Huy Dinh Tran

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EDUCATION

University of Kansas 08/2023 — Present
Ph.D Computer Science
Advisor: Prof. Mohammad Alian

University of California, Riverside 09/2021 — 03/2023
M.S. Computer Engineering
Advisor: Prof. Daniel Wong

Pennsylvania State University 08/2017 — 05/2021
B.S. Electrical Engineering

SKILLS

- **Language:** C/C++, Python, Bash, LaTeX, MATLAB
- **Software & Tools:** Git, gem5, GDB, Intel VTune, Intel CAT, Docker, OpenMP, GPGPU-Sim

EXPERIENCE

University of Kansas Lawrence, KS
Graduate Research Assistant 08/2023 — Present

- Implemented statistical sampling simulation methodology for cloud applications in gem5
- Enhanced CPU utilization of datacenters using a specialized hardware thread for networking

Futurewei Technologies, Inc. Santa Clara, CA
Research Intern 08/2022 — 09/2022

- Simulating RISC-V CPU in Linux Full-System simulation mode using gem5
- Cross-compiling binaries of SPEC CPU 2017 benchmarks to RISC-V for measuring the performance of CPU designs
- Integrated SimPoint to create checkpoints at ROIs for speeding up the simulation while still representing the workloads

PROJECTS

Building custom GPU power models with AccelWattch Spring 2022 — Spring 2023

- Implemented a GPU power model of an NVIDIA GeForce GTX 1050 Ti using AccelWattch
- Performed hardware profiling on real GPU to grasp the performance, real power, and hardware performance counters
- Simulated benchmarks on GPGPU-Sim to estimate constant, static, dynamic power consumptions using power model
- Achieved an average MAPE of 63.42% between simulated and real power results

Sparse matrix-vector multiplication (SpMV) Fall 2022

- Implemented sequential and parallel versions using OpenMP of the Sparse Matrix-Vector Multiplication algorithm in C
- Converted compressed sparse matrix formats from COO to CSR and CSC
- Achieved speedup of 3.93x between parallel and sequential computations by using 8 threads

Prefetcher using reference prediction table Fall 2021

- Improved a base instruction prefetcher algorithm in C++ by 5% using a reference prediction table
- Ran benchmark trace files of various workloads on a hardware simulator for measuring and comparing performance

8-Puzzle solver Spring 2022

- Implemented multiple tree search algorithms to solve 8-Puzzle in C++
- Implemented Uniform Cost Search, A-Star Search with Misplaced Tile Heuristic and Manhattan Distance Heuristic

Soccer matches prediction Spring 2022

- Implemented ML classification models in Python using scikit-learn and from scratch using NumPy and Pandas
- Implemented models: Decision Tree, Naive Bayes, K-Nearest Neighbors, Logistic Regression
- Achieved prediction accuracy of 81.25% using K-Nearest Neighbors