

EDUCATION

Birla Institute of Technology and Science, Pilani

Pilani, India

B.E(Electrical and Electronics) (with Practice School)

Aug. 2016–Jul. 2020

Relevant Courses: RF Microelectronics, Microwaves and RF Engineering, Communication Systems, Analog and Digital VLSI Design, Analog Electronics, Microelectronic Circuits, Power Electronics, Medical Instrumentation, Signals and Systems, Control Systems, Electromagnetic Theory, Solid State Electronic Devices, Circuit Theory.

Research Interests: Analog IC Design, RFIC Design, Embedded Systems Programming

EXPERIENCE

Texas Instruments Incorporated

Bangalore, India

Analog Intern

Jan. 2020 - Jun. 2020

- Experimentally measured Jitter for a high-speed Isolator IC with the specified accuracy, precision and resolution.
- Researched methodologies and measurement techniques to ensure accurate and precise jitter measurement.
- Performed a feasibility analysis of the available instruments for the required measurement precision.
- Involved in bringing up of emulation suite setup for a USB 2.0 repeater IC.
- Emulated the repeater on FPGA and interfaced it with the USB Physical Layer chip and Microcontroller.
- Modified an already existing Digital Verification Environment to debug and test the models to be emulated on FPGA.

Crompton Greaves(C.G) Power and Industrial Solutions Pvt. Ltd.

Nashik, India

Electrical Engineering Intern

May. 2018 - Jul. 2018

- Studied Working Principles, Design, Manufacturing and Outline testing of EHV/UHV Capacitor Voltage Transformers, Current Transformers, Condenser Bushings and Lightning Arresters ranging upto 800 kV.
- Studied the various techniques used in Power Line Carrier Communication (**PLCC**) using Capacitor Voltage Transformers (**CVT**) and presented how the manufactured CVTs can be used for PLCC.

Radio Control Club, BITS Pilani

Pilani, India

Head of Electronics and Communication Subsystem

Aug 2017 - May 2018

- Designed a Flight Controller Board for Quadcopters using stringent resources on Arduino Uno.
- Interfaced the onboard standard receiver with the microcontroller unit
- Implemented sampling, filtering, processing inputs from a 9 degree of Freedom Motion Tracking sensor (MPU9050), driving the BLDC motors and a PID controller using the microcontroller.

PROJECTS

Double Stub matching using Microstrip Transmission line

Oct. 2019 - Nov. 2019

Guide: [Dr. Praveen Kumar A.V](#)

Course Project

- Designed and simulated a Double stub matching circuit using microstrip transmission line in Ansys HFSS.
- Studied the S Parameter variations caused by material choice, by testing conductor materials like PEC and Copper; and Dielectric materials like RT/Duroid and FR4.

Study of Advanced Topics in RF Microelectronics

Aug. 2019 - Nov. 2019

Guide: Sr. Professor Emeritus Dr Chandra Shekhar

Study Oriented Project

- Studied advanced topics in RF Microelectronics such as Transceiver Architectures, Transmission Line Theory, Microwave Filter Design and Matching circuits.
- Studied basics of 5G specifications from standpoint of an RFIC Design Engineer.
- Designed basic Coaxial and Microstrip Transmission Lines in Ansys HFSS.

A MFE Method for MOSFET Commutation loss analysis.

Feb. 2019 - Nov. 2019

Guide: [Dr. Rajneesh Kumar](#)

Lab Oriented Project

- Implemented a Modified Forward Euler(**MFE**) Method for MOSFET Commutation loss analysis in MATLAB.
- Compared the simulation results and accuracy with MATLAB Stiff Differential Equation Solvers like ODE15s and ODE23s.
- Modelled a ZVS Resonant Converter topology for use with MFE Method for commutation loss analysis.
- Modelled extension of MFE method's usage to Super-junction MOSFET.

Programming of Peripheral libraries for STM8s MCU.

Aug. 2018 - Nov. 2018

Guide: [Mr. Devesh Samaiya](#)

Lab Oriented Project

- Programmed Peripheral Libraries for STM8s Micro-controller unit series.
- Authored accompanying documentation which simplified and made accessible the development to a wide variety of embedded product designers.
- Designed the entire library by utilizing open-source tool-chains.
- This simplified the use of communication peripherals like I2C, UART, SPI and using micro-controller features like interrupts, timers, making use of GPIO capabilities like ADC and Digital Outputs.

Analog Design of High Swing Telescopic Opamp

Nov. 2018 - Dec. 2018

Guide: [Prof. Anu Gupta](#)

Course Project

- Designed a high swing telescopic OPAMP in LTSPICE by removing tail current source by trading off CMRR and PSRR; and an Open loop gain of 70 dB and Output voltage swing $\geq 4V$

Digital VLSI Design and Layout of High-Speed Universal Shift Register

Aug. 2018 - Sep. 2018

Guide: [Prof. Anu Gupta](#)

Course Project

- Designed schematic and **custom layout** of 4 bit Universal Shift register working at a frequency of 1 GHz with a load of 1 pF using Cadence Virtuoso.
- Gained experience in the physical design (layout), Design Rule Check (DRC), parasitics extraction(PEX), and Layout vs.Schematic (LVS), and post-layout simulations using the Cadence.

Electrohydrodynamic Jet (E-Jet) Printing

Oct. 2017 - Nov. 2017

Guide: [Dr. Praveen Kumar A.V](#)

Course Project

- Authored review paper on the basic principles of state-of-the-art high-resolution E-jet printing.
- Performed a detailed study of the hardware assembly, ink versatility and printing capabilities at a nano-scale level.
- Articulated the current applications, limitations, and future of this technology and research done in various fields to overcome barriers like complexity in assembly manufacturing and the large area of the printer assembly.

SKILLS

- **Design Tools:** LTSPICE, Cadence Virtuoso ADE, MATLAB, Ansys HFSS
- **Languages:** Embedded C, MATLAB scripting, \LaTeX , Python(Intermediate)
- **Equipments:** Digital Oscilloscope, STM8 MCU, TI MSP432 MCU.