Eugene Brodsky

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>> Education

University of California, Berkeley • BS in Applied Mathematics (Computer Science Submajor) • 2017 – 2021

Coursework: Structure and Interpretation of Computer Programs, Data Structures, Algorithms, Security, Numerical Analysis, Social Justice in CS, Discrete Math, Linear Algebra, Abstract Algebra, Real Analysis, Complex Analysis

Associations: Mu Alpha Theta, Cal Tennis

>> Projects

Personal Website: https://eugenebrodsky.me

Horse

Social/Competition iOS app. Connects users via proximity and facilitates games of "horse". • Server utilizes a normalized MySQL database to efficiently store and lookup friendship relationships, game sessions, and user data. Wrote SQL procedures to optimize database usage. • Developed a RESTful API using Express on backend and Alamofire on client. • Utilized CoreLocation for iOS clients to update their location to the backend. Server performs queries to return nearby users using haversine formula. Used MapKit to display nearby users. • Integrated JWT for session tokens allowing for authentication on protected routes. Supports client token storage with NSUserDefaults. • Created bash scripts to support the development environment.

Technologies: Node, MySQL, Express, JSON, JWT, Bash, CoreLocation, MapKit, Alamofire, NSUserDefaults

cScraper

Built a Craigslist scraping tool which alerts users about new Craigslist posts real time via email or iMessage resulting in a 66% improvement in high value item acquisition. • Used Beautiful Soup library to parse HTML and isolate unseen Craigslist posts • Builds and sends emails with an SMTP library. • Implemented new thread creation to allow for continued scraping while also listening for new requests. • Communications between backend and web app with Requests and Axios respectively. • Challenged with finding the "sweet spot" relating to the time interval between Craigslist queries – a long interval is sluggish in updating users about new posts, while a short interval results in a Craigslist IP cooldown.

Technologies: Python, Flask, BS4, Threads, JSON, Node, VueJS, Bootstrap, Axios

PintOS

Worked with a team of 4 to implement solutions for a skeletonized LinuxOS. • Implemented multithreading in C with synchronization primitives to control shared resources. • Wrote in Assembly to manipulate stack in preparation for thread creation while adhering to x86 architectural constraints.

File Sharing

An interface for an end-to-end encrypted file sharing system given only a trusted public key-store and an adversarial controlled key-value storage server. • Invented a data structure which serves to enforce file ownership and privileges. • Devised design which supports efficient file appends. • Written in Go, reported 100% security coverage. A U.C Berkeley project.

RaceRunner

2D tile-based game in Java. • My main contribution to this project was designing a pseudo-random world generation algorithm, which locates the "largest" empty space by making use of a KD-Tree and placing a structure of the right size. • Implemented game persistence by saving keypress data to file for future loading. • Other contributions – race mode, game architecture, and graphic design. U.C Berkeley project.

SkaDice

A random skateboard trick generating app written in Swift for iOS. • Constrained UI layout for a consistent look across devices. • Interactive GUI – rotating "knob" which serves to select menu options and create a unique user experience.

>> Proficiencies

Languages - Python, JavaScript, Swift, SQL, Bash, HTML, CSS,

Tools - Git, Xcode, Docker, Vi, Postman

Services/Frameworks/Runtimes/Libraries - Firebase, Github, Flask, Express, React, VueJS, NodeJS

Misc - data structures, algorithms, security, UX, computer science, responsive web design, object oriented programming.

>> Experience

Institute of Transportation Studies at U.C Berkeley • Website Admin   Jan 2019 - June 2019

Managed incoming data for ITS website. Restructured WordPress website to reflect ITS organizational changes and improve accessibility. Founded new processes for streamlining office routines and record keeping resulting in more productivity and less paper waste. Coordinated with guest lecturers in their lodging and accommodations while at U.C Berkeley.

Dyson • Sales Representative   June 2015 - Jan 2017

Worked in a team to promote the Dyson brand throughout the Bay Area. Conducted technical demonstrations and solved customer issues. Designed product display tools. Awarded employee of the month in November 2016. Consistently a top performer.

Mu Alpha Theta Honors Society • Club President

Hosted club meetings and promoted math club events. Corresponded with guest speakers to secure lectures. Developed incentives with instructors to boost math club turnout. Event rooms changed to comply with fire codes due to exceeding the maximum occupancy limit.