Lucas Durand

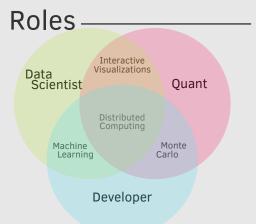
Technology Solutions Associate











Skills -

Statistical Analysis Business Acumen Spark MLLib Hadoop Quantitative Research Teaching Monte Carlo Angular.js Pandas Multinomial Tree POC Stochastic Calculus Capital Markets Predictive Models

Interests -

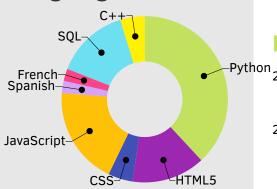
Big Data

Visualisation

Quantitative Modelling

Machine Learning

Languages



Experience

Feb 2017 -Aug 2017

Quantitative Developer - Associate

Treasury Analytics Group

• Leverage data visualization tools to deliver interactive mortgagebacked security (MBS) valuation module to business leaders (Matplotlib, Seaborn, Plot.ly)

- Implement parallel computing environment to increase realtime visualization usability (ipyparallel)
- Thorough benchmark and stability testing of quasi-Monte Carlo methods shows marked increase in convergence speed for MBS valuation model, allowing for Key Rate Vega and Convexity hedging (Pandas, C++)
- Strengthened understanding of Financial Engineering and numerical analysis, distilling and transferring knowledge to laymen in a very successful *Lunch n' Learn*, utilising Jupyter RISE to deliver real-time code and animations
- · Courses Completed:
 - Udemy Data Science and Machine Learning with Python
 - Udemy Taming Big Data with Apache Spark and Python

Aug 2017 -Feb 2018

Quantitative Developer - Associate

TD Securities

TD Securities

Quantitative Modelling & Analytics Group

- Responsible for development and implementation of sophisticated derivatives pricing and risk models
- Work with Quant team to add new modelling (fixed income and credit derivatives) capabilities to Unified Quant Library (C++)
- Research new methods to enhance XVA capabilities

Research

2014 - 2016 Major Research Project

inSIDious Matter

Tulin Research Group

- Phenomenological exploration of a particle physics model for an inelastic self-interacting dark matter (Mathematica, Scipy)
- Theoretical formulation of scattering quantities by tensor calculus and numerical partial-wave analysis
- Determination of allowed parameter-space for theory in agreement with predictions from N-body simulations and astronomical observations
- New efficient techniques for numerically determining scattering cross-sections in the classical regime are implemented
- Visiting Researcher at the Perimeter Institute for Theoretical Physics

Education

Python 2014 - 2016 MSc., Theoretical Physics

York University, Perimeter Institute (PI)

Toronto/Waterloo, Ontario, Canada

TA: Engineering/Physics Lab; Science, Technology & the Environment

2009 - 2014 HBSc., Physics & Philosophy

Trinity College, University of Toronto

Toronto, Ontario, Canada

Senior Thesis – Graphene: Hartree-Fock Analytics and Numerics

Experience cont'd

Jul 2016 -Feb 2017

Business Systems Analyst - Associate

TD Bank Financial Group

Enterprise Fraud Analytics Program

- Subject Matter Expert (SME) for Identity & Access Management. Developed Role-Based Access Management tools to automate RBAC reporting (Pandas, Excel, Selenium)
- Interfaced between business and Testing Centre of Excellence to facilitate continuous testing on vendor platform delivery.
- · Completed Courses:
 - Global Knowledge IBM BigInsights Foundation with Hadoop
 - Coursera (Columbia University) Financial Engineering and Risk Management Part I

Sep 2014 -Apr 2016

Teaching & Research Assistant

York University, Tulin Research Group

- Maintained a broad knowledge of general science to lead tutorials in *Science*, *Technology & the Environment* as well as weekly topics relevant to *Engineering/Physics Labs*.
- Worked to promote a holistic understanding of difficult concepts through the use of qualitative, quantitative, analytic and synthetic thinking while efficiently assessing a high volume of student problem sets and assignments.

Apr 2014 -Sep 2015

Application Analyst - Intern

National Bank Financial Markets

Equities Trade Support

- Worked on NBFM trading floor, directly interfacing with institutional equities, direct market access, and discount brokerage traders
- Created ETL framework and Tableau dashboards to provide meaningful business insights from global equities trade data, leading to the adoption of Tableau Server across the LoB
- Designed and implemented angular.js Big Data POC for legal compliance reporting. Consolidated data from legacy Sybase servers into local SQLite database to increase search speeds by 1000%
- Explored use cases for Bokeh, d3. js for visualising real-time market data

Volunteering

Annual Benefit Concerts

ABC for SickKids, CANFAR - AIDSbeat, March of Dimes - Rock for Dimes, CIBC Run for the Cure, Big Brothers Big Sisters of York, Rock for LIFE, AUSUM Charity for Autism, Raising the Roof - Sounds of the

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2014 -

Present **UofT A& S Mentorship Program**

Department of Physics Mentor

Jul 2014 -Present

TD Associate Knowledge Academy

Lunch n' Learn Presenter, Group Learning Coordinator, Associate Fireside Chat Creator

TD Co-op Mentorship Committee

Executive, Mentor

Leadership

2009 -

2014 Trinity College Literary Institute

Speaker, Archivist, Member

2011 -

2014 Trinity College James Bond Society

President

2012 -

2013 Trinity College Meeting

Deputy Chair