Sahil Shah
Computer Science & Engineering
Indian Institute of Technology Bombay

160050005
UG Second Year
Male
DOB: 27/12/1997

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2018	9.94
Intermediate/+2	HSC, Maharashtra	D.G. Ruparel College	2016	94.62
Matriculation	ICSE	Greenlawns High School	2014	97.50

Pursuing a **Minor** in **Applied Statistics and Informatics**

MAJOR ACADEMIC ACHIEVEMENTS

- Secured **Institute Rank 2** in the first year in a batch of 880 students at IIT Bombay [2017]
- Secured **All India Rank 21** in **JEE (Advanced)** amongst 200,000 shortlisted candidates [2016]
- Secured **All India Rank 81** in **JEE (Main)** amongst 1.4 million candidates [2016]
- Awarded **Advanced Performer's (AP)** grade for exceptional performance in Introduction to Programming and Abstractions & Paradigms in Programming (awarded to top 1% of the class) [2017]
- Secured **All India Rank 3** in the Standard X ICSE Examination [2014]
- Qualified amongst the **top 35 in India** in the Physics Olympiad and Astronomy Olympiad [2016]
- Qualified for the Indian Mathematics Olympiad and stood **Fifth** in Mumbai region [2015]
- Qualified in the KVPY (Kishore Vaigyanik Protsahan Yojna) examination with **All India Rank 149** [2015]
- Secured admission to **Chennai Mathematical Institute** and **Indian Institute of Science** [2016]

KEY TECHNICAL PROJECTS

Autonomous TA, *Institute Summer Technical Project* [May-June'16]

- Created a platform to autonomously **frame questions** from passages of text and **grade responses**
- Implemented extensive **Natural Language Processing** pattern matching algorithms for question generation and weighted word comparison algorithms for grading, using python
- Used the Stanford Parser and python's nltk library to generate **parse trees**, and web scraping algorithms for synonym and antonym detection. Django was used to build a web-based user interface

Comprehensive Teaching Interface, *ONGC Training Academy* [Jan -17-present]

- Led the technical team that went to ONGC Academy to design and develop a comprehensive **web-based trainee-management platform using Django** for all their training programmes
- Digitalised all administrative aspects of the Academy by providing a user-friendly one-stop solution which included functionality like attendance, feedback forms, grading, lecture material and chat forums
- **Optimised the bureaucratic procedures** to ensure transparency and prevent duplication of effort while providing convenient access to information to all ONGC recruits and officers being training at the academy

EYE - The Interpreter that Visualises, *Guide: Prof Kavi Arya (Course Project)* [Sep '17-Pesent]

- Design and implement an **interpreter** with lexer, parser and interpreter modules using python's rply library
- Provide a comprehensive overview of how an interpreter functions through a **visual representation** of the behind-the-scenes **memory allocation** and execution environment, for use as a learning and debugging tool
- Visualise algorithms by developing graphical representations of common data structures and their methods

Mars Rover, *Mars Rover Society* [Dec '16-Present]

- Part of the **Software subsection** of the team from IIT Bombay that created a fully functional, multi-purpose all-terrain rover for **exploration of the Martian surface** using the **ROS** framework
- Implemented a **Communication System** using XBees and a Graphical User Interface using **RViZ**
- Developed and implemented algorithms for **autonomous navigation** to a given GPS target through an obstacle-filled terrain using Virtual Potential Fields. The rover can also detect a marker near the target

Chess Engine, *Guide: Prof. Amitabha Sanyal (Course Project)* [Feb-April '17]

- Implemented the **Minimax algorithm** along with **alpha-beta pruning** for increased efficiency to build a chess-playing **artificial intelligence**
- Implemented all the rules of Chess and a graphical interface for one-player and two-player chess in the **functional programming paradigm**, using the Racket language

OTHER PROJECTS

- **Cryptography:** Implemented **RSA** encryption and decryption for large numbers (800-bits) using C++
- **Constellation Detector:** Created a program to identify constellations in photographs using pattern matching, which won **Third Place** among all IITB students in the FOSSEE hackathon
- **Autonomous Line Follower:** Built a line-following bot that could autonomously find its way out of a maze and wrestle other bots and secured **First Position** in Wrestle AI, a competition for 880 IITB Freshmen
- **Summer of Science:** Explored the world of **derivatives and mathematical finance**, covering topics like the Black-Scholes model, common strategies like spreads, and options arbitrage.
- **Summer of Code:** Explored and implemented different data structures and algorithms, and solved **competitive coding** problems using greedy algorithms, dynamic programming and graph theory.

KEY POSITIONS HELD

Founder and Designated Partner, *S6 Software Solutions LLP(Regd.)* [September 2017-present]

- The partnership firm employs web-enthusiasts within the student community to deliver **optimised software solutions** while helping our colleagues and us gain practical coding experience
- Developed, marketed and leased to **ONGC's HR department** a comprehensive web portal to serve the needs of the ONGC Academy, Dehradun (ONGC is India's largest Public Sector Undertaking)
- Felicitated at ONGC Headquarters, Delhi by ONGC's **Executive Directors**

Convener, *Web and Coding Club, IIT Bombay* [July 2017-Present]

- Organised various hackathons and talks and **conducted** hands-on **sessions on Python, git** and **Scratch** with the aim of expanding and strengthening the coding community at IIT Bombay
- **Editor** of the club's **Weekly Newsletter** (read by over 2000 students), and the club's social media pages

Teaching Assistant: Calculus, *Prof. Ravi Ragunathan* [July 2017-Present]

- Entrusted with **teaching and conducting help sessions** for 880 first-year B.Tech students

TECHNICAL SKILLS

Programming	C/C++, Python, Java, MATLAB, AWK, bash
Web Development	HTML, CSS, Django, JavaScript
Softwares	Git, LaTeX, AutoCAD, gnuplot, Doxygen
Electronics	ROS, Arduino

KEY COURSES UNDERTAKEN

- **Computer Science:** Computer Programming and Utilization, Abstractions and Paradigms in Programming + Lab, Data Structures and Algorithms + Lab*, Data Analysis and Interpretation*, Software Systems Lab*, Design and Analysis of Algorithms**, Convex Optimization**, Logic for Computer Science**, Computer Networks and its Lab**, Digital Logic Design + Lab**
- **Mathematics and Statistics:** Calculus, Linear Algebra, Ordinary Differential Equations, Discrete Structures*, Introduction to Probability Theory*, Introduction to Derivatives Pricing**

** To be completed by November'17* *** To be completed by April'18*

EXTRA-CURRICULARS

- **School Head Boy:** Elected by the students to lead the School, represent delegations to Inter-School competitions, anchor all Intra-School events and head the Student Council [2013]
- Awarded **Outstanding Student of the Year**, Best Councillor, Maximum Representation in Inter-School events, Maximum Participation in Co-Curricular Activities and **Best All-Round Student** [2014]
- Selected by **Dukes University, USA** in Standard VIII as one of 75 exceptionally talented students from India, through the ASSET aptitude test, to attend summer course on **Entrepreneurial Leadership** [2011]
- Distinction in Grade 3 of Trinity College's Speech & Drama and **Communication Skills** courses [2009]
- Built a Bluetooth controlled bot and a **Remote Controlled Plane** from scratch [2017]
- Managed a team of 50 organisers to conduct events, and developed the official website (that receives 6.5 million hits yearly) for **Mood Indigo, 2017** as **Coordinator** of the Creatives Department. [2017]