Charlie Hou

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Education

Princeton University**,** Princeton, NJ *Sept 2015-Present*
Bachelor of Science in Engineering, Statistics
Certificates: Applied Math
Overall GPA: 3.81/4.0 (School's top quintile)
Relevant Coursework*:* Functional Programming, Algorithms and Data Structures, Introduction to Programming Systems, Real Analysis, Applied Machine Learning, Mathematical Statistics (grad class), Statistical Learning Theory (grad class), Large Scale Optimization for Data Science (grad class), Deep Learning Foundations (grad class), High Dimensional Probability (grad class)

Experience

Goldman Sachs, New York City, New York, *Strat Intern* *May 2018-Aug 2018*

- Improved mathematical rigor of simulations on stress-testing model, implemented changes in code using Slang (GS programming language). These changes impacted projections made by $250 million
- Designed and implemented a model monitoring system in Slang and SQL that gives periodic summaries and alerts the firm to unexpected behaviors on an ongoing basis based on current data
- Quantitatively validated appropriateness of machine learning loan model using R

BNY Mellon, Jersey City, New Jersey, *Software Engineering Intern* *Jun 2017-Aug 2017*

- Analyzed statistical relationships between work variables and code output using SQL and Python

Advised Projects

Interpolated peeling: New learning algorithms for vertex order recovery (Advised by Prof. Miklos Racz)

- Created new algorithm, Interpolated Peeling, that gives more precise control over performance in order recovery, made progress in describing it precisely in theoretical terms. Implemented in R and Python
- Re-implemented a library method for preferential attachment process in Python to adhere to currently studied versions of preferential attachment. Used method to run simulations of large graphs efficiently

Exploring the effect of depth on optimization in deep learning (Advised by Prof. Yuxin Chen)

- Implemented neural networks in TensorFlow and Pytorch and observed effects of layers on training rate
- Found that increasing number of layers reduced penalty term in loss

Personal Projects

Wall Street Bets

- Used a multinomial naïve bayes model on Reddit posts, using Python and scikit-learn to trade stocks
- Achieved greater than 50% accuracy on direction of prices during testing

School Activities/Misc.

Tiger Chef Champion (Winner 2018, Participant 2016/2017) (a school-wide cooking competition)
Princeton Club Tennis, *A-team member* *Sept 2015-Present*

Technical Skills

Proficient: Python, R, SQL, Java
Familiar/Experience with: C, MATLAB, Javascript, Ocaml, Hadoop, MapReduce, C#
Software packages: Tensorflow, Pytorch, scikit-learn, PANDAS, scipy, jupyter, glmnet, igraph