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ROBIN LIAO

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RESEARCH AND WORKING EXPERIENCE

Steinberg Hart **San Francisco, CA**

Software Engineer *Fall 2019 – Winter 2020*

- Delivered construction models by using 3D modeling tools **Revit** based upon architectural code and design decisions.
- Developed internal automation modeling tools using **Dynamo** (**Java**) with 70% improvement for modeling processes.
- Built **python** scripts used across the company to automate the data transformation from database to modeling platform **BIM360**.
- Lead a team in providing **parametric design** solutions for various scale projects within the architecture studio, and support creation computational tools for firm wide use.

Design management web application

- Implemented and managed a **web application** for clients to manage their interior design service request, furniture orders, and track order status by using **Spring Boot**, **Hibernates**.
- Designed a data pipeline to inject the data into **MongoDB** database by utilizing **Spring** framework in Java for **CRUD** development.
- Providing a visualization portal for clients and designers to view and perform data analysis based on queries using **Tableau**.
- Developed automation test framework based on **JUnit** and **Mockito** to increase the system stability.

Draw Your Home Android App

- Designed and developed an **Android App** for online home design solutions for users to create and visualize their design.
- Implemented user interface, authentication, networking, storage, caching, etc., and optimized the app's real-time rendering performance.
- Build a relational database (**SQLite**) with CRUD operations and using **RESTful API** to improve the efficiency, also work on performance monitoring and profiling.
- Implemented a **crawler** to fetch real-time design solutions, implemented a ranking algorithm to provide personalized recommendation to customers.

University of Michigan **Ann Arbor, MI**

Research Assistant *Fall 2017 - Spring 2019*

Taubman College of Architecture + Urban Planning

- Deployed a computational and fabrication workflow in parametric foam tile using **robotic arm** in the Digital Fabrication Lab.
- Developed a hair simulation application using **Grasshopper** in 3D modeling tool (**Rhino**) to simulate hair generation for real-time rendering with 50% efficiency improved.
- Designed and implemented an efficient and extensible **data visualization** framework with interactive **GUI** components from three different data sources to visualize the passenger space-time flow fluctuation.
- Deployed an **iPad AR** application with **interactive UI** to display the rendered architecture model in preprocessed surfaces.

LANGUAGES AND TECHNOLOGIES

Java; JSON; Python; JavaScript/HTML/CSS; C#; SQL/MySQL;
Android Development; React JS; Spring Boot; Maven; Hibernate; Microsoft SQL Server; Unity; Apache Tomcat;

PUBLICATIONS

An Anonymous Composition

- Proposed and developed a methodology to generate 3D models with specific architecture style using **machine learning** algorithms.
- Designed and trained a **GAN neural network** that simulates the parametric-defined 3D design with predefined architecture styles.
- Published in **ACADIA** 2019, one of the most important conference for Computer Aided Design in Architecture.

EDUCATION

Georgia Institute of Technology **Summer 2020 - Present**

- Master of Science in Computer Science

University of Michigan **Fall 2017 – May 2019**

- Master of Architecture, Architecture and Building Science/Technology

Xi'an Jiaotong-Liverpool University **Fall 2012 – May 2016**

- Bachelor of Engineer, (First Class Honors), Top 5%

Graduate Coursework: Software Architecture and Design, Software Development Process, Graduate Algorithms, Database Systems, Computer Networks, Big Data Analytics, Machine learning, Reinforcement Learning