Honglei Liu

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EXPERIENCE

SHAN LIN'S RESEARCH GROUP | Research Assistant

Aug 2020 – Dec 2020 | Stony Brook, NY

- Review provided papers and code. Be familiar with the proactively partial charging algorithm and rework the current simulation program to fit the NYC taxi data set.
- Retrieve Newark request attributes from government website. Perform feature extraction and correlation analysis on the retrieved data.

EXSCALLAB AT IACS | Research Assistant

Jan 2020 – May 2020 | Stony Brook, NY

- Reviewed the LLVM/OpenMP documentation and the source code to be familiar with LLVM coding standards.
- Optimized the omp_target_memcpy() functionality by enabling new variables in libraries representing vendors of GPUs and introducing additional conditions for vendor comparison.
- Further optimized the functionality by finishing the GPU vendor check at lower level. Offered support until LLVM organization accepted the patch.

SELECTED PROJECTS

MACHINE LEARNING COURSE PROJECT

- Implemented K-Means, DBSCAN and Decision Tree algorithms and perform visualization on Iris and Abalone data set.
- Performed feature extraction and correlation analysis on FHR and Uterine Contraction data sets.
- Performed CNNs on MNIST data set for image classification. Develop a simple calculator that allowed hand written input.

TURN-BASED STRATEGY GAME

- Construct 2D game board and entity and designed GUI for initial screen and game play via Pygame. Implemented built-in module to accept user input.
- Implemented A-star searching algorithm and applied step constraints for AI opponents.
- Designed FSM (finite state machine) for switching players' turns and win/lost states.

SELF-DRIVING CAR PROJECT

- Designed PCB for the self-driving car using EAGLE. Minimized the routing interference and size.
- Performed multi-ROI capturing algorithm for OpenMV components. Developed PID controller to control the car speed dynamically. Extended the program with stop-sign recognition.
- Tested the speed for the car and optimized the detection accuracy.

WIRELESS SYNCHRONIZED ROBOTIC ARMS

- Designed modules for continuously recognizing and storing joy-stick motion.
- Developed RESTful API for communication between TI embedded system boards and AWS. Established Connection between two boards via WIFI. Implemented queues to eliminate loss.
- Designed modules for manipulators to perform the given order from joy-stick.

EDUCATION

STONY BROOK UNIVERSITY, SUNY

Master of Science
Computer Engineering
2019 - 2020 | Stony Brook, NY
Cum. GPA: 3.57 / 4.00

UNIVERSITY OF CALIFORNIA, DAVIS

Bachelor of Science
Computer Engineering
2015 - 2019 | Davis, CA

SKILLS

PROGRAMMING LANGUAGE

Python
C/C++
Java
JavaScript

TECHNOLOGY

• Keras • Tensorflow
• Git/Github • Linux/Unix
• Node.JS/Express.JS
• PostgreSQL/SQLite
• Django • RESTful API

COURSEWORK

GRADUATE

Hardware/Software Co-Design
System Spec and Modeling
Machine Learning
Image Processing

UNDERGRADUATE

Operating System
Data Structures
Algorithm Analysis
Embedded System

LINKS

Github:// **Honglei Liu**
LinkedIn:// **Honglei Liu**