



Tushar gautam
Computer Science & Engineering
Indian Institute of Technology Bombay

170050026
UG Second Year
Male
DOB: 19-09-1998

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2019	10.00
Intermediate/+2	CBSE	Nalanda Academy Sr. Sec. School	2017	93.20
Matriculation	CBSE	Nalanda Academy Sr. Sec. School	2015	10.00

Pursuing minor in **Applied Statistics and Information**

SCHOLASTIC ACHIEVEMENTS

- Currently ranked First in the Institute, and amongst all Junior Undergraduates at IIT Bombay (2018)
- Received the **Institute Academic Award** at IIT Bombay for exceptional academic performance (2018)
- Secured **All India Rank 24** in **IIT JEE-Advanced** out of 220,000 candidates (2017)
- Secured **All India Rank 38** in **JEE-Main** out of 1.2 million candidates (2017)
- Awarded **Advanced Performers (AP)** grade for exceptional performance in Quantum Physics and application, Basics of Electricity & Magnetism and Physical Chemistry courses (2018)
- Received **Kishore Vaigyanik Protsahan Yojana Fellowship (KVPY)** awarded by Govt. of India (2016)
- Among the top **35** students in the country to qualify for the **Orientation-cum-Selection-Camp** leading to participation in the **International Physics Olympiad** (2017)
- Qualified **Indian Nation Astronomy Olympiad(INAO)** and selected to attend **Orientation-cum-Selection-Camp of International Astronomy Olympiad** (2016)
- Among the top **35** students in the country to qualify for the **Orientation-cum-Selection-Camp of International Maths Olympiad** (2015)

PROJECTS

Secure Personal Cloud

August 2018 - Present

Course Project under Prof. Soumen Chakrabarti

IIT Bombay

- Project is based on implemententing a cloud based file system like google drive or dropbox with user having control over encryption schema of server
- **Block level file encryption** on server so that server only has encrypted data and only client can decrypt and read information from server
- Support for **multiple clients simultaneously** and synchronization across clients upon request
- Owner of a shared file/directory is able to revoke access to it on demand from other users
- **Web Client** can automatically detect and render common file types like text, image and video and display files of the server

Four Legged Robot

August 2018 - Present

Member, Robotics Club

IIT Bombay

- Working with a team of 7 to make an autonomous 4 legged bot with gripping mechanism
- Studied different mechanisms and papers and understood **Klann Mechanism, Theo Jansen Mechanism and Two hinge/servo Mechanism** for implementing motion in horse like fashion.
- Simulating the mechanisms on linkage to get the proper lengths and constraints and later modelling and simulating in SolidWorks
- Modeled the angle dependency with time to control the two motors at the two joints.

CHESS Variants

Spring 2018

Course Project under Prof. Amitabha Sanyal

IIT Bombay

- Employed artificial intelligence using the **Mini-Max algorithm** with **Alpha-Beta pruning** and **Killer Heuristic**
- The game consisted of both single and double player implementation of Standard chess and antichess.
- Other popular chess variants like HordeChess & RacingKings were also implemented.

- Functional programming language **Racket-scheme** was used to program the game.

SAT Solver

Course Project under Prof. Amitabha Sanyal

Spring 2018
IIT Bombay

- Solved SAT problem in scheme, using **Davis-Putnam-Logemann-Loveland (DPLL) algorithm**
- Implemented a complete, **backtracking-based search algorithm** for deciding the satisfiability of propositional logic formulae in conjunctive normal form

DFA Construction

Course Project under Prof. Amitabha Sanyal

Spring 2018
IIT Bombay

- Constructed **Deterministic Finite Automaton(DFA)** using graphs data structure in scheme
- DFA construction is very helpful in implementing a recognizer for regular expressions

TECHNICAL SKILLS

Programming	C++, C, Python, Java, Bash, AWK, Arduino, Scheme(Racket), Prolog
Web Development	HTML, CSS, JavaScript, JQuery, PHP
Software	MATLAB, Android Studio, Git, \LaTeX , AutoCAD, SolidWorks, Make, CMake

POSITIONS OF RESPONSIBILITY

Coordinator, Competitions

Techfest

May 2018 - Present
IIT Bombay

- Responsible for strategizing and executing Competitions of different genres like Robotics and Coding
- Structured & formulated CoDecode, a national level coding competition conducted in 5 cities across the country
- Leading a team of 10 student volunteers for ideation & execution of Springfield competition conducted by JLT

COURSES UNDERTAKEN

Computer Science	Data Structures and Algorithms + Lab*, Discrete Structures*, Data Analysis and Interpretation*, Software Systems Lab*, Design and Analysis of Algorithms**, Digital Logic Design + Lab**, Logic for Computer Science**, Computer Networks + Lab**, Abstractions and Paradigms in Programming + Lab, Computer Programming and Utilization
Mathematics	Calculus, Linear Algebra, Differential Equations
Statistics	Introduction to Probability Theory
Others	Introduction to Electrical and Electronics Circuits*, Quantum Physics and Application, Basics of Electricity and Magnetism, Engineering Graphics and Drawing, Physical Chemistry, Organic and Inorganic Chemistry, Biology

*to be completed by November 2018

**to be completed by April 2019

EXTRACURRICULARS

- Successfully completed a one year course under the **National Service Scheme (NSS)** IIT Bombay involving ideation and implementation of solutions to social problems (2017-18)
- Cleared the qualification stage of **Facebook Hacker Cup** (2018)
- Participated and successfully completed Autonomous Maze Solver by Robotics Club (2018)
- Solved more than **400 algorithmic problems** on competitive programming websites like Codeforces, Codechef, Sphere Online Judge, UVa OJ, Atcoder, Cscademy, etc (2018)
- Achieved a rating of 2300+ on Codechef (2018)