Vishal Agarwal   120110009
Computer Science & Engineering   **B.Tech.**
Indian Institute of Technology Bombay   **Male**
          DOB: 30/10/1994

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2016	9.39
Intermediate/+2	HSC	Pace Junior Science College	2012	92.67
Matriculation	ICSE	Chatrabhuj Narsee Memorial School	2010	96.60

Key Scholastic Achievements

- Awarded **AP grade** for exceptional performance in *Abstractions and Paradigms for Programming, Engineering Drawing and Psychology* at IIT Bombay
- Qualified to appear for the **Indian National Astronomy Olympiad** (INAO) in 2012
- Pursuing an **Honors** in Computer Science and a **Minor** in Management

Professional Experience

Amazon Development Centre   *Summer 2015*
Enhancements to Indian Address Validation System   *Abhay Dang, Software Development Manager*

- Enhanced the **address labelling** algorithm to identify all the localities from an address, this resulted in a **12% increase** in the validation rate
- Implemented **heuristic based result ranking** which increased the user acceptance rate by **5.5%**
- Designed and implemented an application to ensure consistency of the **geographical data of India** (modelled as a graph) across data updates
- Received a **Pre Placement Offer** after successful completion of the project

Google Summer of Code   *Summer 2015*
Web Tracking Extension for CiviCRM   *Kurund Jalmi, Core Team Member*

- Integrated the web tracking features provided by **Google Analytics** with CiviCRM
- Implemented Event tracking, **A/B testing** and E-Commerce tracking to reduce the number of user clicks, improve the conversion rate and identify the top revenue generating referral traffic sources
- Developed a dashboard using the **Embed API** to get a summary of the web tracking report

Edelweiss Capital   *Summer 2014*
Order Management System   *Mudit Sharma, Senior Manager*

- Designed and implemented a service to calculate the latency of the servers
- Enhanced the service by **parallelizing** computation which significantly reduced the running time
- Developed a file parser and a multi-tabbed dialog for the Order Management System

Research Projects

Image based CAPTCHA | *Undergraduate Thesis, Prof. Ajit Rajwade*   *Ongoing*

- Designing a new **point tracking** based CAPTCHA which is robust against SIFT and motion tracking
- Devising more intelligent attacks which could be used to crack the CAPTCHA and taking countermeasures to prevent the same

Dictionary Learning for Image Processing | *Research Project, Prof. Suyash Awate*   *Autumn 2015*

- Explored and implemented algorithms for dictionary learning formulated as **sparse-regression/L1-optimization** problems in the Euclidean space
- Worked on applications of sparse coding using the learned dictionary for **medical image analysis**

Key Academic Projects

Compiler Implementation | *Compilers, Prof. Amitabha Sanyal*   *Spring 2015*
- Developed a compiler for a C like language using Flex and Bisonc++
- Supported arithmetic operations, control statements, function calls and **function overloading**
- Implemented optimizations like **Sethi-Ullman algorithm**, **lazy evaluation** and constant folding

File System Implementation | *Operating Systems, Prof. Dhananjay Dhamdhere*   *Spring 2015*
- Developed a bytestream oriented file system with a **disk cache** for an experimental OS
- Implemented an LRU like page replacement policy for the disk cache

Effect of Transport Layer Protocols on Games | *Networks, Prof. Varsha Apte*   *Autumn 2014*
- Developed a **multiplayer network game**, an adaptation of the classical Bomber Diffuser game
- Analyzed the differences observed between using **TCP** and **UDP** as the transport layer protocol

Analyzing the Performance of RAID-01 | *Databases, Prof. Nandlal Sarda*   *Autumn 2014*
- Developed a simulation of RAID-01 and analyzed its performance under various read/write sequences
- Analyzed the effect of taking a **snapshot** in parallel with sequential and random IO sequences

Hotel Booking Application | *Databases, Prof. Nandlal Sarda*   *Autumn 2014*
- Implemented a three tier web application where customers could book/cancel rooms, avail discounts and give feedback, and the manager could get meaningful insights about the performance of the hotel
- Implemented **dynamic pricing**, the pricing of the room depended on the time of booking, number of rooms available, duration of stay, seasonal trends, etc.

Toonification | *Image Processing, Prof. Ajit Rajwade and Prof. Suyash Awate*   *Autumn 2014*
- Developed an application to **cartoonify** real life images using **color quantization** and the **staircase effect** of the bilateral filter

Positions of Responsibility

Teaching Assistant, Computer Architecture   *Autumn 2015*
- Responsible for assisting a group of **96 students** during the tutorial sessions and the associated labs
- Selected based on excellence in academics, communication skills and mentoring skills

Mentor, Institute Buddy Programme   *Autumn 2015*
- Appointed mentor to **guide an international student** on an exchange programme at IIT Bombay
- Responsible for ensuring an easy transition to the social and academic culture of the institute

Mentor, PACE Institute   *Summer 2013*
- Responsible for academically assisting a group of **20 aspiring IIT-ians**
- Developed study material for an online programme to promote education in rural areas

Head Boy, C.N.M.School   *2009-2010*
- Led a team of **16 house captains** to organize the Sports Day, Annual Cultural Function, etc.

Extra Curricular Activities

- Avid **Table Tennis** player, a member of the National Sports Organization (NSO) 2012-2013
- Completed a month long boot camp on **Entrepreneurship** organized by IIT Bombay
- Represented C.N.M.School in various **elocution/debating** competitions organized by Cascade and the Rama Krishna Mission group