Neil Vyas

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EDUCATION

The University of Texas at Austin Fall 2014 - *Expected Spring 2018*
Bachelor of Science, Mathematics | GPA: **3.84** | *Undergraduate GPA: 3.94*

M 385C	Grad. Theory of Probability	EE 381V	Grad. Genomic Signal Processing		
EE 381K	Grad. Convex Optimization	EE 381J	Grad. Stochastic Processes	CS 388R	Grad. Randomized Algorithms
M 427JH	Vector Calculus Honors	M 365C	Real Analysis	M 373K	Abstract Algebra
M 341H	Linear Algebra Honors	M 361	Complex Analysis	M 427KH	Differential Equations Honors

SKILLS

Experienced: Python, Git, LaTeX **Intermediate:** Scala, SQL, Spark **Exposure:** Haskell, Elm (Javascript)

WORK EXPERIENCE

Yelp, San Francisco, CA May 2016 - August 2016
Ads Autobidding Intern
Automatically set bids for less-sophisticated advertisers, maximizing advertiser ROI and Yelp's revenue.

- Investigated factors influencing a drop in budget fulfillment in Q4 2015
- Built invertible models of holiday season traffic patterns, moving from more to less complex models due to changing risk assessments, and applied these models to modify real traffic patterns
- Pushed production code in both SOA and monolithic python codebases on a compressed timeline
- Presented results and forecasts for Q4 2016 to key stakeholders in product and engineering
- Defined and analyzed an ETL for assessing accuracy of a model to quote prices to new advertisers

Civitas Learning, Austin, TX January 2015 - May 2016, August 2016 - Present
Data Science Intern
Using predictive analytics to increase academic performance at over 100 partner institutions.

- Modeled student enrollment pathways using bipartite matching on per-semester clusterings, using divergence measures on selected features as edge weights
- Designed data visualizations and product prototypes using Flask (Python) and D3.js
- QA'd logistic regression workflows, primarily for data availability and regularization
- Improved match recovery rate from 45% to 80% in propensity score matching, for causal analysis of university outreach programs; this became a product

PROJECTS

Lending Club Loan Default Prediction, Portfolio Allocation
Developed a model for identifying mis-priced loans on the peer-to-peer lending network LendingClub.

- Extracted features from unstructured text fields using word2vec, PCA, and clustering
- Trained random forest classifiers by loan grade, selecting for good calibration
- Used `CVXPY` (a convex optimization library) to generate efficient loan note portfolios

Hedge Fund Alpha Analytics
Analytics Dashboard for exploring the space of Hedge Funds by type and performance.

- Created an analytics dashboard using R (with Shiny) and Javascript
- Clustering successfully recovered different "heuristic" classes of HFs, providing quantitative evidence for this classification scheme

ORGANIZATIONS

Texas Undergraduate Computational Finance, Director Fall 2014 - Present
Developed algorithmic trading strategies, pitched and analyzed short-term options plays.

- Using Quantopian, a backtesting platform, to design, implement and test strategies
- Automatically exploited(-ing) an arbitrage opportunity on prediction markets
- Built ELO-based webapp for ranking candidates during recruiting
- Writing, delivering lecture series on math and machine learning for decision making