Akhil Guliani

107 Eagle Heights, Apt L, Madison, Wisconsin 53705, USA
guliani@wisc.edu • +1 (650) 960-5611 • http://www.akhilguliani.me

EDUCATION

University of Wisconsin-Madison, Madison, Wisconsin, USA

- Doctor of Philosophy (Ph.D.) in Computer Sciences — Aug 2016 – present
  - Cumulative GPA: 3.9 / 4.00
  - Research areas: Computer Systems.

Northwestern University, Evanston, Illinois, USA

- Master of Science (M.S.) in Computer Engineering — Sep 2014 – Mar 2016
  - Cumulative GPA: 3.92 / 4.00
  - Adviser: Professor Seda Ogrenci Memik
  - Research areas: Computer Systems, Memory Management, Embedded Systems, Architecture, Machine Learning.

Netaji Subhas Institue of Technology, University of Delhi, New Delhi, India

- Bachelor of Engineering (B.E.) in Instrumentation & Control — Aug 2008 – Jun 2012
  - Graduated in Class I with distinction.
  - Cumulative GPA: 76.6 / 100

INDUSTRIAL EXPERIENCE

GAIL (India) Ltd. , New Delhi, India

- Senior Engineer (Instrumentation) — Sep 2012 – Jul 2014
  - Project Execution engineer in the GAIL Petro-Chemicals-II Expansion Project in Pata, UP, India. Responsible for execution of jobs related to Process Instrumentation System used, including Procurement, Inspection, Erection, Pre-commissioning and commissioning activities.

Air India Ltd. , New Delhi, India

- Industrial Trainee — Dec 2011 – Jan 2012
  - Industrial Internship at Air India's Northern Engineering Office at IGI Airport, New Delhi.

ACADEMIC EXPERIENCE

University of Wisconsin-Madison, Madison, WI, USA

- Research Assistant, Department of Computer Sciences — Oct 2016 – present

Northwestern University , Evanston, IL, USA

- Research Assistant, Department of Preventive Medicine — Jan 2016 – Mar 2016
  - Project: Wearable Eating Detection System
- Teaching Assistant, EECS Department — Sep 2015 – Dec 2015
  - Course: EECS 339 Introduction to Database Systems, Fall 2015.
- Research Assistant, EECS Department — Jul 2015 – Sep 2015
  - Worked on architectural simulations using GEM5. Analysis of thermal and performance impact of different architectural configurations on applications under Prof. Seda Ogrenci Memik.

Indian Institute of Technology Delhi , New Delhi, India

- Student Intern under Global Internship Program in Engg. Design and Innovation (GIPEDI) — May 2011 – Jul 2011
  - Project: Study and Implementation of Real Time Operating System for 8-Bit Microcontrollers. Focus on TinyAVR microcontroller. Femto OS was selected. Reference board was built and an implementation for the I2C driver was developed.
- Student Intern under GIPEDI — Dec 2010 – Jan 2011
  - Tasked with developing a programmer for the SoC TI CC2530. Developed the reference board and firmware for the programmer. Patched the provided Linux OS application adding the ability to recognize and program the SoC.
- Student Intern — May 2010 – Jul 2010
  - Advisor Prof. I P Singh
  - Focus in embedded systems, worked with intel 8085 (uP) and 8051 (uC). Studied the 8051 Architecture and developed a reference development printed circuit board using Atmel's AT89C51 chip.

PROJECTS	**Power Management and Scheduling**

- Under progress work on understanding power delivery and control mechanisms provided by modern processors from the point of view of an Operating System. Use this understanding to inform scheduling decisions when system is placed under a power cap.

Implementing Device File Virtualization for Palacios VMM

- Developed as part of a team a proof of concept for device file virtualization for Palacios Virtual Machine Monitor. The concept allows a Linux guest to access the device files of the Linux host.

Bluetooth Low Energy (BLE) Smartwatch Project

- Developed with a team a BLE smartwatch platform for use in Empathetic Systems Lab at Northwestern. I developed the Arduino firmware & the corresponding android application for the collecting sensor data over BLE.

Determining the Impact of Hashtags used in Marketing Campaigns on Social Media Platforms Using Sentiment Analysis

- A data analytics project to study the effect of user sentiments on text surrounding hashtags in social media posts to gauge the public response to a marketing campaign associated with the hashtag.

Study of Loop Perforation for use in GPU's

- Explored ways to implement the approximate computing technique of loop perforation on GPU based Image processing algorithms. The end goal was to ascertain its usability for more complex tasks on the basis of runtime vs quality of output metrics

Designing Wireless File transfer mechanism for Remote Patient monitoring system

- As a team, developed a mechanism to capture and transmit asynchronously and reliably ordered sets of data being produced by a remote sensor over Wifi to be used for a remote patient monitoring system.

AWARDS	

- **Best Paper Award at IEEE International Conference on Cloud Engineering**   2017
  For "Dark Shadows: User-level Guest/Host Linux Process Shadowing", at IEEE IC2E 2017
- **Merit Scholarship from University of Delhi**   2008 – 2012
  40% Tuition scholarship for attaining an annual GPA of Class I with distinction (Grade $\geq$ 75).
- **3rd Prize in IEEE India Council's M V Chauhan Student Paper Contest**   2012
  For my paper titled, The Study and Implementation of Natural User Interface using Kinect; Akhil Guliani. Presented at IEEE Indicon 2012
- **IEEE Delhi-Section's Outstanding Student Volunteer Award**   2011
  For volunteering in the IEEE Power Systems Conference 2010 and other chapter related events during the year.

PROFESSIONAL SOCIETIES	**Institute of Electrical and Electronics Engineers (IEEE)**	2008 – Present
	Association for Computing Machinery (ACM)	2016 – Present

SKILLS	

- **Programming Languages**: Python , C (Proficient) ; C++, Rust, C#, Java, LaTeX, R, Julia (familiar)
- **Software Skills**: Linux Scripting (Intermediate), Linux Power Management, GEDA, Android, MATLAB, Maple, Pspice, LabView, OrCAD (Familiar)
- **Hardware skills**: MCS-51, AVR-core, MSP430, Arduino
- **Languages**: English: Fluent (speaking, reading, writing); Hindi: Native language.

INTERESTS	Squash, Golf, Cooking.

PUBLICATIONS **JOURNALS**

[1] Kaicheng Zhang, Akhil Guliani, Seda Ogrenci-Memik, Gokhan Memik, Kazutomo Yoshii, Rajesh Sankaran, Pete Beckman, "Machine Learning-Based Temperature Prediction for Runtime Thermal Management across System Components", Accepted in *IEEE Trans. Parallel Distrib. Syst.*

[2] Renu Guliani, Amit Jain, Swati Sharma, Davinder Kaur, Akhil Guliani, Avinashi Kapoor, "Analysis of Electrical Characteristics using a Lambert W-Function Technique and MATLAB Simulation for Dye Sensitised ZnO Solar Cell", *The Open Renewable Energy Journal*, 2013.

CONFERENCES

[1] Dawei Li, Kaicheng Zhang, Akhil Guliani, Seda Ogrenci-Memik "Adaptive Thermal Management for 3D ICs with Stacked DRAM Caches", in *DAC 2017*, Austin, Texas, USA, Jun 2017.

[2] Peter Dinda, Akhil Guliani "Dark Shadows: User-level Guest/Host Linux Process Shadowing", in *IEEE IC2E 2017*, Vancouver, Canada, Apr 2017. [Best Paper]

[3] Akhil Guliani "The Study and Implementation of Natural User Interface using Kinect", in *IEEE Indicon*, Kochi, Kerala, India, Dec 2012.