# VALENTIN STOLBUNOV

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## EDUCATION

**Doctor of Philosophy (PhD) -** University of Toronto, Institute for Aerospace Studies (candidate) *2012 - present*

- Specializing in development of "greedy" machine learning techniques for large data
- Doctoral thesis research supervised by Professor Prasanth Nair with strong industry numerical methods collaboration
- PhD research topics: pre-model data filtering and selection, greedy machine learning techniques for large data, gradient-enhanced approximation, randomized greedy approximation, surrogate-assisted design optimization methods
- Developed greedy radial basis function surrogate modelling tools with optimal shape parameter tuning
- Conducted extensive numerical studies to determine efficiency and accuracy values of surrogate modelling techniques

**Bachelor of Applied Science in Engineering Science (BASc) -** University of Toronto *2008-2012*

- Graduated with Honours from academically elite Engineering Science program
- BASc research topic: development of a gradient-enhanced modelling tool for large data sets
- Curriculum covered wide range of engineering disciplines prior to specializing in aerospace engineering

**Graduate Courses**

- Machine Learning & Inference Algorithms (A)
- Surrogate Modelling & Optimization Tools (A+)
- Computational Finance & Risk Management (A+)
- Computational Fluid Dynamics I & II (A+, A)

**Undergraduate Courses**

- Scientific Computing (A)
- Programming & Data Structures (A+)
- Partial Differential Equations (A-)
- Engineering Design (A+)

## EXPERIENCE

**Data Mining PhD Intern -** Apple Inc. *summer 2015*

- Machine learning/data science internship currently in progress

**President -** University of Toronto Sports Analytics Group *2014 - present*

- Founded group in 2014 and have since acted as president, organizer, editor, and lead investigator
- Leading and organizing technical presentations, conducting novel research in the field, connecting members & industry

**Numerical Methods Researcher -** Pratt & Whitney Canada *2013*

- Researched and developed state of the art modelling tool for the design of an aircraft engine compressor
- Explored and wrote routines for handling and filtering of very large scattered data sets
- Developed task-specific DOE, models, and optimization tools for larger Python MDO design cycle
- Created efficient FORTRAN code for parallel-processing with multiple nodes/cores and memory structures on both Pratt & Whitney's and the University of Toronto's high performance computing machines

**Teaching Assistant** - University of Toronto *2011 - 2014*

- AER201 Engineering Design - 4 years
- CSC190 Computer Algorithms and Data Structures - 1 year

**Research Assistant** - University of Toronto RiskLab *2012*

- Derived macroeconomic indicators based on historical correlations between sector indices
- Obtained and managed large sets of historical finance data and implemented time series forecasting schemes

**Research Assistant** - University of Strathclyde ASCL (United Kingdom) *2011*

- Developed orbit inclination-maximizing control law for solar sail satellites
- Worked with researchers from all over Europe and published journal paper as first author

**Research Assistant** - University of Toronto Institute for Aerospace Studies *2010*

- Designed, developed, and tested a comprehensive FPGA interface board for signal processing and data acquisition
- Designed full software-firmware interface between PC, microcontroller, and external electronics (C/assembly/Verilog)