

Suyash Mahar

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Education

- **Indian Institute of Technology, Roorkee** Roorkee, India
B.Tech., Electronics and Communication Engineering (CGPA: 9.1/10) July 2016 - Present
 - **Coursework includes:** Computer Architecture and Microprocessors*, Digital Logic Design*, Embedded System Design (ongoing) and Data Structures & Algorithms.
 - * Grade for outstanding performance

Publications

- D. Saxena, **S. Mahar**, V. Raychoudhury, J. Cao
- **Scalable, High-speed On-chip-based NDN Name Forwarding using FPGA**
To appear in *International Conference on Distributed Computing and Networking (ICDCN)*, Bangalore, 2019

Work Experiences

- **Design of accurate energy estimation tool for DRAM [poster]** Carnegie Mellon Univ., USA
Dr. Saugata Ghose, SAFARI research group May 2018 - July 2018
 - Worked on architecture and implementation of a tool to estimate energy consumption of DRAM.
 - Work includes finding a methodology for accurately extracting energy of individual DRAM commands from standard command loop's current.
 - Devised new methodology for estimating energy of a memory request trace to increase its accuracy.
- **Design of efficient FIB table for NDN routers** IIT Roorkee, India
Prof. Vaskar Raychoudhury and Dr. Divya Saxena July 2017 - January 2018
 - Worked on ways to accelerate FIB lookups in NDN routers using re-configurable hardware.
 - Work included designing efficient data-structure for the FIB and implementing it on an FPGA.
 - Speedup of up to ~ 4.1 compared to previously proposed FPGA based design was obtained.
- **FPGA implementation of CORDIC algorithms [report]** IIT Roorkee, India
Prof. Bishnu Prasad Das May 2017
 - Studied and implemented CORDIC algorithms on FPGA.
 - Used Python (Jupyter notebook) for modeling and Verilog for design and implementation.
- **Single-cycle 32-bit RISC processor [link]** June 2017
Hobby project
 - Created a simple implementation of 32-bit MIT 6.004 architecture with improvements and additions.

Teaching Experiences

- **Object-oriented programming: Undergraduate teaching assistant** CSE, IIT Roorkee, India
Enrollment: 85 July 2018 - Present
 - Helping freshers with little or no experience in programming to get started with basics of Java.
- **Digital Logic Design: Undergraduate teaching assistant [Repository]** ECE, IIT Roorkee, India
Enrollment: 85 January 2018 - April 2018
 - Work included writing assignment series on hardware description using Verilog HDL for ECN104 and teaching students basics of hardware description using Verilog.
- **Tutor - Grade 12 and below** National Service Scheme, IIT Roorkee
Enrollment: 2-3 students September 2016 - April 2017
 - Taught underprivileged students from nearby areas for free of cost.
 - Awarded dedicated member award for overall performance.

Awards and Achievements

- Dedicated member award, National Service Scheme (IIT Roorkee) April 2017
- **Joint Entrance Examination, Advanced (Indian Institute of Technology)** May 2016
All India Rank 1387, 99.3 percentile
- **International Cyber Olympiad (SilverZone)** Dec. 2014
Olympiad Rank 11, State Rank 1

Other Projects

- **.gitignore file manager for Linux (Shell programming) [link]** December 2017
Project work includes writing BASH shell script.
- **Triangle art generating views (Java programming, Team size: 3) [link]** March 2017 - May 2017
Uses Delaunay triangulation and custom coloring algorithm for generating views for Android.

Extra-Curricular

- **IEEE Student's Branch, Special Interest Group** IIT Roorkee, India
Member September 2017 - Present
 - Gave talks and held discussions on history and current topics of interest in the tech field.
- **Mobile Development Group [link]** IIT Roorkee, India
Android Development January 2017 - present
 - Delivered several institute and group level talks and lectures on Android development and coding practices.

Interests

- Re-configurable computing, Computer architecture, Digital logic design and Heterogeneous computing.

Skills

Languages: (System)Verilog, C++, MIPS assembly, SPICE, L^AT_EX, Python, Bash, C#.NET, Java

Software: Vivado, MatLab, LTspice, Cadence Virtuoso, Visual Studio 2017

Languages: English, Hindi