Fangchen Ye

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EDUCATION

Columbia University — **New York, NY, US**
Master of Science in Computer Science — *05/2022*

Sun Yat-sen University — **Guangzhou, Guangdong, China**
Bachelor of Engineering in Intelligence Science and Technology — *06/2020*

SKILLS

***Programming Languages*:** C++, Python, Java, SQL, MATLAB, JavaScript, Scala, QT
***Framework Tools*:** Spring Boot, MyBatis, Tensorflow, Pytorch, Keras, Vue.js, Flask
***Development Tools*:** Visual Studio, Clion, Pycharm, Jupyter Notebook, Docker, Git, Anaconda, QT Creator, Postman, Datagrip, MySQL
Knowledges: Data Structures, Algorithms, Machine Learning, Calculus, Probability Theory
Awards: Second Prize Scholarship (top 10%)

PROFESSIONAL EXPERIENCE

PAX Technology — **Jacksonville, FL, US**
Software Engineer — *01/2023-present*

- Developed Basil System for the warehouse project with **Spring Boot** and **Vue.js** framework. Implemented functions in service layer to finish the operations of **CRUD** in databases for recording and managing the equipment returned by customers and the materials needed for repairs.
- Designed and implemented the email format for sending email alerts to users who register and change their information using the APIs provided by **Syspro** and asynchronous programming.
- Reconstructed interfaces to prevent **SQL injection**, optimized data table structures, utilized **multi-threading** and other techniques to reconstruct **SQL** codes and saved about 30% of query time.
- Developed Automation Test Tool for tests of terminals with **Java**.

Cadence Design Systems — **Shanghai, China**
Software Engineer Intern — *06/2021-08/2021*

- Utilized **C++** to optimize grid-based router structure at the software level, modified M0 jumpers, enabled the sources to avoid high resistance and improved efficiency of circuit flows.
- Applied **A-star** Algorithm for finding the shortest route between two points and optimized data structures, which saved 6% time on large-scale nets and utilized **QT Creator** to design user interfaces.

DiDi AI Labs — **Beijing, China**
Software Engineer Intern — *07/2020-12/2020*

- Conducted research related to **Auto Machine Learning**, especially on **Neural Architecture Search (NAS)** and **DARTS** to help the team calculate the feasibility of each model ported to mobile device.
- Reproduced different models with **Pytorch** and conducted performance benchmarking based on top-1 and top-5 accuracy on **ImageNet** or **Cifar-10**, in terms of parameter sizes, and training time of GPU hours.
- Figured out new metrics like search space of width and depth, and types of blocks to develop the optimal model for mobile computing that improved 11% overall performance.
- Summarized characteristics of each model and wrote an overview, providing the laboratory with a theoretical basis for research on automatic driving in the future.

PROJECT EXPERIENCE

BuzzCar: Used Car Platform — *09/2023-12/2023*

- Utilized **UML Class Diagrams** to design Figma of all objects.
- Designed and implemented database with **SQL**, designed **RESTful API** rules for **URLs**.
- Implemented backend development of all APIs with **Java** using **Spring Boot**.
- Utilized **JavaScript** called APIs in frontend and presented data with **HTML** and **CSS**.
- Wrote **unit test** codes and tested the output with **Postman**.

Segmentation of White Matter Hyperintensities — *07/2019-09/2019*

- Conducted segmentation of brain **FLAIR** and **T1** scan images using neural network models of **DeepMedic**, **FCN** and **ResNet** with **Keras**, and marked the part of white matter hyperintensities (WMH).
- Pre-processed the same raw data by removing masks in different parts like skulls and tested the effects that removal of skull masks improved **Recall** by 5% for **FCN** and **F1-score** by 10% for **DeepMedic**.
- Implemented the models of **FCN** and **DeepMedic** on images of patients with size 224*224 to identify white matter hyperintensities, which largely saved preparation effort and increased diagnostic accuracy.