Ankit Shukla

Indian Institute of Technology Madras

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Education

Program	Institution	%/CGPA	Year of completion
Dual Degree (B.Tech & M.Tech), in Electrical Engineering	Indian Institute of Technology Madras, Chennai	**8.29/10**	2017
XII (CBSE)	Sir Padampat Singhania Education Centre, Kanpur	**92.4%**	2011
X (ICSE)	St. Basil's School, Basti	**95.57%**	2009

Research Experience

Rigorous modelling of self-heating in a Silicon Nanowire **July 2017 - Present**

Dr. Anjan Chakravorty, IIT Madras

- Worked on the implementation of electron-phonon interaction based scattering dominated transport.
- Currently involved in incorporating hydrodynamic transport model in mode-space to consider the effects of thermal diffusion and self-heating in the device.
- Will be working on a quantum treatment of phonon transport to include the effect of self-heating.

Development of a Silicon Nanowire simulator in mode-space with different transport models **June 2016 - May 2017**

Dr. Anjan Chakravorty, IIT Madras

- Worked on modelling electron transport in a Silicon Nanowire from first principle by solving Poisson's and Schrodinger's equation.
- Electron transport was subsequently modelled both semi-classically and quantum mechanically in the subbands.
- The developed simulator has the capability to predict results in ballistic as well as diffusive transport limits.
- Finally worked on estimation of the effect of self-heating using Fourier's law.

Selected Projects

Developing a method to improve PPV sensor developed by HTIC, IITM **March-May 2016**

Biomedical Electronic System Course Project

- Proposed methods to improve the quality of the PPV sensor built by HTIC, IIT Madras.
- Collected data from close to 40 subjects and made a detailed study of the observations to find out possible ways of improving the results.
- Measured pulse width, peak to peak interval, crest time ratio on each of the collected sample and built a classifier to resolve the signal as good or bad quality.

Digital IC Project **Sept - Nov 2015**

Digital IC Design Course Project

- Transistor level design of sequential elements like a D-type flip-flop, and combinational elements like NAND gates.
- Involved designing the layout in Magic, extracting the SPICE netlist and characterizing its timing and power.

Industrial Experience

Virtualization of a simulator **May - July 2015**

General Electric, Bangalore

- Worked on the development of a simulator in a team of experienced professionals with an aim to optimize company's resources.

- Contributed towards establishing serial port communication between different modules of the software replica of the hardware simulator using C and C++.

Skills and Tools

- Languages: Python, C, C++
- Softwares and Tools: MATLAB, LaTeX
- Operating Systems: Window, Ubuntu

Relevant Coursework

- Solid State Devices
- Device Modelling
- VLSI Technology
- Advanced CMOS Devices and Technology
- MOS Device Modeling and Characterization
- Classical Physics
- Quantum Physics 1 & 2
- Analog Circuits
- Digital IC Design
- Power Electronics

Positions of Responsibility

Teaching Assistant **July - April 2017**
Electrical Department, IIT Madras

- Assisted in lab sessions, grading exams, and coordinated course related activities in an undergraduate course on Computer Organization.
- Assisted in grading assignments, quizzes, and final exam, and ensuring a smooth functioning of the classroom activities in an undergraduate course on Communication Systems.

Mentor Avanti Fellows **Aug 2014 - May 2016**
Pondicherry chapter, IIT Madras

- Member of a team of highly motivated students from IIT Madras with an aim to help underprivileged kids in their preparation for IIT-JEE.
- Made frequent visits to JNV(school) in Pondicherry, where I spend time in teaching some topics from high-school Physics and clarifying doubts wherever possible.

Project Representative **May 2013 - May 2014**
NSS, IIT Madras[1]

- Managed a team of about 12 first year students and organized monthly trips to a school in the city.
- Helped a group of visually impaired graduate students in their studies by reading to them and also discussing their course.

Hospitality Deputy Coordinator **Sept 2013 - Jan 2014**
Saarang[2] *2014*

- Part of the hospitality team for Saraang 2014.
- Was responsible for the accommodation of the participants of various competition and other performers.

Miscellaneous Activities

- Secured an **All India Rank 749** in IIT-JEE 2012 among half million applicants.
- Successfully completed 14,000ft Sar-Pass Himalayan trek in June 2017.
- Active member of hostel hockey team for three years that won a silver medal in Schroeter.[3] 2012 - 2015

[1] NSS stands for National Service Scheme.
[2] Saarang is IIT Madras' annual cultural festival.
[3] Scroeter is IIT Madras' sports event.