YANG PAN

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EDUCATION

Rice University Houston, Texas
Master of Computer Science *Aug. 2017 - Dec. 2018 (expected)*

Shanghai Jiao Tong University Shanghai, China
Bachelor of Science in Engineering, Automation *Sept. 2013 - June 2017*

EXPERIENCE

Performance and Capacity Engineer Intern @Facebook, Inc. Menlo Park, California
Supervised by Hao Shang, Infrastructure Foundation Team *May 2018 – Aug. 2018 (expected)*

· Built a general validation framework named "HeartBeat" for service health check and remediation, improving reliability of all system services in Capacity Engineering and Analysis group at Facebook.
· Flexible enough to allow users to configure the methods in services to validate, the validation frequency, the maximum latency, the input and expected output, and remediation steps to take when exception occurs.
· Supported cascaded validation on end-to-end systems involving multiple services and chain reaction.
· Automated the entire workflow, from periodic validation to remediation and logging information into database.

Research Assistant @Shanghai Jiao Tong University Shanghai, China
Advised by Prof. Jie Yang, Department of Automation *Dec. 2016 – June 2017*

· Studied image hashing and retrieval algorithms on large data sets, especially data dependent supervised hashing.
· Introduced additional constraints to the optimization problem of Latent Factor Hashing (LFH), and applied two-stage optimization method to maximize the penalized log-likelihood function.
· Introduced nonlinearity in regression models, and compared them using Akaike information criterion (AIC).

SELECTED PROJECTS

MyDB Database System Houston, Texas
Supervised by Prof. Christopher Jermaine *Jan. 2018 – May 2018*

· Implemented infrastructure of database system, including an LRU buffer manager and record management tools.
· Implemented two-pass multiway merge sort (TPMMS) algorithm, and B+ tree based on the infrastructure.
· Built an SQL front end with syntactic and semantic checking using flex and bison, together with a back end that excutes selection, projection, join (supporting scan join and sort merge join), aggregate and grouping operations.
· Implemented logical optimization using cost estimation, and physical optimization by annotating expressions.

Code Optimizer for ILOC Houston, Texas
Supervised by Prof. Keith Cooper *Mar. 2018 – Apr. 2018*

· Built a scanner with flex and a parser with bison for the intermediate representation language ILOC.
· Implemented super-local value numbering algorithm to reuse computed value, reducing about 8% of cycles.
· Implemented loop unrollling optimization that unrolls inner loops by a factor of four, reducing about 6% of cycles.

Reliable File Transfer and Intra-Domain Routing Protocols Houston, Texas
Supervised by Prof. T. S. Eugene Ng *Sept. 2017 – Nov. 2017*

· Designed and implemented a reliable file transfer protocol on unreliable network, using cyclic redundancy check and sliding window, which could deal with up to 95% packet loss, duplicate, delay, mangle, and reorder.
· Implemented link-state (LS) and distance-vector (DV) routing protocols in C++ for intra-domain routing.

TECHNICAL STRENGTHS

Languages Proficient in C/C++, Python; Comfortable with Haskell, MATLAB, Verilog
Platforms Windows, macOS, Linux (Ubuntu)
Tools PyTorch, Keras, scikit-learn, OpenCV, MySQL, LaTeX, Multisim