaussian process regression model.

Work Experience

- **Researcher, Numeric Methods Group, Pratt & Whitney Canada** *May 2017 - Present*
  Within a team of computer scientists, physicists and engineers, I plan to benchmark an in-house machine learning code against some of the routines in scikit-learn. I will also be testing a new Gaussian process algorithm on a very large dataset. Further, I will implement a Bayesian style optimization algorithm to design engine components.
- **Tutor, Skule, University of Toronto Engineering** *Ongoing since Feb 2014*
  Instructed undergraduate engineering students in the department of engineering science at the University of Toronto. The topics I covered were structural engineering, calculus and physics.
- **Consultant, Focal Healthcare** *July 2016 - Jan 2017*
  Working with a team of medical professionals, scientists and engineers I implemented an automated system to verify compliance of patient information with DICOM standards using software compiled in C#. This project was designed to automate the transmission of mixed data structures to a medical imaging device used for prostate cancer detection.
- **Contractor, Compressor Engineering, Pratt & Whitney Canada** *Aug 2015 - Jan 2016*
  Within a team of engineers I utilized data-mining techniques to extract validated information regarding the lifespan of aircraft engine components. The data collected was then used to train a Gaussian process model on a distributed system to predict the expected life-cycle of new engine components.

Skills

Languages: C++, C#, Python, MATLAB, HTML English, French

Operating Systems: Linux, Mac OS X, UNIX, Windows

Open Source Projects

2015–Present Gitlab, GitHub