

Muhammad Shoaib Bin Altaf

CONTACT INFORMATION

606 Eagle Heights Apt J
Madison, WI 53705 USA

Mobile: +1-678-662-5847
E-mail: shoaibbinalt@wisc.edu
Homepage: pages.cs.wisc.edu/~shoaib-b

RESEARCH INTERESTS

Performance Analysis, Computer Architecture, Software Engineering, Hardware-software codesign

EDUCATION

University of Wisconsin, Madison, WI

Ph.D., Electrical Engineering, minor in Computer Science, Expected Fall 2016

- Thesis Topic: The Case of Simple Analytical Models for Early Stage Accelerator Modeling
- Advisor: David A. Wood

M.S., Electrical Engineering, May 2010

University of Engineering & Technology, Lahore, Pakistan

B.Sc., Electrical Engineering with Honors, March 2007

PUBLICATIONS

LogCA: A Performance Model for Hardware Accelerators. **Muhammad Shoaib Bin Altaf**, David A. Wood. in Computer Architecture Letters, vol.14, no.2, July-Dec 2015

The gem5 Simulator. Nathan Binkert, Bradford Beckmann, Gabriel Black, Steven K. Reinhardt, Ali Saidi, Arkaprava Basu, Joel Hestness, Derek R. Hower, Tushar Krishna, Somayeh Sardashti, Rathijit Sen, Korey Sewell, **Muhammad Shoaib**, Nilay Vaish, Mark D. Hill, and David A. Wood. May 2011, ACM SIGARCH Computer Architecture News

TECHNICAL SKILLS

Tools: GEMS, gem5, Xilinx ISE, Synopsis Design Vision, Modelsim, PSpice, Spyglass, Octave

Programming Languages: C, C++, OpenCL, Python, Assembly, Verilog/VHDL, Scratch

Scripting/Typesetting: \LaTeX , Awk, Bash

Numerical Analysis: MATLAB, GAMS, Maple, Mathematica

PROFESSIONAL EXPERIENCE

Computer Science Department, University of Wisconsin, Madison, WI

Graduate Research Assistant

May 2011 to present

- Developed high-level performance and energy model for hardware accelerators
- Studied evolution of interface design in fixed function accelerators and GPUs
- Employed mathematical optimization to partition chip resources in accelerator-rich architectures
- Involved in the development of gem5 simulator
- System administrator of Multifacet Solaris machines

Oracle Labs, Austin, TX

Research Assistant (Intern)

Summer 2012

- Developed and validated performance and power models for the database processor
- Investigated the design space for optimal cache size and configuration

Wisconsin Alumni Research Foundation (WARF), Madison, WI

Student Ambassador

October 2012 to present

- Created campus-wide awareness about intellectual property via departmental seminars and personal communications
- Worked with a team and held various leadership positions

Coherent Designs, Islamabad, Pakistan

Design Engineer

January 2007 to January 2008

- Designed, implemented and tested HDL implementations of Viterbi and Turbo codes

The Daily Cardinal, Madison, WI

Photo Editor

September 2011 to May 2013

- Managed the photo desk and led a team of photographers
- Covered events ranging from college sports to national politics

PRESENTATIONS

- Exploiting Simple Analytical Models for Modeling Accelerators, Google Inc. Madison, March 2016
- Accelerometer: A Roofline Model for Hardware Accelerators, UW Computer Architecture Industrial Affiliates Meeting, October 2015
- The Evolution of Crypto Accelerators in the SPARC Architecture (Poster), UW Computer Architecture Industrial Affiliates Meeting, October 2015
- Resource Partitioning and Placement in Accelerator-Rich Architectures, UW Computer Architecture Industrial Affiliates Meeting, October 2013
- LogCA: A Unified Performance and Energy Model for Hardware Accelerators, UW Computer Architecture Industrial Affiliates Meeting, October 2012

TEACHING
EXPERIENCE

University of Wisconsin, Madison, WI

Teaching Assistant, Electrical & Computer Engineering

June 2009 to May 2011

- Supervised laboratory sessions for electronics circuits
- Prepared and graded weekly assignment and final bench exams

Graduate Mentor, Division of International Studies

June 2014 to August 2015

- Mentored junior/senior students from Nazarbayev University, Astana, Kazakhstan on their grad school applications

University of Engineering & Technology, Lahore, Faisalabad, Pakistan

Lecturer, Electrical Engineering

January 2008 to July 2008

- Taught Semiconductor Devices and Communication Theory
- Delivered class lectures, prepared syllabus, course layout, weekly assignments and exams

HONOURS AND
AWARDS

- Honorable mention, Graduate Peer Mentor Award, University of Wisconsin-Madison 2016
- Mark of Excellence Award by the Society of Professional Journalist 2013
- 3rd Prize, Sports, Wisconsin Newspaper Photographers Association annual competition 2013
- Winner of photography contest by International Student Services and Wisconsin Engineer Magazine

SERVICE

Fulfillment Daily, June 2014 - present

- Contributing photographer for this online magazine

Wisconsin Science Festival, Madison WI, October 2014

- Taught binary numbers using colour beads to visiting kids and families

Photo Voice Project, Centro Hispano Madison WI, Summer 2014

- Taught photography to middle school kids for improving their communities

WisconScientist: Changing the World from Madison, April 2013

- Led a STEM station for about 100 middle school kids

Madison Middle School Science Symposium, Spring 2012

- Mentored 3 kids from Jefferson Middle School, Madison for their science project

Pakistani Students Association, University of Wisconsin Madison, 2009-2011

- Led the Pakistani students on campus as the President of the organization

Workshop on Programming of FPGAs, University of Engineering & Technology, Lahore Pakistan 2006

- Led a workshop for junior students on the basics of FPGA programming