Catherine Tan

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SUMMARY

Seeking a software engineer intern position in summer 2023.
Junior in Computer Science with various project experience in full-stack web and mobile application development. Strong knowledge of programming, mathematics and data science, and solid programming skills in **Java**, **Python** and **Go**. Hands on experience with **Spring**, **Hibernate** and **React**.

EDUCATION

University of Wisconsin-Madison   Sep 2020 - May 2024
B.S in Computer Science, **GPA**: 3.92/4.00, **Dean's List**   Madison, WI
Courseworks: Advanced Algorithms, Data Structure, Computer Architecture, Artificial Intelligence, Java/Python Programming, Object-Oriented Programming, Data Science Modeling, Discrete Mathematics, Linear Algebra
Activities:Board Member of ACM's Women in Computing; Planned and chaired biweekly discussions about CS.

SKILLS

Programming Languages: Java, Python, C/C++, Go, R, Javascript, MATLAB, SQL
Framework and Database: Spring, Hibernate, React, HTML, CSS, REST APIs, Flask, ReactJS, React Router, Node.js, D3, ElasticSearch, MySQL, Spring Boot, Bootstrap, JetPack, Tensorflow, Pytorch
Tools: AWS, Git, VS Code, Linux, Pycharm, IntelliJ, Eclipse, Android Studio, Visual Studio

WORK EXPERIENCE

Computational Design and Manufacturing Lab   Jan 2022 - Present
Undergraduate Research Assistant   Madison, WI
· Collaborated with **3** teammates to conduct research about the optimized design of structure composed of stiff material based on convolutional neural network under the supervision of Professor Qian.
· Built **CNN** model by utilizing **Tensorflow** and **Python** libraries to predict the compliance and volume of the structure.
· Generate **10K** data samples using **MATLAB** and normalized data to improve accuracy from **76.43%** to **97.86%**.

Zhoushan Oceanthink Marine Science and Technology Co., Ltd   Jun 2021 - Aug 2021
Software Engineering Intern   Zhoushan, China
· Designed and developed an application for marine ecological data visualization based on **Android**.
· Implemented **Rest APIs** in **Java** including the display of real time and past hydrologic data in graphic form.
· Utilized the **MVC** function to loosely decouple all the components in the application and improve efficiency.
· Created a **MySQL** database to store user data and allow various operations such as adding and removing information.
· Deployed the App to Android store, which is accessible to over **100+** marine ranches.

PROJECTS

Full Stack Web Development for Online Food Ordering System   Jun 2022 - Aug 2022
· Improved efficiency by utilizing **Spring MVC** to implement **Rest APIs** that have features of food ordering.
· Created a **MySQL** database to store user data and utilized **Hibernate** to realize better database operations.
· Provided both authentication and authorization via **Spring security** to protect the application from malicious attacks.
· Built the client side with **ReactJS** and **Ant Design** to allow users adding items to the shopping cart and place orders.
· Deployed the application to **Amazon EC2** for better scaling.

React and Cloud based Web Application for Social Network   Mar 2022 - May 2022
· Build a user friendly social web application by using **ReactJS** that allow creating and searching posts.
· Improved authentication using **JWT** token based registration/login/logout flow with **React Router v4**.
· Improved efficiency by using machine friendly **Go** language to handle posts and deployed to **Google Cloud**.
· Utilized **ElasticSearch** to optimize search functions such that users can search recent posts.

React JS based Visualization Dashboard for Starlink Trajectory   Nov 2021 - Dec 2021
· Developed a visualization dashboard using **ReactJS** and **D3** to track satellites in real-time based on geo-location.
· Built locations, altitudes, and durations based selectors to refine satellites search.
· Improved user friendliness by using **D3** to animate selected satellite paths on a world map.
· Deployed the dashboard to **Amazon Web Service** for demonstration.

Personalized News Recommendation App on Android   Sep 2021 - Nov 2021
· Designed the Instagram Flavor News app based on **Google Component Architectural MVVM** pattern.
· Implemented the bottom bar and page navigation using **JetPack** navigation components.
· Utilized 3rd party **CardStackView (RecyclerView)** to support swipe gestures for liking/disliking the news.
· Built the Room database with **LiveData** and **ViewModel** to support local cache and offline mode.
· Integrated **Retrofit** and **LiveData** to pull the latest news data from a **RESTful** endpoint (newsapi.org).