Haoyang Ma

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EDUCATION

Duke University   **Durham, USA**
Master of Engineering in Artificial Intelligence   Aug. 2023 – Jan. 2025 (Exp.)
Tongji University   **Shanghai, China**
Bachelor of Engineering in Software Engineering   Sept. 2019 – Jun. 2023

- **GPA:** 91.8/100
- **Main Courses:** Machine Learning, Computer Vision, Automatic Speech Recognition, Algorithms Design and Analysis, Combinatorics, Discrete Mathematics, Data Structures, Operating Systems, Computer Network

TECHNICAL SKILLS

Programming: C/C++, Python, C#, Java, Matlab, JavaScript
Frameworks/Library: PaddlePaddle, PyTorch, Scikit-learn, NumPy, Pandas, SpringBoot, Vue, PureMvc, Flask
Tools: Unity, MySQL, Latex, Keil,
Deep learning: Object Detection, Stable Diffusion, Image Segmentation, Model Quantization

INTERNSHIP

Baidu, Deep Learning Technology Platform Dept.   **Shanghai, China**
AI Heterogeneous Computing Intern   Aug. 2022 – Aug. 2023

- Participated in research and development of the inference framework for a deep learning platform (PaddlePaddle); verified and optimized the compatibility of Baidu's Paddle Lite model and operator, etc., on ARM CPU multi-architecture
- Optimized the Paddle Lite operators, inference speed and precision of Stable Diffusion in different hardware such as CPU, NPU
- Analyzed and synthesized functionalities and use cases of PaddlePaddle operators, implemented operator decomposition at the Kernel Level, developed and executed precision validation through unit testing
- Upgraded and optimized PaddlePaddle 2.x framework; enabled zero-dimensional input support for 6 PaddlePaddle operators; decoupled 10 API interfaces of Paddle 2.x from fluid API/functions, conducted comprehensive precision testing of PaddlePaddle 2.0 operators

Invix Information Technology Co., LTD   **Shanghai, China**
Full-stack Engineer Intern   Jun. 2022 – Aug. 2023

- Developed the file transfer module of breakpoint continuation by using the busboy file stream parser; implemented the transmission between the Android front-end and back-end, back-end receiving and cloud storage; established the communication between the mobile device and the cloud server
- Developed key information display page of the panoramic map with Vue to implement the web side map display that allows users to view the housing scene remotely
- Integrated and tested the Android smart inspector program and Insta camera SDK

RESEARCH PROJECTS

Lane Line Recognition Based on Deep Learning   **Shanghai, China**
Directed by Prof. Rongqing Zhang   Mar. 2022 – Jun. 2022

- Determined four methods based on studying lane line recognition related papers
- Reimplemented and verified edge detection+Hough transform, Unet, UltraLane, YOLOP, PolyLane, and analyzed the pros and cons of each algorithm
- Proposed a multi-task fusion network and designed a common encoder for sharing with ResNet18/34
- Adopted UltraFastLane as the decoder of lane detection; used Unet as decoder for arrow segmentation
- Achieved lane detection precision of 0.69, and the model inference speed of 10.51s/50iters; achieved arrow segmentation precision of 0.73
- Designed the web interactive interface with three functions: image recognition, video recognition and real-time recognition, which improved the user experience