

# John Muller

## Summary

- Computer Scientist, Data Scientist, and Finance Quant.
- Extensive experience with
  - Python ecosystem, machine learning frameworks and SQL.
- Academic training in machine learning, big data and quantitative finance.

## **Portfolio of Data Science Projects**

Please visit <https://github.com/jhmuller/jhmuller.github.io>

## Professional Experience

**Company :** Global Quantitative Advisors

**Role :** Senior Quantitative Consultant.

**From:** April 2022      **To:** current

Available to provide a full range of services as a Senior Quantitative Consultant or Data Scientist. Range of expertise includes:

- experience with both sell-side and buy-side quantitative asset management
- skill and experience in a wide range of data analytics and data science ranging from standard linear or generalized regression to ensemble methods (e.g. boosting, random forests) to deep learning frameworks such as pytorch and tensorflow.

**Company :** Enter The Data

**Role :** Data Scientist and Computer Scientist

**From:** April 2022      **To:** current

- Time series exploratory analysis.
- Extracting and analyzing tables from a corpus of PDF files.
- Comparison of classification methods: regression vs ensemble methods.

**Company :** Lowe's Digital Data Science

**Role :** Data Scientist

**From:** Nov 2021

**To:** April 2022

- Part of a team building and deploying recommendation algorithms.
- Built both a rules-based method from counts derived from web logs as well as a graph ML model using PyTorch Geometric.
- Built a tool to create an HTML document for manual comparison of any number of competing recommendation methods.
- Proposed a system for *offline back testing* of recommendation algorithms.

**Company :** PNC Bank

**Role :** Contractor

**From:** Oct 2019

**To:** Oct 2021

Part of code review team, responsibilities included:

- Reviewing Python and SQL code and ensuring code runs and produces desired output,
- Determining if code accurately and completely meets documented requirements.

Required skill in and knowledge of Python, SQL, Spark, Hadoop and Hive.

**Company :** Acadian Asset Management

**Role :** Vice President

**From:** Feb 2013

**To:** Mar 2018

- Designed and built a Dashboard for Portfolio Managers to analyze portfolio exposures within and across strategies.
- Rebuilt from scratch a module to orthogonalize one signal to other factors/signals.
- Developed code to add transaction costs to our attribution and a web app (Bokeh) for exploring the results.
- Built an automatic testing program to run simple pass/fail tests on code where no explicit test code exists. Used Python's introspection to find methods and method signatures to assign valid values for arguments.

- Developed a Python version of the R Corrgram method for re-ordering the rows and columns of a correlation matrix to help reveal clusters of related variables.
- Other projects Included:
  - Investment strategy capacity analysis,
  - Rebalancing schedule frequency analysis,
  - Rranking of broker performance,
  - FX hedge reporting module,
  - Access layer to alpha model data, and more.

**Company:** Enter The Data

*EnterTheData is my own consulting firm.*

**Role:** Data Scientist

**From:** Feb 2012      **To:** Feb 2013

Descriptive and predictive modeling, visualization and data science consulting.  
Projects included:

- Estimating the value of a marketing campaign vis-à-vis resulting sales using time series analysis,
- Analyzing customer retention using survival analysis to find differences across markets,
- Estimating weather effects on sales,
- Predicting government employment releases using lasso regression and random forests.

**Company :** State Street Associates

*State Street Associates is the research arm of State Street Corporation's trading business.*

**Role :** Vice President

**From:** Aug 2007      **To:** Feb 2012

- Created back-end database structure combining internal and external data sources.
- Created a front-end trader dashboard, using Spotfire, to serve as the trader's main information portal.
- Analysis and modeling including: predicting hard-to-borrow securities and analyzing the relationship between real and synthetic shorts using options.
- Team leader for new holdings indicators, i.e. trading signals, for equity and fixed income.

- Team leader and active participant in research and development of the equity holdings indicator.
- Managed teams that developed and released 14 new Foreign Exchange and Equity flow indicators.

**Company :** Bank of America

**Role :** Senior Vice President

**From:** Oct 2001                      **To:** Aug 2007

- Coding (using R) and back-testing various improvements to the existing momentum-style strategy drawing data from MarketQA, IDC, IBES, and Compustat.
- Quantitative support for users of Barra's Enterprise Performance product for return attribution.
- Provided quantitative support for managing the banks institutional loan portfolio.
- Designed and coded fixed income tools using R and C++.
- Developed code to calculate Nelson-Siegel curves and bond asset swap spreads.
- Conducted extensive analysis of customer database and provided analytic research on the effects of pricing policies to support the mortgage pricing team.
- Used statistical techniques to analyze loan-level cash flow data and build models to predict servicing profitability based on borrower

*Contact me for earlier work history.*

## **Education and Activities**

### **University Education**

**Degree:** Doctor of Philosophy, Ph.D.

**Major:** Information and Computer Science

**Institution:** Georgia Institute of Technology

**Degree:** Bachelor of Science, B.S.

**Major:** Computer Science

**Institution:** University of Georgia

### **Continuing Education and related activities**

- Artificial Intelligence Professional Program, Stanford University
  - Machine Learning, XCS229, (2022)

- Machine Learning with Graphs, XCS224, (2022)
  - Artificial Intelligence: Principals and Techniques, XCS221, (2021)
- DeepLearning.ai courses including Neural Networks and Deep Learning and Sequence Models (2018)