Lucas Durand

Technology Solutions Associate

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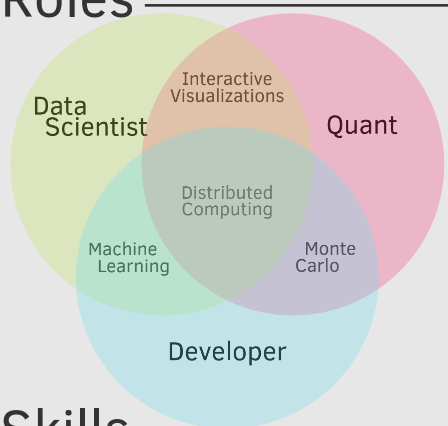
Roles



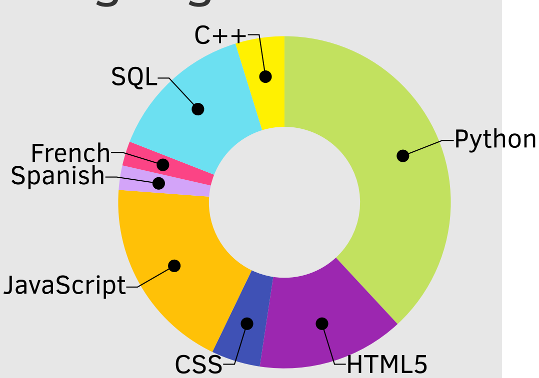
Skills

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
- Data Visualisation
- Quantitative Modelling
- Machine Learning

Languages



Experience

Aug 2017 - Feb 2018
Quantitative Developer - Associate — 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

Feb 2017 - Aug 2017
Quantitative Developer - Associate — TD Securities
Treasury Analytics Group

- Leverage data visualization tools to deliver interactive mortgage-backed security (MBS) valuation module to business leaders (`Matplotlib, Seaborn, Plot.ly`)
- Benchmark and stability testing of quasi-Monte Carlo method shows MBS convergence allows for Key Rate Vega and Convexity hedging (`Pandas, C++`)
- Presented *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

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

Research

2014 - 2016 **Major Research Project** — Tulin Research Group
inSIDious Matter

- 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

Education

2014 - 2016 **MSc., Theoretical Physics** — York University, Perimeter Institute (PI)
Toronto/Waterloo, Ontario, Canada
TA: Engineering/Physics Lab; Science, Technology & the Environment

2009 - 2014 **BSc., Physics & Philosophy** — Trinity College, University of Toronto
Toronto, Ontario, Canada
Senior Thesis – Graphene: Hartree-Fock Analytics and Numerics