



Ruchir Gupta
Electrical Engineering
Indian Institute of Technology, Bombay

08007001
B.Tech.
Male
DOB: 15/10/1990

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2011	8.68
Intermediate/+2	CBSE	Maharaja Agrasen Vidyalaya	2008	89.20
Matriculation	CBSE	Maharaja Agrasen Vidyalaya	2006	95.33

ACADEMIC ACCOLADES

- Pursing a Minor in **Computer Science & Engineering** through additional learning courses
- Ranked **162nd** in IIT-JEE (320,000 students) and **328th** in AIEEE (800,000 students) (2008)
- Received the CBSE Merit Scholarship (**Top 350** in India) for exemplary academic performance (2008)
- **Top 1%** at the state level in the National Standard Examinations in Physics & Chemistry (2007)
- Scores in Math & Science: **94.7%** in CBSE Class 12th and **98%** in CBSE Class 10th; School **topper** in Class 10th

RESEARCH PUBLICATIONS

- **Co-authored & presented** the paper "*Modeling the Indian Stock Market using Jump Diffusion Processes*" at the 2nd IIMA International Conference on Adv. Data Analysis, Business Analytics & Intelligence (2011)

LEADERSHIP POSITIONS & PERSONAL IMPACT

Institute Student Mentor [2011-present]

- Currently mentor **ten freshmen** undergraduates to ensure a **smooth transition** to campus life
- **Selected** to a team of **77 from 324** final and pre-final year students based on **all-round achievements**

Overall Coordinator [2010-11]

Students' Technical Activities Body, IIT Bombay

- Awarded the IIT-B **Organizational Special Mention** (2011) for impact on the institute's technical scene
- Led a team of **15** club managers from different years to manage **five technical hobby clubs** at IIT Bombay
- Successfully organized **70+ well-received** workshops, competitions, talks and exhibitions over a single year, across astronomy, aeromodelling, electronics, web development, hobby physics as well as coding
- *Major Initiatives:*
- Founded **Technovation**, an **innovation program** aimed at providing resources in terms of **funding** and **mentoring** to **student-driven** technical projects; lead to a **12-fold increase** in student participation
- For the **first time**, introduced club **T-shirts** and semester-long **calendars** for individual clubs
- Set up the first ever **online resources wiki**; spearheaded a successful **club restructuring** agenda

Convener [2009-10]

The Web and Coding Club

- As the **first convener** of a new club, **conceptualized** and successfully organized events ranging from faculty talks and **workshops** to competitions pertaining to **web development and coding**
- **Targeted** students from different years and branches by **designing events** most relevant to them
- Successfully built an active club community of more than **400 members** in a single year

Founder [2008-09]

crackJEE

- Developed an online free **IIT-JEE mentoring forum** to provide mentorship to students and their parents. Personally helped more than **100 students**; featured in local media including **The Times of India**

INTERNSHIPS

Deutsche Bank

[May-July 2011]

Global Equities – Quant & Algorithmic Trading Desk

- Developed **quantitative tools** to analyze the impact of **market microstructure changes** on **volatility**, **liquidity**, the number of **daily trades**, and **correlation** amongst key stocks at different trading venues
- Identified the main **parameters** that determine **price movements** after **company earnings** releases and devised **algorithms** to signal possible **trading opportunities** based on previously seen results
- Researched the detection of intraday & off-market **block trades** for S&P 1500 & analyzed **market impact**

IIM Ahmedabad

[May-July 2010]

Quantitative Methods Research Group

- Analyzed the inability of the **Geometric Brown Motion** assumption of the **Black Scholes model** to accommodate **price movements** with **rallies & crashes** and identified the key factors responsible
- **Customized** the **Jump Diffusion** stochastic process which adds **jumps** to the movement at **discrete points** in time. Experimented with jump size **distributions** and **estimated parameters** for the BSE Sensex Index
- The model resulted in much more **accurate** short-term **volatility** figures and significant **insights** into the “jump” **behavior** in stocks, that were earlier ignored in the **Geometric Brownian Motion** assumption

Gridbots Technologies

[December 2009]

A Robotics Start-up under incubation at IIM Ahmedabad

- Collaborated with a **TED Fellow** to devise image processing algorithms for applications in **robotic vision**
- Focused on real-time **orientation detection** techniques based on pure geometrical considerations

KEY ACADEMIC PROJECTS

Symbiotic Relaying in Cognitive Radio Networks

[Senior Thesis, Ongoing]

Signal Processing & Artificial Neural Networks Laboratory, IIT Bombay

- **Symbiotic relaying** allows secondary nodes to assist a primary **communication network** under bad channel conditions, while they are **compensated** by access to the primary network's spectrum
- Working on **Neural Network** based ideas to share information amongst secondary nodes and decide **optimal paths** for maximizing the **data rate** for both the primary & secondary networks

Object Tracking in Video Sequences

[Course Project, Ongoing]

Image Processing & Advanced Computing Courses

- Developing **algorithms** to **track objects** of interest in a series of images from a video sequence
- The process involves significant processing in terms of de-noising, blurring and segmentation

Memristors in Network Analysis

[Term Paper]

- Extrapolated RLC analysis techniques to the Memristor, a **newly discovered** circuit component

Digital Ping-Pong Game

[Lab Project]

- Used the most basic **digital ICs** to implement the 2-player game with a **single digital circuit**

HOBBIES & INTERESTS

Web Development:

- An avid **self-taught** web developer since the past eight years. As an occasional **freelancer**, recently developed web-based systems for a IIT Bombay students' **start-up** in education

Music & Sports:

- Formally trained in Hindustani Classical **Music** (Keyboard) for **3 years**. Can compose songs on my own
- Hold the **Orange** belt in **Karate** and an occasional **Table Tennis & Lawn Tennis** player

Other

- **Volunteered** with IITB's **social service** team; **awarded** the Certificate of Appreciation (**Top 5** students)
- An interest in **speaking** and a regular **winner** in **debating & extempore** competitions in school
- Passionate about **Astronomy** & photograph celestial events using my **telescope** when possible