Ayush Kanodia | **110050049**
Computer Science and Engineering | **UG Third Year**
Indian Institute of Technology, Bombay | **Male**
Specialization: N/A | **DOB: 2nd April, 1993**

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2015	9.87

Academics

Credentials

- **Ranked 1** in the Department of Computer Science and Engineering 2013
- **All India Rank 75**, State Rank 1, IIT JEE, among 500,000 candidates 2011
- **Second highest** aggregate in India in intermediate/+2 examination (ISC Std XII) 2011
- Pursuing a **minor** degree in **Statistics**, and **honours** in **Computer Science** 2012 onwards

Distinctions and Awards

- Conferred the **Institute Academic Award** for academic excellence 2012 & 2013
- **Ranked 36** in the regional round, qualified for onsite nationals, **ACM ICPC** 2012
- Awarded **AP** for outstanding performance in CS 101 (Computer Programming & Utilization) 2011
- Awarded **Mamraj Agarwal** award, by hon'ble governor, West Bengal (Std XII performance) 2011
- Awarded **Student of the Year** for academic excellence, by The Telegraph, Kolkata 2011

Olympiads

- Successful at the **Indian National Mathematical Olympiad**, by HBCSE 2010
- International rank **16**, gold medal at International Olympiad of **Science** (Silverzone) 2011
- International rank **39**, gold medal at International Olympiad of **Mathematics** (Silverzone) 2011
- Certified as among top 1% (300 students) in India, to appear for the Indian National Physics Olympiad, Chemistry Olympiad and Astronomy Olympiad 2011

Scholarships

- Scholar, **Cargill Global Scholarship Programme**, awarded to 10 students in India and 50 students worldwide for outstanding academic performance and leadership potential 2013
- **KVPY** (Kishore Vigyan Protsahan Yojana) scholar, All India Rank 57 (Govt of India) 2011
- **INSPIRE** scholar, awarded to top 1% students of intermediate examination (Govt of India) 2011

Internships & Research Experience

IST Austria, Summer 2013

Combinatorial Game Theory **Prof. Krishnendu Chatterjee**

- Worked on **Partial-Observation Markov Decision Processes** (POMDPs) with ω-regular objectives, especially **Büchi** and **Parity** objectives, as well as quantitative objectives
- Established theoretical results, and efficient practical implementations for EXPSPACE algorithms
- A research paper is under preparation for submission to **AAAI/UAI/AISTATS**, 2014
- A tool paper is under preparation for submission to **CAV/ATVA**, 2014

Biological Auction Theory **Prof. Krishnendu Chatterjee**

- Worked on theoretical foundations as well as simulation results for **biological auctions**
- Studied **APAs (All Pay Auctions)** & **SAPAs (Second Price APAs)**, extended existing results for one reward per auction case to multiple rewards; **a paper is under preparation** for the same

Projects

Metaheuristics versus Conventional Methods **Varsha Apte**

- Implemented **JPEG compression** using Discrete Cosine Transform and entropy encoding
- Implemented vector quantization technique using **Neural Networks**, with hyperthreading
- Performed and documented a detailed **comparative analysis** of both methods

Maximal Flow Systems **Prof. Nutan Limaye**

- Developed an application of **Maximal Flow Systems**, to build a course recommendation system
- Applied the **Ford Fulkerson Algorithm** to a bipartite graph to find a maximum matching

Genetic Algorithms **Institute Technical Summer Projects, IIT Bombay**

- Mimicked the principles of **Genetic Evolution** such as randomization, crossover, mutation and natural selection to find near optimal solutions to the **Traveling Salesman Problem**

Single Player Chess **Prof. Amitabha Sanyal**

- Built single player chess, in DrRacket (Lisp) with XBoard as GUI, using Functional Programming
- Employed artificial intelligence using the **Minimax algorithm** with **alpha-beta pruning** and heuristics to decide the best move for the computer player, at any given stage

Data Analysis & Interpretation **Prof. Milind Sohoni**

- Statistically **analysed census data** about social conditions in Mumbai sub-districts, using Scilab
- Performed parameter analysis and estimation, using statistical methods and **regression analysis**

Fast Fourier Transform (FFT) **Prof. Ashwin Gumaste**

- Implemented 8 point, Radix-2, Decimation in frequency **FFT** on a Xilinx **FPGA** board

Rube Goldberg Machine **Prof. Parag Chaudhuri**

- Designed and implemented a Rube Goldberg Machine on **Box2D**, a **Physics Simulation Engine**

Additional Courses

Computer Science: Program Derivation, Linear Optimization*, Information Retrieval & Mining for Hypertext & the Web*, Game Theory***, Combinatorial Game Theory***
Statistics: Introduction to Probability Theory, Applied Stochastic Processes, Statistical Inference*, Regression Analysis**

* To be completed by November 2013 | ** To be completed by April 2014 | *** Completed online on coursera.org

Positions of Responsibility

Editorial Board Member, Campus Newsletter (Insight) 2013
In charge of conceptualizing, planning and executing the newsletter, especially investigative articles

Convener, (Institute Speakers' Club) 2012-13
Conceptualized & executed events, helped train freshmen for speaking arts such as debate, MUN

Core Organizing Team, Techfest International Model United Nations (MUN) 2013-14
Secretarial board member, for planning and execution of the second Techfest International MUN

Mentor, Institute Buddy Programme 2013
Paired up as a buddy, to guide an international student on an exchange programme at IIT Bombay

Teaching Assistant 2013
Teaching assistant for CS 207, Discrete Structures, under Prof. Nutan Limaye, CSE, IIT Bombay