Yihan Pang

Email: pyihan1@vt.edu

EDUCATION

M.S. Computer Engineering; 8/2016 - 9/2019
Virginia Polytechnic Institute and State University, Blacksburg, VA
Advisor: Dr. Binoy Ravindran
Thesis: *Leveraging Processor-Affinity for Improved Performance in Heterogeneous-ISA Systems*
GPA 3.8/4.0

B.S. Computer Engineering; Minor: Math, Cybersecurity 8/2011 - 12/2015
Virginia Polytechnic Institute and State University, Blacksburg, VA
GPA 3.8/4.0 Rank: 7

PUBLICATION

"Quantifying Memory Underutilization in HPC Systems and Using it to Improve Performance via Architecture Support."
G. Panwar*, D. Zhang*, **Yihan Pang***, M. Dahshan, N. DeBardeleben, B. Ravindran, and X. Jian (* first co-authors).
In *Proc. of the 52th annual IEEE/ACM international symposium on Microarchitecture (MICRO-52)*, October 2019

"Cross-ISA execution of SIMD regions for improved performance."
Yihan Pang, Robert Lyerly, and Binoy Ravindran.
In *Proceedings of the 12th ACM International Conference on Systems and Storage (SYSTOR 2019)*, June 2019.

EXPERIENCE

Graduate Research Assistant July. 2018 - Oct. 2019
High-performance, Energy-efficient, Assured Processing (HEAP) Lab Blacksburg, VA
Supervised by Dr. Xun Jian and Dr. Binoy Ravindran

- Quantified memory underutilization problem in HPC Systems
- Designed and developed architectural and OS support to boost microarchitecture performance through better memory utilization

Graduate Research Assistant Aug. 2016 - Oct. 2019
System Software Research Group (SSRG) Blacksburg, VA
Supervised by Dr. Binoy Ravindran
Popcorn Linux Project

- Explored potential performance benefits in heterogeneous systems with diversity in processor designs
- Designed SIMD extension migration support (compiler(LLVM) and kernel modifications(Linux)) for Instruction Set Architecture (ISA)-diverse multi/many-core architectures
- Enhanced existing profile-guided optimization techniques in LLVM to adjust for Instruction Set Architecture (ISA)-diverse multi/many-core architectures
- Developed a scheduler to improve system performance by leveraging processor-affinity

Graduate Teaching Assistant Aug. 2016 - May. 2017
ECE Dept at Virginia Tech Blacksburg, VA
Teaching assistant for ECE 4534 Embedded System Design
Supervised over 100 students in their senior capstone class over two semesters

Summer Intern Jun. 2016 - Aug. 2016
Bank of China Head Office Beijing, China
Interned in the Investment Banking and Asset Management Department

- Developed program that analyzes investor location patterns
- Assisted in developing and implementing a mathematical model that predicts primary market return based on regression analysis

Undergraduate Research Assistant Aug. 2015 - May. 2016
ECE Dept at VT and Lockheed-Martin Blacksburg, VA
Supervised by Lockheed-Martin Fellow Dr. Richard N. Pedersen
FPGA-based Switch Circuit Project

- Analyzed advanced switching circuits implemented in FPGAs
- Investigated techniques for optimizing Benes-Clos Networks
- Designed and implemented three variations of Benes-Clos Network
- Evaluated theoretical and empirical results

Undergraduate Teaching Assistant Aug. 2015 - Dec. 2015
ECE Dept at Virginia Tech Blacksburg, VA
Teaching assistant for ECE 4534 Embedded System Design

- Assisted in redesigning the class
- Designed milestone modules for future students
- Created prototype final deliverable for demonstrations

Undergraduate Research Assistant June. 2015 - Aug. 2015
ECE Dept at Virginia Tech Blacksburg, VA
Supervised by Dr. Cameron D. Patterson and William T. Baumann
TAIGA Project

- Designed and developed lab modules that exploited vulnerabilities in embedded system's camera module and system's configuration channel

HONORS & AWARDS

Full Tuition Scholarship, Virginia Tech 2016-2019
Dean's List, Virginia Tech 2011-2015

SKILLS

Programming Languages: C, C++, Bash, Python, Assembly, Java.
Software Frameworks: LLVM, Gem5, DRAMSim2, Ramulator
Linux Kernel Subsystems: Memory Management, Scheduler