

Zhuoran Zhao

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SUMMARY

I am a PhD student at the University of Texas at Austin actively seeking full-time position in **Operating System**, **Compiler** and **Computer Architecture**. My research interests are computer system simulation and performance optimization across full system stack with an emphasis in embedded and mobile domains.

SKILLS

- **Programming languages:** C/C++, Python and Java
- **Tools and frameworks:** LLVM, Caffe2, Darknet, OMNeT++, lwIP.
- Project experiences with operating system kernel programming, multithreaded programming (POSIX pthreads) and network programming (Socket Programming in C).

EDUCATION

- **Ph.D. in Electrical and Computer Engineering;** Dec. 2015 – May. 2019
University of Texas at Austin;
Advisor: Prof. Andreas Gerstlauer Austin, Texas
- **M.S. in Electrical and Computer Engineering;** Aug. 2012 – May. 2015
University of Texas at Austin; GPA: 3.93/4.00 Austin, Texas
- **B.S. in Electrical Engineering;** Aug. 2008 – June. 2012
Zhejiang University; GPA: 3.95/4.00 Zhejiang, China
Honored Minor: Advanced Honor Class of Engineering Education (ACEE)

EXPERIENCE

- **University of Texas at Austin** Austin, Texas
Graduate Research Assistant Jan 2013 - Present
 - **DeepThings:** A portable and lightweight runtime framework for locally distributed CNN/DNN inference in resource-constrained IoT edge clusters, developed in C [1].
 - **NoSSim:** A source-level network/system co-simulation framework for rapid embedded/mobile system prototyping, developed in C++ with LLVM, OMNeT++ and SystemC framework [2].
 - **HCSim:** A fast full-system simulation platform with abstract models of real-time operating systems (RTOS) and high-level multi-core processor models, developed in C++ with SystemC framework [2].
 - **RBA:** A compile-time profiling and instrumentation tool for source-level system performance evaluation, developed in C++ and python with gcc and LLVM framework [3].
- **FutureWei Technologies** Plano, Texas
Research Intern Jun 2014 - Aug 2014
Manager: Weizhong Chen
 - Architectural Description Language (ADL) framework prototype for basedband digital signal processor (DSP), developed in C++ and Python.
- **NXP Semiconductors** Austin, Texas
Research Intern Jun 2013 - Aug 2013
Manager: Mark Bader
 - Automatic microprocessor performance calibration framework between RTL and cycle-accurate simulator, developed in C++ with ADL/uADL framework.
- **University of California, Los Angeles** Austin, Texas
Research Intern Jun 2011 - Aug 2011
Advisor: Prof. Vwani P. Roychowdhury
 - Interactive complex network visualization in mobile applications and browsers, developed in JavaScript, Java and Python with AJAX technique and Django framework.

SELECTED PUBLICATIONS

- [1] Zhuoran Zhao, K. Mirzazad and A. Gerstlauer, “**DeepThings: Distributed Adaptive Deep Learning Inference on Resource-Constrained IoT Edge Clusters,**” *CODES+ISSS, special issue of IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, 2018.
- [2] Zhuoran Zhao, V. Tsoutsouras, D. Soudris, A. Gerstlauer, “**Network/System Co-Simulation for Design Space Exploration of IoT Applications,**” *Proceedings of the International Conference on Embedded Computer Systems: Architectures, Modeling and Simulation (SAMOS)*, 2017.
- [3] Zhuoran Zhao, A. Gerstlauer and Lizy K. John, “**Source-Level Performance, Energy, Reliability, Power and Thermal (PERPT) Simulation,**” *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, 2017.
- [4] Zhuoran Zhao, D. Lee and A. Gerstlauer, “**Host-Compiled Reliability Modeling for Fast Estimation of Architectural Vulnerabilities,**” *In Silicon Errors in Logic, System Effects Workshop (SELSE)*, 2015
- [5] S. Chakravarty, Zhuoran Zhao, A. Gerstlauer, “**Automated, Retargetable Back-Annotation for Host-Compiled Performance and Power Modeling,**” *Proceedings of the IEEE/ACM/IFIP International Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS)*, 2013.
- [6] L. Guckert, M. O’Connor, S. K. Ravindranath, Zhuoran Zhao and V. J. Reddi, “**A Case for Persistent Caching of Compiled JavaScript Code in Mobile Web Browsers,**” *In Workshop On Architectural And Microarchitectural Support For Binary Translation (AMAS-BT)*, 2013

RELEVANT GRADUATE COURSEWORK

- EE382V Dynamic Compilation
- EE382V Advanced Programming Tools
- EE380L Engineering Programming Languages
- EE382C Multicore Computing
- EE382N Computer Architecture
- EE382N Embedded System Design and Modeling
- EE382M System-on-a-Chip Design

PROFESSIONAL SERVICE

- **Reviewer:**
 - IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), 2017
 - Design, Automation and Test in Europe (DATE) Conference, 2018
 - IEEE/ACM/IFIP International Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS), 2018
- **Teaching:**
 - Teaching Assistant: EE382N Embedded System Design and Modeling, 2016
 - Teaching Assistant: EE319K Introduction to Embedded System, 2012

HONORS AND AWARDS

- Best in Session Award for the presentation “Automated, Retargetable Back-Annotation for Host-Compiled Power and Performance Modeling,” in Semiconductor Research Corporation (SRC) TECHCON, Sep 11, 2013
- National Scholarship in China (2%), 2009, 2010