John Muller

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Summary

- Computer Scientist, Data Scientist, and Finance Quant.
- Extensive experience with Python ecosystem, machine learning frameworks and SQL.
- Experience with cloud platforms: GCP and AWS.
- 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 : Bank of America

Role : Python developer

From: Nov. 2022   **To**: current

- Writing Python code to help replace an ETL product.

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.

Company : Lowe's Digital Data Science

Role : Data Scientist

From: Nov 2021   **To**: April 2022

- Part of a team building and deploying recommendation algorithms on GCP.
- Put into production a rules-based method using counts derived from web logs.
- To address the *cold start* problem, built a machine learning method for generating recommendations that can use product attributes as well as web traffic data.
- Proposed a system for *offline back testing* of recommendation algorithms. As an interim step built a tool for manual comparison of recommendations.

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)