Ryan Downing

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EDUCATION

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

Quantitative Finance Fellows

- Selected to be 1 of 14 out of 200 applicants in a specialized program with focus on quantitative financial analysis

Notable Coursework

- Capstone in Machine Learning, Intro to Artificial Intelligence, Design and Implementation of Programming Languages, Applied Probability and Statistics, Advanced Portfolio Management, Futures and Options Contracts

WORK EXPERIENCE

Capital One Financial Corporation **McLean, VA**
DevOps Engineer Intern *June 2021 - August 2021*

- Automated CI/CD pipeline onboarding by creating a tool that produced pipeline configurations based on application requirements determined by scanning repositories for pertinent information
- Established process for working with YAML file structures including parsing, modification, and validation
- Deployed tool using AWS S3, Lambda, and Step Function with wide impact, servicing 3000+ business applications
- Worked with senior engineers to translate business requirements proposed by the project leads into JIRA stories

Data Engineer Intern *June 2020 - June 2021*

- 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
- Corresponded with intern managers to produce a tool which utilized NLP packages to best match new interns with internal projects based on their interests and prior experiences

Research Experience for Undergraduates at UMD **College Park, MD**
Machine Learning Researcher *June 2021 - August 2021*

- Worked in Dr. Tom Goldstein's lab on research spanning fairness in machine learning with a focus on computer vision systems and facial recognition
- Created clean datasets suitable for testing bias across age, gender, and skin tone by using Fitzpatrick skin tone scale
- Devised experiments to gather empirical evidence on the differences between bias in humans and deep learning models on tasks involving facial identification and facial verification
- Setup database and API for serving questions to front-end survey and recording responses for aggregated statistics

EXTRACURRICULAR

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

- Manage a team of 23 members with agile workflow and ceremonies to conduct research into new algorithmic trading strategies while also providing an educational experience for underclassmen on the team
- Create an in-depth, full year curriculum and management plan that allows the club to be self-sustainable
- Work with colleagues to reproduce and improve Quality Minus Junk (2018) multi-factor model by using linear regressions against 50 years of historical data
- Direct the development of a Python package focused on quantitative finance with tooling for building, backtesting, interpreting, and tuning algorithmic trading strategies
- Build framework that allows researchers to modularly construct systematic trading rules and perform drop-in feature engineering that can be pushed directly to production and live trading

SKILLS & PROJECTS

- **Programming:** Advanced in Python, proficient in C, Java, OCaml, JavaScript, R, SQL, AWS: S3, Lambda, Step Fn
- **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