Yilun Xie

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Objective

Prospective graduate student in Computer Science major with strong skills in coding and robust background in machine learning, computer architecture and AIOps. Looking for **Internship position** with a focus on **software engineering** in Summer 2021.

Education

Duke University | Durham, NC August 2020 -- Present
M.S. Computer Science

Georgia Institute of Technology | Atlanta, GA August 2016 -- May 2020
B.S. Computer Engineering Major GPA: 3.91, Overall GPA: 3.8
Minor in Computer Science (Artificial Intelligence)

Experience

Georgia Institute of Technology | Atlanta, GA *August 2018 – August 2019*
IEEE Tutor | Electric and Computer Engineering Department
Teach programming for undergraduate students

- Teaching undergraduate students programming skills and fundamentals of data structure and algorithms, which improves their understanding of the course material and polishing of their C++ programming ability.

Chinasoft International Ltd. | Beijing, China June 2020 – August 2020
Cloud Software Engineer Intern
Develop AI tools that can perform root cause analysis automatically for large scale cloud systems, replacing human IT experts

- Construct CNN to train monitored history data over a specific period of time, achieving over 90% of accuracy for anomaly detection.
- Use genetic algorithms to find the weighted balance between the traditional IT method and new AI tools, making the system more robust.

Research & Projects

Synergy Lab *January 2019 – May 2020*
Implement machine learning algorithms and build computer system optimized for DNN operation on the edge

- Build low cost system using Raspberry Pi and Intel Movidius optimized for deep neural network operation to replace traditional computers with large form factor.
- Run image classification module on the raspberry Pi with Intel Movidius stick, increasing the performance by 800%.
- Use distributed learning technique (NEAT) to enable DNN training/fine-tuning on the edge devices.

Active safety for Autonomous and Semi-autonomous vehicles *January 2018 – January 2019*
Develop algorithms for RC car that ables it to drive like an expert human driver.

- Researched and implemented autonomous driving algorithms with computer vision and machine learning algorithm. Collaborate with teammate to build the car using Raspberry Pi and Arduino.
- Successfully achieve autonomous driving on a RC car with onboard processing in a controlled environment (indoor track).
- Implemented the self-driving algorithm by mapping the virtual axis into the real-world axis, increasing the processing speed from 4 FPS to 15.

Superscalar Pipelined Processor Simulator March 2019 -- May 2019
Implement out of order execution in a superscalar pipelined processor with speculative execution and cache management

- Construct a simulator for an out-of-order superscalar processor that dispatches F instructions per cycle and uses the Tomasulo algorithm with a scheduling queue comprised of reservation stations.
- Implement a Gshare branch predictor to support speculative execution
- Implement a basic direct mapped L1 Data Cache to speed up store and load instructions.

Publication

Characterizing the Deployment of Deep Neural Networks on Commercial Edge Devices *June 2019 – November 2019*
R. Hadidi, J. Cao, Y. Xie, B. Asgari, T. Krishna, H. Kim
2019 IEEE International Symposium on Workload Characterization (IISWC) | Orlando, Florida

- Analyze DNN frameworks and their impact on performance on edge devices. Measure energy consumption and temperature behavior of these edge devices.

Skills

- **Programming:** Python, C, C++, Java, JavaScript, HTML, CSS, OpenMP, MPI, OpenGL, VHDL, MATLAB
- **Concept:** Machine Learning, Data Structure and Algorithms, Computer Architecture, Deep Neural Network, Networks, PCG
- **Hardware:** Raspberry Pi, Arduino, ARM mbed microcontroller, Edge TPU, Movidius Stick, FPGAs, oscilloscope, logic analyzer
- **Software:** Linux**,** Pytorch, Tensorflow, Café, Android Studio, Altera Quartus II, OpenCV, GitHub, Jekyll, React
- **Languages:** Chinese (native), English (fluent)