

Binjie Luo

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SKILLS Ruby, Rails, Java, C++, Python, React, Redux, SQL, PostgreSQL, HTML, CSS, JavaScript, jQuery

EDUCATION

Boston University - MS Mathematical Finance, 2017-2019

China University of Geosciences - BS Information & Computing Science, 2013-2017

Relevant Coursework: Data Structure, Database Principles, Computer Network, Principles of Operating

Systems, JAVA Programming, C Programming, Neural Networks, Computer Graphics, Information Security

App Academy - 2019 - Rigorous 1000-hour software development course with <3% acceptance rate

PROJECTS

PinValley (Rails, Ruby, ReactJS, Redux, PostgreSQL, AWS)

A faithful Pinterest clone

- Designed schema that includes join table to allow flexible combination between pins and boards, where one pin is allowed to have different information when it's in different boards.
- Minimized load time by avoiding n+1 queries for through association on AWS by preloading them in one query.
- Reduced backend queries and bandwidth speed requirements by introducing infinite scroll on feed page with pagination control on rails backend and React-Waypoint on frontend, requesting 5 pins each time.
- Implemented an algorithm in rails backend that allowed user-associated pins to be shown in the feed page.
- Utilized AWS S3 to allow users to upload, preview and remove a photo while creating a pin.

Give It Up! (Javascript, HTML5, Canvas)

A side-scrolling game inspired by a mobile game "Give It Up"

- Created top-level music player using HTML5 audio, giving the user seamless audio streaming during game.
- Developed collision detection algorithm for sprite characters, and integrated with keystroke event listeners to handle the jumping process.

PCA-Based Statistical Arbitrage Strategy (Python, pandas, numpy)

A stock trading strategy based on PCA statistical arbitrage

- Independently built up back-testing system to run the strategy on 30 years of price data for 500 stocks.
- Modelled residuals of 9 sector ETFs as mean-reverting process, leading to contrarian trading signals.

Efficient Simulation under Heston Dynamics (R)

A project that analyze the efficiency of simulation under Heston dynamics

- **Milstein Scheme:** Developed Milstein scheme to discretize Heston stochastic differential equation, which increased accuracy of 20% compared to the Euler scheme.
- **Control Variate:** Reduced look back option variance by 50% using European call options as control variates, with a correlation of 0.75.

EXPERIENCE

Quantitative Analyst Intern

Infore Capital

Feb 2017 - July 2017

- Defined two efficient metrics to monitor the operating conditions of TAL Education Group.
- Conducted web scrape (R) on TAL's website, acquired 135000 observations of 11 variables.
- Performed multi-asset performance attribution analysis (R) based on the Brinson Model, best solved the problem of actively changing positions.