Ryan Downing

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EDUCATION

University of Maryland **College Park, MD**
Bachelor of Science, Computer Science – Machine Learning Specialization GPA: 3.8
Bachelor of Science, Finance Expected: May 2022

Quantitative Finance Fellows

- Competitively selected to partake in a specialized program with focus on quantitative financial analysis

Notable Coursework

- Discrete Mathematics, Linear Algebra, Organization of Programming Languages, Algorithms, Applied Probability and Statistics, Investments, Advanced Financial Management, Quantitative Financial Analysis

WORK EXPERIENCE

Capital One Financial Corporation **McLean, VA**
Software Engineer Intern *June 2020 – August 2020*

- Shipped package into production through CI/CD pipeline for use in future downstream tasks across the company
- Developed named-entity-recognition (NER) system, utilizing BERT transformer architecture
- Researched and developed fine-tuning strategy for NER model to achieve accuracy above open-source solutions
- Created scalable solutions by leveraging Dask framework for distributed computation and reusable functional code
- Worked with intern managers to produce a tool which leveraged NLP to best match new interns with internal projects based on their interests and prior experiences

Lincoln Financial Heritage **Hunt Valley, MD**
Intern *May 2019 – August 2019*

- Managed electronic filing database for historical and current client information
- Communicated with senior representatives in order to establish a compliance-based database
- Aided in the development and process of setting up Redtail cloud database system

EXTRACURRICULAR

Smith Investment Fund (UMD) **College Park, MD**
Co-President / Portfolio Manager *October 2018 – Present*

- Work with colleagues to implement Quality Minus Junk multi-factor model by using linear regressions against 50 years of historical data
- Create an in-depth, full year curriculum and plan to run the club in an efficient and organized manner
- Oversee and produce code for backtesting environment that provides framework for dynamic signal engineering and produces insightful performance metrics and visualizations
- Direct the development of database with python API wrapper for ease-of-use in research environment
- Manage a team of 23 members to conduct research into new algorithmic trading strategies while also providing an educational experience for underclassmen on the team

Markets and Trading Research **College Park, MD**
Personal Projects – https://github.com/ryansdowning/nlp-research *August 2018 – Present*

- Design framework for processing text data and apply NLP methods for downstream feature recognition
- Produced end-to-end web scraping system which processes news articles and other text sources related to stocks and streams it into SQL databases for custom signal creation that can be used in trading strategies
- Utilize unsupervised learning methods to cluster trends of companies based on sentiment analysis of news sources
- Create visualizations using matplotlib and seaborn to enhance understanding of large amounts of data
- Implement systematic factor models using precautions for overfitting against historical data

SKILLS & INTERESTS

- **Programming:** Advanced in Python, proficient in R, C, Java, SQL, knowledgeable in Assembly, MATLAB, LaTeX
- **Python Libraries:** NumPy, Pandas, Sklearn, PyTorch, Tensorflow, Transformers, Spacy, Ray, Optuna, Seaborn, Dask, Multiprocessing, Hypothesis, PyTest, Poetry
- **Projects:** https://ryansdowning.com | https://smithinvestmentfund.com | https://github.com/ryansdowning