Major Projects

- **Analyzing Point Clouds - Bridge Inspection Project** (*Dr. Sebastian Scherer, May 2013 to July 2013*)
  (Visiting Summer Scholar at Field Robotics Center, Robotics Institute, Carnegie Mellon University)
  - Implemented algorithms to build a 3D model of bridge from laser scan data obtained over the flight of an Unmanned Aerial Vehicle (UAV)
  - Developed techniques to analyze coverage of bridge from different viewpoints
  - Presented poster at UG Research Symposium 2013

- **Autonomous Underwater Vehicle Project (AUV-IITB)** *(Prof. H. Arya, Prof. L. Vachhani)*
  Designing and developing an AUV that localizes itself and performs realistic missions based on feedback from visual, inertial, acoustic and pressure sensors using thrusters. [auv-iitb.org]

  16th AUVSI Robosub 2013, San Deigo, CA *(September 2012 to May 2013)*
  - Worked on navigation system : planning, localization and accurate maneuvring
  - Developed algorithms for fusing and filtering data from various sensors and control vehicle.
  - Qualified into semi-finals and placed 10th among 31 teams from around the world

  17th AUVSI Robosub 2014, San Deigo, CA *(August 2013 to Present)*
  - Leading 5-member software subdivison of the team for the competition.
  - Working on control systems, localization and testing framework of the vehicle

- **Google Summer of Code Project** *(May 2012 to August 2012)*
  - Worked with the organisation 'GNU Project' on the project 'Gnucap' (GNU Circuit Analysis Package) under the mentorship of Albert Davis. [`http://gnucap.org`]
  - Worked on a gnucap language plugin for schematic files
  - Implemented a schematic parser which provides interchange of data between simulatable Verilog-AMS netlist and gEDA/gschem schematic format.

- **Traffic Analysis Project** *(Guided by Prof. D. Manjunath, August 2013 to Present)*
  - Working in collaboration with Microsoft on data analysis of GPS and accelerometer data
  - Developing Machine Learning approaches to estimate traffic and predict road conditions

Key Academic Projects

- **epsilon-to-verilog: An Educational Hardware Compiler** *(Guided by Prof. S. Patkar, Sep-Nov, 2012)*
  - epsilon-to-verilog synthesizes programs written in a new custom minimalistic high level language epsilon to hardware description languages
  - The tool parses the cfg (control flow graph) generated by epsilon and does scheduling and allocation to generate hardware description in verilog.

- **Technology Mapping - VLSI CAD** *(Guided by Prof. S.Patkar, EE677 - Autumn 2012)*
  - Modeling the problem of technology mapping as a tree covering problem using pattern trees of the library gates.
  - Implementing using python graph-tool library
- **Traveling Message Display** *(Guided by Prof. M.B.Patil and J.John, EE214- Spring 2012)*
  - Worked in a team of 3 members
  - Display a scrolling message taken using keypad on an LED Array
  - Used an FPGA board: DE0 NANO and programmed using Verilog-HDL
  - My work involved writing verilog modules for taking input from the keypad and processing
- **Simulation of Micromouse** *(Guided by Prof.Deepak B. Phatak, CS101 - Autumn 2010)*
  - Led the team of 12 members with 3 subteams of 4 members each
  - Designed n×n mazes, solved them for the shortest path using Bellman-ford algorithm in C++ and simulated the solution using EzWindows GUI.
  - My work involved programming the display over GUI and interlinking the different parts

Scholastic Achievements

- **All India Rank 61** in IIT-JEE (Joint Entrance Examination) - 2010 of 0.455 million students
- **All India Rank 3** in NEST (National Entrance Screening Test)-2010 of 18000 students
- Qualified to appear for the Indian National Chemistry Olympiad (**INChO**) -2010 based on performance in National Standard Examination in Chemistry(**NSEC**) (For **top 300** in NSEC) and has been awarded a book prize for **top 1%** in the nation .
- Qualified to appear for the Indian National Physics Olympiad (**INPhO**) -2010 based on performance in National Standard Examination in Chemistry(**NSEP**). (For **top 300** in NSEP)
- Awarded **Certificate of Merit** by Central Board of Secondary Education (**CBSE**) for being among **top 0.1 %** in 'Science' and 'Social Science' in All India Secondary School Examination - 2008.
- Secured **All India Rank 15** in 10th National Science Olympiad (NSO) - 2007 conducted by Science Olympiad Foundation(SOF).

Technical Skills

- **Programming Languages**: C++,Python, Java, Haskell **Operating Systems**: Linux, Windows
- **Tools**: Latex, Scilab, Mathematica, Photoshop **Web development**: HTML, CSS, JS, Django
- **EE tools**: ngspice, gnucap, gEDA tools, Eagle, Verilog

Additional Courses taken / *currently taking*

Artificial Intelligence	*Foundations of Machine Learning*
Functional Programming	Foundations of VLSI CAD
Games and Information	Data Structures and Algorithms
Advanced Computing for EE	Discrete stuctures
Introduction to Quantum Mechanics	First Course in Optimization

Additional Data

- *Homepage* : www.ee.iitb.ac.in/student/~sksavant
- *Github* : www.github.com/sksavant