Xuan (Kate) Xiao

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EDUCATION

Cornell University, College of Engineering, Ithaca, NY **Dec 2018**
GPA 3.60 Master of Engineering, Electrical and Computer Engineering

Northwest University, Department of Physics, Xi'an, China **Jul 2017**
GPA 3.61 Bachelor of Science, Optoelectronic Information Science and Engineering

Relevant Courses: Machine Learning (Python), OO Programming & Data Structure (Java), Algorithms, Computer Systems (C++), Database (SQL), Operating Systems (C/Python), Computer Vision (C/Python), Embedded OS (Unix)

INDUSTRY EXPERIENCE

Cadence Design Systems, San Jose, CA, *Software Engineer Intern* **May-Aug 2018**

- Worked on memory improvements of the current Tempus Timing Analysis Tool.
- Designed a Timing data classifier with Python. Further converted the classifier into C++ for performance.
- Compressed output timing data into smaller format for in-memory storage optimization.
- Wrote bash scripts to post-process testing data and generate analytical graphs.

ENGINEERING EXPERIENCE

Wave-IoT Sensors Platform, San Francisco, CA **Fall 2018 - Now**

- Working on next generation Internet of Things platform. Developed full stack features such as showing real time updating temperature graphs from remote sensors using Go, GraphQL, React / Javascript.
- Designed IoT message structures with Protobuf. Helped with setting up MQTT broker server and message parsing worker. Modified SQL schema to accommodate new changes in the proto messages.
- Helped with setting up docker-compose script for the entire project to optimize build and deploy process.
- Wrote Python scripts to mock sensor messages.

Project: Simulated Autonomous Driving System, Ithaca, NY **Fall 2017**

- Built a Road Condition Classifier using Artificial Neural Networks. Trained the classifier to recognize road properties (straight/curved) as well as traffic signs (stop sign, traffic lights).
- Constructed a simulated driving environment with curve roads and miniature traffic signs. Assembled a RC car with Arduino, Raspberry Pi w/ camera, Radio controllers and actuators. Deployed pre-trained classifier on RPi.
- Further augmented the system by introducing ultrasonic sensors and basic obstacle avoidance algorithm.
- Achieved autonomy so that the RC car can drive autonomously in the simulated environment, avoid all objects and obey traffic laws.

Project: Handwriting Recognition System, Ithaca, NY **Apr 2018**

- Implemented Brute-Force K-Nearest Neighbors method along K-D tree in C++ from scratch. Designed the underlying data structure for storing digit images and getting processed by the model.
- Achieved 94% on MNIST dataset using bare-metal K-Nearest Neighbors method. Further pushed the accuracy to 97.3% by switching to more sophisticated CNN models in TensorFlow.
- Sustained the accuracy to around 97% when introducing noise and distortion to the test data by fine tuning the CNN model parameters.

Project: Tree Ring Counter, Ithaca, NY **Fall 2017**

- Created an image filter that processes images of tree rings. Designed an algorithm that counts and estimates the age of the tree using the preprocessed tree ring images using OpenCV.

SKILLS

Programming Languages: C/C++, Java, Python, Go, Javascript, Bash
Machine Learning: Keras, scikit-learn, TensorFlow