

# Suyash Mahar

F-159, Ravindra Bhawan  
Indian Institute of Technology, Roorkee  
Roorkee, India – 247667

+91-7579106878 📞  
suyash12mahar@outlook.com ✉️  
github.com/suyashmahar 🌐  
suyashmahar.me 🌐

## Education

---

- **Indian Institute of Technology, Roorkee** Roorkee, India  
*B.Tech., Electronics and Communication Engineering (CGPA: 9.18/10)* *Expected 2020*
  - **Coursework includes:** Computer Architecture and Microprocessors\*, Digital Logic Design\*, Operating Systems, Embedded System Design, Data Structures and Algorithms & Communication Systems and Techniques\*.
  - \*Grade for outstanding performance

## Publications

---

D. Saxena, S. Mahar, V. Raychoudhury, J. Cao  
**Scalable, High-speed On-chip-based NDN Name Forwarding using FPGA** [ACM]  
In Proceedings of the 20th International Conference on Distributed Computing and Networking (ICDCN), Bangalore, India, January 04 - 07, 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.
  - The tool is publicly available on [github/cmu-safari/vampire](https://github.com/cmu-safari/vampire).
- **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

---

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

## Skills

---

**Languages:** (System)Verilog, C++, MIPS assembly, SPICE,  $\LaTeX$ , Python, Bash, C#.NET, Java

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

**Languages:** English, Hindi