



**Vipul Singh**  
**Computer Science & Engineering**  
**Indian Institute of Technology Bombay**

**100050057**  
**B.Tech.**  
**Male**  
**DOB: 29.11.1991**

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2014	9.77
Intermediate/+2	CBSE	MGM Sr. Sec. School, Bhilai	2010	96.20
Matriculation	CBSE	Delhi Public School, Bhilai	2008	96.20

#### KEY SCHOLASTIC ACHIEVEMENTS

- **Department Rank 1** among a batch of 89 students
- **Silver Medalist** (World Rank 41) at **International Physics Olympiad 2010** held in Croatia involving around 380 students from 80 nations
- **All India Rank 5** in IIT-JEE 2010 among 4.5 lakh candidates
- **All India Rank 1** in AIEEE 2010 among a million candidates
- **KVPY** (Kishore Vaigyanik Protsahan Yojana) scholar during 2009-10
- Represented India at **Asian Science Camp '09**, Japan attended by 7 Nobel laureates and 200 students from all over Asia
- Awarded **AP grade** for exceptional performance in *Modern Physics, Economics, Numerical Analysis* and *Computer Programming and Utilization* at IIT Bombay
- Pursuing a **Mathematics Minor + CSE Honours**

#### INTERNSHIPS

##### New Timeline Section

Guide : Jason Fotinatos, **Facebook - Menlo Park**

**Summer 2013**

Built a basic version of a new in-house timeline app collection for Facebook.

##### Error Analysis of delayed CTMC model

Guide : Prof. Thomas Henzinger, **IST Austria**

**Summer 2012**

Formally verified the correctness of the delayed Continuous Time Markov Chain (CTMC) model for gene regulatory circuits for a 1-particle system.

#### RESEARCH PROJECTS

##### Quantum-Computing+NLP

Guide : Prof. Pushpak Bhattacharya, **IIT Bombay**

**Autumn 2013**

Exploring the applications of quantum computing to well-known problems like Part Of Speech tagging in Natural Language Processing.

##### Clustering in Forecasting

Guide : Prof. Bernard L. Menezes, **IIT Bombay**

**Autumn 2013**

Understanding the reasons behind similarities observed for groups of series and models that leads to cluster formation while forecasting.

#### COURSE PROJECTS

##### Quantum Computer Simulator Guide : Prof. Amitabha Sanyal **Spring 2011**

Developed a *debugger-cum-simulator* in DrScheme for building quantum networks using *binary trees* and *higher order functions*. Also implemented algorithms such as Grover's, Deutsch-Jozsa and Fast Fourier Transform

##### Wireless Multi-Point Relay Guide : Prof. Varsha Apte **Autumn 2011**

Built a wireless network simulator in C++ using innovative concepts to enable maximum data transfer and minimum congestion.

##### Intel 8085 Simulator Guide : Prof. Deepak B. Phatak **Autumn 2010**

Implemented in C++ with a *3-level debugger*. The graphical interface is a complete IDE, the user can compose programs, save and retrieve them from disk.

##### Others

- Seminars: **Oracle Machines** for PvsNP & **Maximum Entropy Markov Model**
- **Backup perf-analysis** with i/o parallelism and check-point recovery in toyDB.

	<ul style="list-style-type: none"> <li>Enhanced the <b>Control Flow Graph Language Processor</b> to support control flow statements and procedures including recursive ones.</li> <li>Built <b>Virtual Memory</b> system with swap space and page replacement on OS/161.</li> <li>Developed a <b>web interface</b> to IITB's <b>XData SQL grading system</b> to allow query testing and provide the facility for online assignments for a database course.</li> </ul>
SCHOLARSHIPS	<ul style="list-style-type: none"> <li><b>INLAKS</b> Award of Excellence from the session 2011-12 onwards.</li> <li>Awarded the <b>Institute Academic Prize</b> thrice (2010-13) by IIT Bombay</li> <li><b>NTSE</b> (National Talent Search Exam conducted by NCERT) scholar since 2008</li> <li><b>Sarvotam</b> scholarship granted by SAIL for the academic years 2010-13</li> </ul>
OTHER ACADEMIC ACHIEVEMENTS	<ul style="list-style-type: none"> <li>Certificate of Merit and Gold medal in <b>Indian National Olympiads in Physics and Chemistry</b>, 2010 for being among the <i>top 35</i> in both</li> <li>Invited to Selection Camp for International <b>Astronomy Olympiad</b> 2010</li> <li><b>CBSE Merit Certificate</b> in Physics, Chemistry and Mathematics for being among the top 0.1% in India in each subject in AISSCE-2010</li> <li>Invited to witness Republic Day parade 2011 from <b>Prime Minister's box</b></li> <li><b>All India Rank 1</b> in 5<sup>th</sup> and 8<sup>th</sup> National Cyber Olympiads and 3<sup>rd</sup> International Mathematics Olympiad conducted by Science Olympiad Foundation, Delhi</li> <li><b>All India Rank 1</b> in National Science Talent Search Exam 2009 conducted by Unified Council, Hyderabad</li> <li><b>All India Rank 2</b> in the 12<sup>th</sup> National Science Olympiad and 7 other single-digit ranks in such national-level exams since <i>VI<sup>th</sup></i> standard</li> <li>High Distinction in <b>Australian National Chemistry Quiz</b> in 2007 and 2008</li> </ul>
LOGIC	<ul style="list-style-type: none"> <li>8<sup>th</sup> in Mumbai at the <b>Times Sudoku Championship</b> 2013</li> <li>1<sup>st</sup> in 2013 and 3<sup>rd</sup> in 2011-12 at Techfest's <b>Indian Sudoku Championship</b></li> <li>Winner of <b>BRAINZ Mental Ability Quiz</b> at COFAS 2007 at CMS Lucknow</li> <li>2<sup>nd</sup> in <b>Integration Bee</b> at Techfest 2011</li> </ul>
EXTRA COURSES UNDERTAKEN	Probability Theory, Derivative Pricing, Computational Algebra, Convex Optimization, Real Analysis, Complexity Theory, Fourier Analysis, Web Search and Data Mining, Basic Algebra, Machine Learning, Speech and NLP, Linear Optimization
SKILLS INTERESTS	<ul style="list-style-type: none"> <li><b>C++</b>, <b>Python</b>, <b>Java</b>, <b>PHP</b>, MIT-Scheme, L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>, MATLAB, Eagle</li> <li>Cryptography, Game Puzzles, Quizzing, Photography, Teaching</li> </ul>
POSITIONS OF RESPONSIBILITY	<ul style="list-style-type: none"> <li>Mentored nearly 3000 students (mostly JEE aspirants) nationwide through live seminars under <b>Quality Education for All</b>, a company founded by IITians</li> <li><b>Teaching Assistant</b> for CS101, Modern Physics and Numerical Analysis courses</li> <li>Awarded <b>Hostel Technical Color</b> and <b>Organizational Color</b> for improving the technical scene during my tenure as Secretary for Technical Activities, 2011-12</li> </ul>
QUIZZING	<ul style="list-style-type: none"> <li>2<sup>nd</sup> in East Zone and <b>National Semi-finalist</b> at <b>India's Child Genius Quiz</b> hosted by Shri <i>Siddhartha Basu</i> in 2004</li> <li>3<sup>rd</sup> in the Sweden-India <b>Nobel Memorial Quiz</b> - Mumbai round 2012</li> <li>Winner of the 1<sup>st</sup> <b>Tata Inter School Quiz</b> in 2007</li> <li>East Zone Quarter-finalist at <b>ESPN School Quiz</b> 2005 hosted by <i>Harsha Bhogle</i></li> <li>Reached the national round of Prof. Brahm Prakash Memorial <b>Materials Quiz</b> 2008 held at <b>Indira Gandhi Centre for Atomic Research</b>, Kalpakkam</li> </ul>
OTHER EXTRA CURRICULAR ACTIVITIES	<ul style="list-style-type: none"> <li>Featured in an advertisement for TataSky <b>Active Vedic Maths</b> service in 2013</li> <li>Represented Kenya in General Assembly at <b>DPS Model United Nations-2007</b></li> <li>Winner of <b>World Population Day Debate</b> 2006 organised by Bhilai Steel Plant</li> <li>Gold Medalist in <b>Kartab All-India Children Colour Contest</b></li> <li>Silver Medalist in <b>Avantika International Talent Search Essay Contest</b></li> </ul>