John Muller

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Summary

- Computer Scientist, Data Scientist, and Finance Quant.
- Extensive experience with
    - Python ecosystem, machine learning frameworks as well as R and SQL.
    - Data Science, analytics, and data visualization.
- Academic training in machine learning, big data methods and quantitative finance.

Professional Experience

Contractor @ Lowe's Digital Data Science

From:2021-11 To:2022-04

- 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.

Contractor @ PNC

From: 2019-10 To: 2021-10

Part of code review team, responsibilities included:

- Reviewing Python and SQL code aand 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.

Vice President @ Acadian Asset Management

From: 2013-02 To: 2018-03

- 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.

Data Scientist @ Enter The Data

Enter the Data is my own consulting firm.
From: 2012-02 To: 2013-02
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.

Vice President @ State Street Associates

State Street Associates is the research arm of State Street Corp's trading business.
From: 2007-08 To: 2012-02

- Head of Securities Lending Research
  Led a collaboration between research and the Securities Lending business to build analytic tools to support trading. Worked directly with the lending traders and business heads, analyzed extensive transactional, data and built an end-to-end solution.
    - 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.
- Research Manager

- 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.

Senior Vice President @ Bank of America

From: 2001-10 To: 2007-08

- Corporate Investments
  Member of a small equity quant group investing approximately $100M running momentum strategies. Responsibilities included:
  - 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.
- Risk Management, Portfolio Analysis and Optimization
  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.
- Consumer Real Estate, Customer and Pricing Analytics
  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 eariler work history.

Education and Activities

University Education

Degree: Ph.D., Information and Computer Science From: Georgia Institute of Technology

Degree: Bachelor of Science, Computer Science From: 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)
- Data Science: Data to Insights and Big Data, MIT professional development online course (2017)
- Statistical Learning and Data Mining III, Elements of Statistical Learning authors Tibshirani & Hastie (2011)
- Co-founder and current co-organizer of Greater Boston useR Meetup Group (2900+ Members) (2010)
- Certificates in Quantitative Finance, Stanford (2005), Carnegie Mellon (2006)
  Courses Included: Finance, Statistics and Mathematics, Stochastic Calculus, and Interest Rate Models.