

Kunaal Kumar

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EDUCATION

The University of Texas at Austin

Graduation Date: May 2020

B.S. Computer Science with Turing Scholar Honors

Economics Minor

Relevant Coursework: Algorithms, Computer Vision, Artificial Intelligence, Data Structures, Computer Architecture, and Operating Systems

PROFESSIONAL EXPERIENCE

Facebook – Software Engineer Intern

May - Aug 2019

- Interning at Facebook in Summer 2019.

Amazon – SDE Intern

Sep - Dec 2018

- Worked on the Network Load Balancing team under AWS EC2.
- Created a resource auditor; the program runs periodically and makes sure all databases, processes, and other resources remain in sync during deployment.

Unchained Capital – Software Engineer Intern

May 2018 – August 2018

- Worked as a full stack developer to update, maintain, and add features to the web application.
- Used React to build an interface for customers to see how updates to their principal and interest payments affected their loan-to-collateral ratio.
- Built a backend framework using wkhtmltopdf to extract customer information from the database and automatically generate relevant legal documents.
- Worked on connecting the backend with Twilio in order to increase application security; numerous browser attacks are capable of manipulating bitcoin addresses when served on a webpage. By sending users confirmations of the relevant bitcoin addresses, they can be certain that they're sending money to the correct address.

PROJECTS

Algorithms Researcher at Texas Spacecraft Laboratory

Jan 2018 - Present

Skills: *Python, Tensorflow, OpenCV*

- Worked on a computer vision system for the SEEKER satellite mission, which will launch early next year.
- Tuned Tensorflow training hyperparameters (including adding dropout and L2 regularization) in order to decrease overfitting and decrease the model's false positive rate.
- Extracted features from the image feed in order to characterize which postprocessing methods should be used to contour the satellite and find its centroid. Mainly worked on extracting local binary pattern histograms of each image as a method of categorizing the overall textures present.

Stock Portfolio Optimization Tool

Jul 2017

Skills: *Python, Scipy*

- Created a program that uses gradient descent to maximize the Sharpe ratio (maximizes returns adjusted for risk) of a given set of stocks.
- Program takes stocks to be considered as input, initializes a random starting point, then minimizes the negative Sharpe ratio of the overall portfolio with the constraint that the stock distributions must add up to 1.
- Returns the proportion of each stock that you should buy. Only uses historical data without directly making predictions on the future Sharpe ratios.

Gyft Chrome Extension

Sep 2017

Skills: *Javascript*

- Created a chrome extension to save the user money using the following; when people get gift cards they don't want they sometimes sell the cards on third part websites (such as eBay) at a discount.
- The plugin searches eBay for gift cards applicable to current website to effectively give the user free money.

RELEVANT SKILLS

Programming languages: Java, Python, HTML/CSS/JavaScript, C/C++

Technical Skills/Libraries: Git, React, Bootstrap, Node.js/Express

ACTIVITIES

Undergraduate Computational Finance

February 2018 - Present

- Give multiple trading strategy pitches each semester based on both fundamental analysis and quantitative signals
- Latest pitch involved analyzing some unconventional volatility signals, including share buybacks, hedge fund positions in commodity futures, and web search interest in a company.