James Cai

Software Engineer

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Education

Brown University
2019 - 2023

Sc.B in Applied Math and Computer Science

- **GPA**: 4.0
- **Relevant Coursework**: Functional Programming, Discrete Structures and Probability, Object-oriented Programming, Design and Analysis of Algorithms, Deep Learning, Computer Systems, Software Engineering, Statistical Inference

Experience

GT Ubicomp Lab - Undergraduate Researcher
May 2020 - Sep. 2020

- Worked with Professor Gregory Abowd on a WiFi based contact tracing project that aims to use WiFi data from phones to assist contact tracing efforts in large communities
- Implemented a graph based application that uses a database with WiFi data from access points to determine all collocations within the Georgia Tech campus
- Analyzed extremely large datasets with Python using Pandas, Matplotlib, and Seaborn to produce models on infection rates and disease spread

ZF Friedrichshafen - Software Engineer Intern
May 2018 - Aug. 2018

- Used C# and Java to develop a mixed reality interface for the Microsoft Hololens to be used by delivery vehicle drivers
- The system was implemented so that the Hololens could receive delivery route data from a server and display relevant information on its interface

Projects

MediCount
A pill counter that reminds users when to take their medication

- Used an Arduino and Raspberry Pi to build a device that monitors the pill bottle weight and detects weight changes in the pill bottle to indicate when pills have been taken
- Device lights up when it is time for the user to take their medication and fades when the medication has been taken

Wiki Search Engine
Pagerank based search engine

- Used Scala to create a search engine that implements the pagerank algorithm to increase accuracy of searches on wikipedia pages saved in a xml format

Machine Mashups
Using neural nets and transformers to create song mashups

- Built using a deep learning model that uses a attention based transformer network to create a song mashup given two input songs
- Trained on audio files from existing mashups collected from YouTube
- Technologies used include Python, Tensorflow, and Keras

Skills

Languages Java, Python, C, C#, Scala, ReasonML, Javascript

Web HTML, CSS, React

Misc Git, LaTeX, Tensorflow