Yihan Pang

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EDUCATION

Ph.D. Computer Science;   8/2020 -
University of Illinois at Urbana-Champaign, Champaign, IL
Advisor: Sarita Adve

M.S. Computer Engineering;   8/2016 - 10/2019
Virginia Polytechnic Institute and State University, Blacksburg, VA
Advisor: Binoy Ravindran
Thesis: *Leveraging Processor-diversity for Improved Performance in Heterogeneous-ISA Systems*

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

SKILLS

Programming Languages: C, C++, Bash, Python
Software Frameworks: ILLIXR, LLVM, Gem5, DRAMSim2

PUBLICATION

"ILLIXR: Enabling End-to-End Extended Reality Research" [**Best Paper & IEEE Micro Top Pick**]
H. Muhammad, R. Desai, S Grayson, X. Jiang, Y. Jiang, Y. Jing, J. Lee, F. Lu, **Y. Pang**, J Ravichandran,
F. Sinnclair, B. Tian, H. Yuan, J. Zhang, and S. Adve
In *Proc. of 2021 IEEE International Symposium on Workload Characterization (IISWC)*
`http://rsim.cs.illinois.edu/Pubs/IISWC_2021_ILLIXR.pdf`

"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 52nd annual IEEE/ACM International Symposium on Microarchitecture (MICRO-52)*, October 2019
`https://jianxiapyh.github.io/files/yihan_micro19.pdf`

"Cross-ISA Execution of SIMD Regions for Improved Performance."
Yihan Pang, Robert Lyerly, and Binoy Ravindran.
In *Proc. of the 12th ACM International Conference on Systems and Storage (SYSTOR 2019)*, June 2019.
`https://jianxiapyh.github.io/files/yihan_systor19.pdf`

PROJECTS

Illinois Extend Reality (ILLIXR) Project   Aug. 2020 - Present
Supervised by Prof. S. Adve   Champaign, IL

- Designing new XR systems from an end-to-end perspective

- Proposed an energy-efficient scene reconstruction algorithm that minimizes power consumption while maintaining acceptable mesh quality.

- Proposed offloading head tracking for power consumption reduction while maintaining an acceptable user experience.

Free Memory Aware Project July. 2018 - Oct. 2019
Supervised by Prof. X. Jian and Prof. B. Ravindran Blacksburg, VA

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

Popcorn Linux Project Aug. 2016 - Oct. 2019
Supervised by Prof. B Ravindran Blacksburg, VA

- 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

HONORS & AWARDS

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