John Tsai
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EDUCATION

Washington University in St. Louis (WUSTL) May 2017**,** St. Louis, MO
M.S. in Computer Science *GPA: 3.80/4.0*

National Chiao Tung University (NCTU) Sept. 2014, Taiwan
M.S. in Computer Science and Engineering

National Chiao Tung University (NCTU) June 2012, Taiwan
B.S. in Computer Science and Information Engineering

TECHNICAL SKILL

Programming: C/C++, Python, Shell Script, Java, JavaScript, Jquery, PHP, HTML, PostgreSQL, MySQL, MongoDB, NodeJS, AngularJS, Swift
Tools: Git, SVN, GDB, Make, Eclipse, Xcode

WORK EXPERIENCE

Clean Net Corporation St. Louis, MO
Software Engineer Intern June - Oct. 2017

- Developed a real-time intrusion detection and network security monitoring system based on open source Suricata and Bro
- Design Yara rules, Suricata rules, and Bro scripts to detect malware packets and extract files over different internet protocols
- Developed tools in Python and Shell Scripts to assist other team in evaluating system performance
- Integrated the system with our own product 40GbE network security board on server to achieve high speed data processing

National Chiao Tung University (Collaborate with United Microelectronics Corporation) Hsinchu, Taiwan
Research Engineer Sept. - Dec. 2014

- Developed a C++ trace-driven simulator based on the architecture of two C/C++ open source - DineroIV and DRAMSimII
- Developed a configurable interface for the simulator in order to simulate different product specs provided by UMC
- Proposed solution for DRAM cache which reduces data access latency by 16.9% and improves energy efficiency by 46.4%

PROJECTS

Smart Home System ***WUSTL, Spring 2017***

- Developed a real-time IoT service to remotely control appliances and monitor home conditions. Built communication among server, client, and IoT devices using Amazon IoT API, AWS Python SDK, and NodeJS SDK. Developed a real-time displaying and controlling panel website using Node.JS and Socket.IO. on Amazon EC2. Developed wireless mesh network for each IoT device via Linux shell scripts to reduce internet restrictions and achieve maximum adoption
  Technologies used: NodeJS, Socket.io, Amazon IoT, Amazon EC2, Wireless Mesh Network

Space Hero iOS Application ***WUSTL, Spring 2017***

- Developed an iOS shooting game app by exploiting SpriteKit framework. Players could control object using iPhone built-in motion/gravity sensors. Players could also share text message and their score on Facebook and Twitter
  Technologies used: SpriteKit, Facebook API, Twitter API, Swift

Wireless Energy Performance Model ***WUSTL, Spring 2016***

- Developed a system to monitor energy consumption for solar decathlon house. Modified commercial meters to extract recorded data such as power, gas, and water usage via Adafruit_Python library. Developed application on wireless sensor TelosB in nesC to collect ambient stats and transfer data wirelessly. Developed GUI to show the statistic results.
  Technologies used: TinyOS, nesC, Adafruit_Python library, Java Socket Programming

Student Study Platform ***WSUTL, Spring 2016***

- Developed an online study platform on Amazon EC2 and used MongoDB as our database. Built online chatroom using NodeJS and Socket.io so that users could send instant messages with each other. Evaluate the performance by using benchmark to stress Apache and compare Apache web server on different types of AWS instance
  Technologies used: NodeJS, Socket.io, AngularJS, Amazon EC2, MongoDB, Bootstrap

Portfolio Selection Strategy ***NCTU, Spring 2012***

- Developed a mutual fund investment management system to assist users in selecting portfolio. Designed fitness function of genetic algorithm and ran on over one million of input data scraped from financial websites. Results show our strategy is positive for average case, and could still win someone who picks portfolio randomly for worst case.
  Technologies used: Genetic Algorithm, Data Scraping, C++

PUBLICATIONS

S.C. Tsai, Y.K. Hao, P. Jendra, and T.F. Chen, "SAMS: A Self Adaptive Mapping Scheme to Assist Page Allocation for DRAM Energy Efficiency," in *International Conference on Circuits, System and Simulation* (*ICCSS*), 2015
http://www.ijeee.net/uploadfile/2016/0831/20160831073527171.pdf