Academic Achievements

- Awarded the competetive Kishore Vaigyanik Protsahan Yojana (KVPY) Scholarship (2007) which was awarded to 145 research-minded students from all over the country
- Stood 136th in IIT-JEE (2009) out of over 350,000 students.
- Was the only student in three years (2008-2010) to be awarded an A grade in the course paper of EE 225: Network Theory conducted by Prof. H. Narayanan
- Attended the orientation-cum-selection camp (OCSC) in astronomy which is conducted by Homi Bhabha Center Science Education (HBCSE) on the basis of merit shown in the Indian National Astronomy Olympiad (INAO).
- Awarded an URA01 (Undergraduate Research Award) for research work done in Coding Theory under the guidance of Prof. Saravanan Vijayakumaran.
- Cleared RMO (Regional Mathematics Olympiad) twice (2007 and 2009). Only 300 students all over the country clear the RMO every year.
- Was among the top 1% of the candidates selected for the Indian National astronomy Olympiad, on the basis of the National Science Examination in astronomy.

Summer Internship

- **List Decoding of Polar Codes**(Information Theory): (May 2011 - July 2011)
  Professor Alexander Vardy, University of California, San Diego
  - Generated polar codes and showed that 32 list decoding of polar codes beats the performance of LDPC wimax codes, which are the best known error correcting codes to date.
  - Worked on building the open source tool POLAR LIST useful for experimenting on list decoding of polar codes.
  - Successfully simulated many trials on the SDSC Supercomputer present in the UCSD campus, thus gaining a good experience on writing batch files and writing parallel threaded programs in the process of submitting jobs.
  - Currently working on extending the idea of mixed kernels in polar codes.

Non Course Projects

- **Undergraduate Research Award**: (April 2010 - ongoing) (Guide - Prof. Saravanan Vijayakumaran)
  - I have gained a good amount of knowledge on self dual codes and their relations to combinatorial designs in case of extremality (attainment of bounds). I have surveyed the existing research work done on the existence of an (72, 36, 16) self dual code, which has been open for about 40 years. I am still working on this problem.
  - I have also gained a good understanding of the ARQ schemes especially the hybrid ARQ scheme using convolutional codes and tried to modify it using polar codes and Implicit Duality Theorem.
  - One of the problems I worked on was to find the minimum number of bits required for a correlation attack on a stream cipher to be successful. The goal was to find the minimum distance between LFSR output sequences i.e. the minimum distannce of a punctured simplex code by characterising the weight distribution of its dual the shortened Hamming code.

- After the advent of Subspace coding in Network Coding, a bound on the maximum size linear code that can be defined on a projective space has been conjectured, I am currently working on this problem.

- **Tum-Tum Tracker**
  (Undertaken along with a group of 6 students in my Sophomore year)
  Developed an On-Campus Vehicle Tracker. (Tum-Tum is the Shuttle Service of IITB).

Course Projects

- **Network Theory** - A Heuristic for Proving Theorems on Networks Using Mathematical Induction.
- **Digital Systems Lab** - Implemented and Demonstrated an Air Traffic Simulator on CPLD Boards.
- **Computer Programming & Utilization** - Impemented a Mini User Identification Project.
- **Communication Lab** - Designed a PCB which performs the Encoding of Polar Codes.

Technical Skills

- **Software Languages** - C, C++, Python
- **Software Packages** - MATLAB, Latex, Verilog, Asymptote
- **Operating Systems** - Windows, Linux

Relevant Courses

- **Core** Microprocessors, Communication Systems, Electronic Devices and Circuits, Signals and Systems, Analog Circuits, Electrical Machines and Power Electronics, Digital Systems, Digital Signal Processing, Power Systems, Digital Communications, Logic Design, Finite fields(sit through)
- **Mathematics** Probability and Random Processes, Network Theory, Linear Algebra, Complex Analysis, Differential Equations. Calculus, Topology(sit through)
- **Non Core** Computer Programming and Utilization (C++), Marketing Management, Electricity and Magnetism, Chemistry

Positions of Responsibity

- **Coordinator, Techfest 2011**
  Led a team of organisers for the successful execution of the event Exhibitions, and involved in the organisation of the Event

Extra Curricular Activities

- Can solve any size Rubiks cube if given sufficient time. Can solve a 5x5x5 cube within an hour.
- Took training for NSS and involved in many rural development activities
- Constructed a RF controlled car as a part of competition held by the Technic Club of IIT Bombay
- Proficient in Table Tennis, Lawn Tennis and Badminton