



Prathu Baronia
Electrical Engineering
Indian Institute of Technology Bombay
Specialization: Microelectronics

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Dual Degree (B.Tech+M.Tech.)
Male
DOB: 28-5-96

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2019	0.00

SCHOLASTIC ACHIEVEMENTS

- Secured **All India Rank 241** in **JEE-Advanced-2014** with a percentile of **99.8** among **1.2 lakh** candidates
- Scored **342 out of 360** in **JEE-MAIN-2014** with a percentile of **99.92** among **12.7 lakh** candidates
- Achieved **All India Rank 163** in prestigious **KVPY fellowship, 2014** conducted by **DST, Govt. of India**

PROFESSIONAL & RESEARCH EXPERIENCE

Embedded System Engineer (May'17 - Jul'17)

Greetude Energy Pvt. Ltd, Bangalore

- Received a **Letter of Appreciation** for **exceptional value additions** and **strong work ethics** in assigned projects
- Designed a **Remote Billboard Surveillance System**, providing periodic images on **Google drive** and **AWS Bucket**
- Developed a **control and debug interface** for the site and **circular logs** for **energy consumption and crashes**
- Devised a **Smart Metering System** for transmission & logging of standard power parameters onto the main server logs
- System included **synchronously reading internal registers** and **space efficient circular logging** of the parameters

Linux Port to Indigenous AJIT Processor (Jul'18 - Present)

Guide: Prof. Madhav P. Desai, IIT-Bombay

- Member of **Embedded Software Design** team of **India's first in-house designed and fabricated processor**
- Generated and tested an **exclusive AXI-Lite interface DDR Memory controller** for a **32 bit Sparc V8 processor**
- Conducted memory tests on the Xilinx Virtex 7 Series **FPGA** board with a prototype Microblaze processor.
- Developed a **PCIe - AXI interface** and verified it with a **custom-developed C driver for PCIe peripherals**
- Generated an **exclusive Memory mapped AXI Stream FIFOs** through **High Level Synthesis** tools

KEY COURSE PROJECTS

Android 5 Port to ZedBoard (Jan'18 - May'18)

- Ported Android 5(Lollipop)** to **ARM Cortex A9** to build a **bare bone IoT infrastructure** on Zedboard
- Developed **First Stage bootloader, Second Stage bootloader** and an **Android patched Kernel** from scratch
- Designed **exclusive HDMI hardware block** and a **GPIO core** using programmable logic segments

Hexapod Navigation using WiFi Localization (Feb'18 - Apr'18)

- Designed a **1.5m × 1.5m indoor localization network** using **Xbee radios** for closed space settings
- Achieved an **average location accuracy of 90%** for indoor setting with an **error bound of ±10cm**
- Calculated location by taking a **moving average of Trilateration algorithm** results on target to node distances

Walk Smart Vision (Jan'17 - Apr'17)

- Designed a **3-level navigation system** for the visually impaired people using a **Star network of Xbee radios**
- Conveyed **critical obstacle information** to the user through **surfacial vibrations proportional to the proximity**
- Demonstrated performance in a **populous setting** with successful navigation by **blindfolded novice users**

Real Time Audio Compression using MDCT (Mar'17 - Apr'17)

- Achieved **5x compression** by **redundant data removal** using **Modified Discrete Cosine Transform**
- Improved **80% efficiency** for storage and transmission of audio signals while conserving **95% signal information**
- Developed a **compression block** and a **wireless socket block** to compress & transmit the audio in **real time**

TECHNICAL SKILLS

Programming Languages & HDL	Embedded C, ARM Assembly, VHDL, C, C++, Shell Scripting, Python
Design Tools	Vivado HLS, Xilinx SDK, TI CCS, Intel Quartus

POSITIONS OF RESPONSIBILITY

Teaching Assistant | Electromagnetic Waves (Jul'18 - Present)

- Evaluated **answer scripts** and **conducted practice sessions** for a batch of **100+** students in the course
- Managed logistics** and assisted the professor in **ensuring smooth functioning** of the course and exams

Overall Music Coordinator | Performance Arts Festival'18 (Feb'18 - Apr'18)

- Secured the **First place** in Performance Arts Festival'18 out of four teams comprising **600+students**
- Won the award for **Best Music** and a **Special mention for Organizing skills** out of **100+ students**
- Was the **principal composer** of the **background score** and an **original composition**.