Zhuangzhuang Zhou

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Education

- **Cornell University** — Ithaca, United States
  Ph.D. in Electrical and Computer Engineering. — *Sep. 2019 – Now*
  Computer Systems laboratory Advisor: Prof. Christina Delimitrou

- **Shanghai Jiao Tong University** — Shanghai, China
  Bachelor of Science in Electrical and Computer Engineering; GPA:3.63 (7/111). — *Sep. 2014 – Aug. 2019*
  Graduation deferred due to severe car accident in Mar. 2017.

Experience

- **Emerging Computing Technology Laboratory** — Shanghai, China
  Research Assistant — *Sep. 2017 – May. 2019*
  - Designed algorithms to automatically synthesize approximate circuits that could satisfy the error constraints.
  - Developed a modern object-oriented C++ interface for Berkeley ABC to facilitate the research. Created a logic simulator using bitwise operations, fixed-width integer types and topological sorting to close the performance gap.
  - Built up a network flow model with error impact decomposition to select the most optimal set of approximate local changes that could lead to global delay reduction.
  - Proposed DALS, a delay-driven approximate logic synthesis framework.

- **Wireless Networking and Artificial Intelligence Laboratory** — Shanghai, China
  Research Assistant — *Sep. 2017 – December. 2018*
  - Huawei Big Data Project: Performed data wrangling and pattern mining to analyze power usage of Huawei products. Used clustering algorithm to identify different user groups. Built and trained independent model for each user group to predict user ratings.

- **Cisco Systems** — Shanghai, China
  Software Engineer Internship — *Jan. 2018 – May. 2018*
  - Developed automated test scripts for 802.11 and 802.15.4 related products.
  - Got involved in the development of the Event-driven Test Automation Dashboard for IoT Systems and Software Group as a full-stack developer using Django Framework, pyATS, and Elasticsearch.

- **UM-SJTU Joint Institute** — Shanghai, China
  Teaching Assistant — *Sep. 2016 – Aug. 2018*
  - VG101 Introduction to Computers and Programming: Graded programming assignments and exams in MATLAB, C and C++. Held regular office hours and recitation classes.
  - VE281 Data Structures and Algorithms: Developed and maintained the Joint Online Judge. Involved in creating programming projects, exams and conducting recitation sessions.

Publications

[1] **Z. Zhou**, Y. Yao, S. Huang, S. Su, C. Meng, and W. Qian, "DALS: Delay-Driven Approximate Logic Synthesis", in *Proceedings of the 2018 IEEE/ACM International Conference on Computer-Aided Design (ICCAD)*, San Diego, CA, USA, 2018.

Awards

- Gold Medal, Undergraduate Category, ACM Student Research Competition at ICCAD 2018.
- First Place, Undergraduate Category, ACM Student Research Competition Grand Finals 2019.
- The Yu Liming Scholarship 2018 (top 1%).
- The Mong Man Wai International Exchange Fund 2018.
- The Fung Scholarship 2017.
- First Prize, National Olympiad in Informatics in Provinces (NOIP) 2011.

Projects

- **Joint Online Judge**
  - An online judge system used for programming related courses in the UM-SJTU Joint Institute. Developed using aiohttp, asyncio, MongoDB and etc.
  - Distributed judging daemons and asynchronous framework. Capable of handling high-concurrency judge requests.
  - Linux sandboxing facilities (cgroups) are used to ensure the safety of judging daemon.
  - Using Docker and Jenkins for swift deployment and continuous integration.
- **Hadoop Cluster**
  - Hadoop cluster automated deployment and configuration script for multiple host machines using Docker Stack.
  - Standalone Docker daemons are connected using overlay network of Docker Swarm.
  - Developed a file system storage plugin for Apache Drill to read and parse the dataset in HDF5 format.
  - Performed data mining, segment analysis on Million Song Dataset using Spark.
- **R-Net**
  - Tensorflow implementation of *R-NET: Machine Reading Comprehension with Self-matching Networks* for Stanford Question Answering Dataset (SQuAD).
  - Enhanced the model using scaled multiplicative attention and variational dropout.
  - Evaluated on CodaLab and got highest score in CS382 Natural Language Processing.
- **Pipelined Processor**
  - Pipelined implementation of MIPS computer in Verilog that support a subset of MIPS instruction set. Forwarding implemented in the pipelined structure to handle data and control hazards.
- **Lottery Scheduling in Minix**
  - Delved into the source codes of Minix to understand how userspace scheduling works.
  - Added more queues to the kernel round-robin scheduler to support lottery scheduling for user processes.
  - Implemented lottery scheduling algorithm in servers/sched by using nice values to pass ticket counts.
- **Interactive Shell**
  - A simple shell that supports many features including basic commands, additional arguments, I/O redirection, background processes, pipelining and error handling.
- **Magic Wardrobe**
  - An android application that can detect the type & style of user's clothes, and give corresponding match-up recommendations in waterfall style.

Skills

- **Languages**: Proficient in C, C++, Python, Shell. Exposure to Java, JavaScript.
- **Tools and Frameworks**: Exposure to Docker, MongoDB, Django, Pandas, Hadoop, Spark, Tensorflow and etc.