AREAS OF INTEREST

- Communication Systems
- Information Theory
- Error Correcting Codes
- Digital Signal Processing
- Wireless Communication
- Software Defined Radio

TECHNICAL SKILLS

- **Operating Systems:** Linux, Windows.
- **Softwares Skills:** GNU Radio, Scipy, Scilab and LaTeX
- **Programming Skills:** C, C++ and Python
- **Hardware Platforms:** USRP, RTL SDR

WORK EXPERIENCE

- **Graduate Engineering Trainee (C & I), Adani Power Limited** (July 2010-January 2011)
  - Obtained training on various functional units like boiler, turbine, water-treatment etc in a power plant.
  - Exposure to supercritical thermal power plant.
- **Senior Engineer (C & I), Adani Power Limited** (January 2011-July 2011)
  - Working experience on DCS, PLC and SCADA systems
  - Responsible for maintaining working and maintenance of C & I equipments in the power plant

PROJECTS AND SEMINARS

- **Google Summer of Code, 2013: LDPC codes and more FEC in GNU Radio** (June 2013-Present)
  Mentor - Dr.-Ing. Jens Elsner, CEL, KIT.
  - Aim is to develop generic encoders and decoders for LDPC Codes in GNU Radio.
  - Aims to improve encoders and decoders for BCH and RS codes.
  - GNU Radio is an open-source software defined radio platform.
  - Algorithms for obtaining LDPC Codes are also implemented.
  - Block for belief propagation decoder is implemented.
  - Block for encoding (back-substitution) is also implemented.
  - Project is open-source and is available at https://github.com/manuts/ldpc
- **M.Tech. Project: Application of LDPC codes to Multiuser Communications** (July 2013-Present)
  Guide - Prof. Sibiraj B Pillai, IIT Bombay.
  - LDPC codes are characterized by sparse parity check matrices
  - Aim is to study LDPC encoding and decoding algorithms and extend them to multiuser scenario.
  - Belief propagation decoder and back-substitution encoder blocks are developed.
- **DARPA Spectrum Challenge: Developing Communication system in competing and cooperating scenario** (March. 2013-Present)
  - Challenge is to develop a transmitter and receiver, for two scenarios.
  - A pair of nodes competing against another to communicate a file in shortest time to be designed.
  - A pair of nodes cooperating with two other pairs to be designed.
  - All the pairs to use same the same 5MHz frequency band.
  - Single-handedly pushed the team through wild-card tournament.
  - In the wild-card tournament out team surpassed teams from top universities and industries.

- **M.Tech. Seminar: Resource allocation in Wireless Networks** (Nov. 2011)
  Guide - Prof. Sibiraj B Pillai, IIT Bombay.
  - We studied various power allocation schemes in a wireless multiple access channel.
  - Schemes achieving rate tuples under information theoretic setup were studied.
  - We studied optimal power allocation in multiple access fading channels
- **DSP Course Project: Design of Digital Filters** Nov. 2011
  Instructor - Prof. Vikram M Gadre, IIT Bombay.
  - Designed FIR and IIR filters.
  - Designed filters under band-stop, band-pass and low-pass responses.
  - Filters were designed under chebyschev and buttorworth approximations.
- **DSP Course Project: Localization of audio source** Nov. 2011
  Instructor - Prof. Vikram M Gadre, IIT Bombay.
  - The goal of this project was to design a system to locate an audio source.
  - The delay between audio signals captured from two mics is used to locate audio source.
- **B. Tech. Main Project: Study of Orthogonal Frequency Division Multiplexing** (Jan. - June 2010)
  Guide - Prof. P Harikrishna Prasad, NIT, Warangal.
  - The goal of the project was to study OFDM systems.
  - Matlab simulation of an OFDM system was done as part of this project.
- **Industrial Training: BSNL Kerala Circle** (May 2008 - June 2008)
  - Various aspects of GSM Architecture were studied.
  - Training on OMC Radio, OMC Switch, Radio Planning and BSS were obtained.
  - RAN drive tests were done.
  - Realtime traffic analysis of telecome networks were conducted.

COURSE WORK

- Communication Systems
- Information Theory
- Digital Signal Processing
- Statistical Signal Analysis
- Markov chains and Queuing Systems
- Error Correcting Codes
- Digital Message Transmission
- Wireless Communication
- Applications of Linear Algebra
- Optimization Techniques

ACHIEVEMENTS

- Our team secured a spot in the finals of **DARPA Spectrum Challenge**.
- Our team won first prize in Junk-Yard wars in Technozion 2010.
- Best outgoing student of the year 2004 in JNV Malampuzha.

POSITIONS OF RESPONSIBILITY

- **System Administrator in WEL** (July 2011-Present)
  - Wadhwani Electronics Lab is one of the largest lab in IIT Bombay.
  - WEL has more than a hundred computers and about four server grade machines.
  - The duties of the system administrator involves configuring and maintaining the computers and the servers.
  - Configured and maintained web server, FTP server samba server and dhcp server.
  - Automated user maintenance for the lab users.
- **C & I Shift In-Charge, Adani Power Ltd** (July 2011-Present)
  - While being a senior engineer, I was entrusted with the duty of Shift In-Charge of two 330 MW units.
  - I was responsible for ensuring smooth working of all control and instrumentation equipments in the units.
  - I was involved in commissioning of a 660 MW supercritical unit.
- **School Captain, JNV Malampuzha** (May 2003 - March 2004)
  - The school captain is responsible for maintaining the discipline and decorum in the school.

HOBBIES

- Reading, coding, music and movies.