Parth Laturia
Computer Science & Engineering
Indian Institute of Technology Bombay

180050071
UG Third Year (B.Tech.)
Male
DOB: 14/05/2000

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2021	9.46
Intermediate/+2	CBSE	Disha Delphi Public School	2018	95.20
Matriculation	CBSE	Gyan Mata Vidya Vihar Sr.Sec School	2016	10.00

Pursuing **Minor** in **Applied Statistics and Informatics** and **Honors** in **Computer Science**

Achievements and Scholarships

- Secured All India Rank **3** in **JEE Main Paper 1** out of approximately 1.2 million candidates *(2018)*
- Achieved All India Rank **29** in **JEE Advanced** amongst 163 thousand candidates *(2018)*
- Awarded **Gold Medal** for being placed among the top 35 students in **INChO**, HBCSE *(2018)*
- Qualified for Indian National Physics Olympiad **(INPhO)** (amongst top **396** students in India) *(2018)*
- Recipient of the Kishore Vaigyanik Protsahan Yojana (**KVPY**) fellowship with All India Rank **103** *(2017)*
- Earned the National Talent Search Examination (**NTSE**) fellowship by NCERT, Government of India *(2016)*
- Successfully Completed Orientation-Cum-Selection Camp for **IAO**, HBCSE (amongst **top 35** in India) *(2015)*
- Bagged **4th** Rank and a **Gold** Certificate in **Technothlon** Championship, conducted by IIT Guwahati *(2014)*
- Secured **International** Rank **3** in International Mathematics Olympiad held by SOF *(2013)*

Key Internships & Projects

ATM's Predictive Maintenance —*Process Development, Data Science* *Ongoing*
Guide: Prof. Siuli Mukhopadhyay *Bank of Baroda*

- Reviewed Literature on Classification based Failure Prediction and extracted Pattern based Features
- Building a "Smart ATM" based on Regression model and cross-validation that will pre-alert for serious faults

Winning Notaktoe with Reinforcement Learning —*RL, games* *Summer 2020*
Guide: Prof. Saul Blanco *Indiana University, U.S.A*

- Trained **UCB** based RL model from scratch using 1 **Million** games of self-play to maximise win in Notaktoe
- Incorporated Monte Carlo Policy using Every Visit Approach and NN **binarization** for space-time optimization
- Proposed the usage of **XNOR-Net++** and **Capsule** Networks to make the simulation more effective
- Co-Author of a paper titled "How to play Notakto: Can reinforcement learning achieve optimal play on combinatorial games?" that got accepted at AAAI 2021 (amongst top 21% of all the submitted papers)

Noise Filtering in Stethoscope —*Machine Learning* *Winter 2019*
Ayudevices Private Limited *IIT Bombay*

- Conducted literature survey and tested algorithms for cancelling the noise for the Developed **Digital** stethoscope
- Executed **Recursive** Least Square and Least Mean Square Algorithm to filter out noises from the Heart sound
- Collectively Implemented **Deep learning RNN** model for classifying Heart beats as Normal or Abnormal

Buffer Overflow Attacks and Defenses—*Computer Security, Architecture* *Autumn 2020*
Guide: Prof. Bernard Menezes | Course Project *Computer Architecture*

- Demonstrated the Stack and Heap based buffer overflow exploits along with defenses against them
- Performed a detailed case study on the Code Red Worm paired with the ways of protection against it

Low-Dose Tomographic Reconstruction—*Statistics, Image Processing* *Spring 2020*
Guide: Prof. Ajit Rajwade | Course Project *Advanced Image Processing*

- Reconstructed test images from **low dose** projections and **Re-irradiation** in regions of significant changes
- Incorporated **Weights** map using **FBP** and Z-test to quantify influence of prior templates on the reconstruction
- Implemented the modified **FISTA** package and tuned the parameters to achieve **RMSE** as low as **0.17**

Mastermind Solver—*Optimization, Algorithms* *Spring 2019*
Guide: Prof. Amitabha Sanyal | Course Project *Abstractions & Paradigms in Programming*

- Remodelled a two-player game Mastermind using **Racket GUI** library with the user using mouse as input
- Enforced the 5-Guess and **Mini-max Algorithm** with Alpha-Beta Pruning to identify the user's secret code
- Incorporated **Genetic** Algorithm and **Functional** programming to return secret code for tougher game levels

Question Bank Application —*Backend Development, Programming Language* *Autumn 2019*
Guide: Prof. Amitabha Sanyal | Course Project *Software Systems Lab*

- Developed a **User**-Authenticated Question bank storing questions and involving Question Addition in **Django**
- Devised a Search and Filter Panel based on Question Tags with **Topic Hierarchy** using **Databasing** and SQL
- Incorporated **Paper generation** feature in the Bank along with exporting and downloading them as **PDF**

Prevention of DOS Attacks —*Network Security* *Summer 2019*
WnCC-Seasons of Code *IIT Bombay*

- Devised Server Multi-Client message transfer protocol using **Socket** programming & **PoP3** algorithm in C++
- Studied the **Rampart** algorithm implementation for protecting Web Applications from CPU exhaustion attacks

Positions of Responsibility

Teaching Assistant—*CS101 (Prof. Bhaskaran Raman)* *Nov 2020 - Present*

- Coordinating with CS Dept to mentor students through regularly conducted discussion and lab sessions

Mentorship—*Institute Technical Council* *April 2020 - June 2020*

- **Summer of Science Mentor** - Guided 3 students to research and prepare a report on **Game Theory**
- **Seasons of Code Co-Mentor** - Co-guided 25 students on a CV based project named "**Virtual Keyboard**"

Class Representative—*Computer Science and Engineering Association* *July 2020 - Present*

- Represent the CSE batch of 2022 in Student **Councils** and promote **progress** by solving their academic issues
- To link the Department **faculty** pool with the students and make the batch aware of all the **academic** updates

Social Secretary—*Computer Science and Engineering Association* *June 2019 - June 2020*

- Responsible for organising and administering all the **social activities** in the Computer Science Department
- Promoting interaction and bonding among different batches of students as well as with professors

Maintenance Secretary—*Hostel 16 Council* *October 2018 - August 2019*

- Facilitated **cycle distribution** amongst the students initiated by the Maintenance council of the hostel
- Took **active followups** and kept track of the working of washing machine,dryer and filter of the entire hostel

Web Design Coordinator— *Mood Indigo* *August 2019 - October 2019*

- Developed the Events Page of the official website of Mood Indigo, Asia's largest college festival
- Used **HTML, CSS, Angular** in adding artistic effects to the **front end** of the website

Extracurricular

- Member of the Winning team of the **Hult Prize** OnCampus Round: Social Entrepreneurship Event *(2020)*
- Was a member of the **Finalist** team in Intra-Department **Basketball** Tournament *(2020)*
- Part of the Institute team that bagged **3rd** position in the Inter Institute **Scrabble** League *(2020)*
- Completed a month-long course on **Stand-up Comedy** by ComedyCons Club in Summer School of Cult *(2020)*
- Bagged Runners-up position in the **Researchx** Quiz conducted by EnPoWER cell at IIT BOMBAY *(2019)*
- Engineered a **mobile** app controlled **bot car** with **Bluetooth** connectivity in XLR8 *(2018)*
- Successfully modelled a basic **Remote Controlled Flight** manoeuvre under Aeromodelling Club *(2018)*
- Achieved **4th** position in Annual **Maths** Quiz Competition conducted by **Maths** and **Physics** Club *(2018)*
- Supported Hostel-3 in Achieving **1st Position** in **Crossy GC** by targeting the 5-km track *(2018)*
- Volunteered **80+ hours** in National Service Scheme to maintain **Greenery** at IIT Bombay Nursery *(2018)*
- Held the position for **Senior Head Boy** at Gyan Mata Vidya Vihar Senior Sec. School, Nanded *(2014)*

Technical Skills

Programming	Matlab, C++, C, Python, Java, Bash, Racket, Prolog, VHDL, RStudio, QtSpim
Development	HTML, CSS, JavaScript, Django, ReactJS, NodeJS, Bootstrap, Beamer, LaTeX
Software & Tools	Git, AutoCAD, SolidWorks, SQL, Wireshark, Jupyter, Tensorflow, Numpy, Scipy, Pytorch, Pandas, Matplotlib, Scikit-Learn, StatsModels, Gnuplot

Interests

Machine Learning, Applied Statistics, Image Processing, Algorithms, Competitive Programming

Key Courses Undertaken

Computer Architecture + Lab
Software Systems Lab
Computer Networks + Lab
Discrete Structures
Regression Analysis
Logic for Computer Science
Operating Systems + Lab
Digital Logic Design + Lab
Automata Theory*
Data Analysis & Interpretation
Statistical Inference
Database & Information Systems*
AI & **Machine Learning + Lab**
Design & Analysis of Algorithms
Advanced Image Processing
Intro to Probability Theory
Data Structures & Algorithms
Programming Languages*

**to be completed by April 2021*