Key Academic Projects

E-Learning Academy (Bodhitree) **Summer 2014**
Guide: Prof. Kameswari Chebrolu

- An implementation of the flipped classroom model developed in Django
- Currently under use by nearly 10,000 teachers and students in the country
- Used various tools to optimise the platform after analysis of user behaviour and logs

2D Simulation of an Orrery **Spring 2014**
Guide: Prof. Parag Chaudhari

- A mechanical simulation of the solar system using gears instead of gravity
- Used **Box2D** Physics Simulation engine, GLUT and GLUI to get a graphical output
- Programmed in C++ and profiled and optimised using Unix tools like GProf

VHDL Based Monorail Controller **Spring 2014**
Guide: Prof. Ashwin Gumaste

- Implemented a Monorail controller in VHDL (interfaced with Spartan FPGA)
- Developed a Finite State Machine (FSM) for the simplified Monorail controller system

Artificial Intelligence for Abstract Strategy Board Games **Spring 2013**
Guide: Prof. Amitabha Sanyal

- A one player chess game in PLT Scheme using in-built GUI Toolkit in DrRacket
- AI makes use of the **Minimax Algorithm** with **Alpha-Beta Pruning**
- Heuristics to decide the best move for the computer, at any stage of the game

Paddle Ball Game **Autumn 2012**
Guide: Prof. Abhiram Ranade

- Classic brick breaker game in C++ using **Particle Physics**
- Randomly generating levels with varying difficulty and ball speeds
- **User Interface** designed using the **simplecpp** package

Achievements

- Member of the team (of four) that stood **second runners up** at *Hackcon '14*, Microsoft's national hacking contest, among nearly 250 teams from all over the country.
- Bagged the **first position** at both institute-level and a three-month long accelerator program, *code.fun.do 2014*, a hackathon cum accelerator program by Microsoft IDC.
- Participated in the *software for social cause* competition at the 2014 Inter-IIT Technical Meet, where IIT Bombay stood **3rd overall**.
- Podium positions in all freshmen robotics competitions:
  - **1st** in *autonomous line follower* making competition,
  - **3rd** in *remote-controlled car* designing competition and
  - **2nd** in *remote-controlled football-playing bot* making competition

Professional Experience

Product Development Intern **Summer 2014**
Trumplab

Co-developed a web-application (*Textslate*) that provides simple, user-friendly tools that help teachers better communicate with both students and their parental units. The application is currently being tested across several schools in Mumbai.

Self Projects and Hacks

Classroom Note Maker (Kapi) **Spring 2014**

Microsoft code.fun.do

- A **note-making app** that, along with normal text, typesets maths in LaTeX format
- Core parser functions by recursively breaking down the LaTeX bits into smaller components and parsing them at the token level. Makes use of MathJax (open source JS library)
- Also lets the user draw diagrams and graphs on a canvas (rendered through HTML)

Android Desktop Controller **Summer 2013**

Institute Technical Summer Project (ITSP)

- An Android application that uses Bluetooth to control PC through an Android mobile
- Used Java's **Robot** class to assign PC's features to commands passed by device as strings

Scholastic Achievements

- **All India Rank 104** (*State Rank 2*) among 3.75 lakh participants in *National Level Science Talent Search Examination (NSTSE) 2012* conducted by Unified Council
- Secured **All India Rank 1** in *International Olympiad of Science (IOS) 2009*
- **All India Rank 53** (*State Rank 1*) in *National Science Olympiad (NSO) 2008* conducted by Eduheal Foundation amongst nearly 4 lakh participants
- Pursuing minor in **Industrial Design** and honours in Computer Science
- Amongst **top 0.005%** in AIEEE 2012, an exam taken by over a million students

Programming Skills

- **Languages: C++, Java**, MIT-Scheme, **Python**, Rebol, Prolog, LaTeX 2_ε, VHDL
- **Web Development:** HTML5, CSS3, PHP, JavaScript, Django
- **Engineering Softwares:** MATLAB, SCILAB, LabView

Positions of responsibility

Manager, *Web and Coding Club*, IIT Bombay **April 2014 – Present**

Managing one of the biggest college coding clubs in the country, with various initiatives like increasing open source participation, promoting algorithmic programming as a sport, helping people develop software better and club projects. Leading a team of 9 co-ordinators with a vision to establish programming as a hobby, rather than just an aid for academics.

Web Secretary, *Hostel 3*, IIT Bombay **April 2013 – March 2014**

Elected as the Web Secretary for Hostel 3. Responsibilities include:

- Conducting intra-hostel web development workshops and competitions.
- Design and maintenance of the hostel website and ensuring that everything done by the hostel council is transparent and publicised through a common web portal

Extra Co-Curricular Activities

- Mentored 2 freshmen teams that successfully completed their Summer Projects under Institute Technical Summer Project, 2014
- Participated in several speaking events, including **MUNs**, **debates** and **extempores**
- A newbie FOSS contributor, familiar with working on large codebases (like Firefox)
- Completed the year-long course by **National Sports Organization (NSO)** in **Squash**
- Enthusiastic in swimming and water adventure sports
- Organised Google I/O Extended 2014 Mumbai which had a footfall of over 150

Key Courses Undertaken

Database and Information Systems*, Computer Graphics*, Computer Networks*, Computer Architecture*, Operating Systems**, Compilers**, Artificial Intelligence**, Implementation of Programming Languages**, Data Structures, Abstractions and Paradigms in Programming, Software Systems, Design and Analysis of Algorithms, Logic Design, Computer Programming and Utilization, Discrete Mathematics, Human Computer Interactive Design, Technology and Animation*

`* marked courses will be completed by December 2014`

`** marked courses will be completed by April 2015`