**Ranveer Aggarwal**
**Computer Science & Engineering**
**Indian Institute of Technology Bombay**

**120050020**
**UG Third Year (B.Tech.)**
**Male**
**DOB: 20-02-1995**

| Examination | University | Institute | Year | CPI / % |
|---|---|---|---|---|
| Graduation | IIT Bombay | IIT Bombay | 2015 | 7.11 |
| Intermediate/+2 | CBSE | Lady Anusuya Singhania Educational Academy | 2012 | 92.80 |
| Matriculation | CBSE | Hem Sheela Model School | 2010 | 9.60 |

## 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 $2_\varepsilon$, 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*

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* marked courses will be completed by December 2014
** marked courses will be completed by April 2015
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