



**Yash Jain**  
**Computer Science & Engineering**  
**Indian Institute of Technology Bombay**

**UG Third Year (B.Tech.)**  
**Email: yash.jain3599@gmail.com**  
**Web: www.cse.iitb.ac.in/~yashjain/home**  
**DOB: 03-05-1999**

Examination	University	Institute	Year	CPI/%
Graduation	IIT Bombay	IIT Bombay	2019	8.62
Intermediate/+2	Bhagat Public Sr. Sec. School	CBSE	2017	96.00
Matriculation	St. Anselm's Pink City Sr. Sec. School	CBSE	2015	10.00

Pursuing a **Minor in Management**

## SCHOLASTIC ACHIEVEMENTS

- Selected in **Summer Undergraduate Internship Program** at Carnegie Mellon University (2019)
- Gold Medalist** in theory and **Silver Medalist** in practicals representing India at 11th International Junior Science Olympiad held in Mendoza, Argentina (2014)
- Secured **All India Rank 29** in **JEE-Advanced** out of 220,000 shortlisted candidates (2017)
- Secured **All India Rank 159** in **JEE-Main** out of 1 million candidates (2017)
- Amongst **top 35 students** to attend the OCSC of Indian National Astronomy Olympiad (2017)
- Selected in **top 300 students** in India to appear for Indian National Physics, Chemistry Olympiads (2017)
- Bagged **All India Rank 8** in **KVPY Fellowship** by DST, Govt. of India (2016)
- Recipient of **National Talent Search Examination Fellowship** by NCERT, Govt. of India (2014)
- Received **Infosys Award** for excellent performance in the International Olympiads (2014)
- Champion of Champions** at a State level mental arithmetic competition organized by UCMAS, India (2013)

## RESEARCH PROJECTS

### RFID Tattoo: A wireless platform for speech recognition

Guide: Prof. Swarun Kumar

(Paper accepted at UbiComp, 2020)

Summer 2019

Carnegie Mellon University

- Speech recognition platform for voice impairments through wafer-thin, battery-free and stretchable RFID Tattoos
- Collected own sensor data and implemented Random Forest model calibrated on the stretch of tags to achieve state of the art 86% accuracy on a vocabulary size of 100 most common English words

### Increasing the range of Near Field Communication

Guide: Prof. Swarun Kumar

Summer 2019 - Present

Carnegie Mellon University

- Conducted experiments to determine the effects of antenna design and its placement on NFC range
- Developed codes for software-defined radios USRP for skimming live NFC signal request-response as well as synchronously transmitting phase-shifted NFC signal from multiple USRPs to perform in-air beamforming

### Abstractive Text Summarisation

Guide: Prof. Ganesh Ramakrishnan | Course Project (Artificial Intelligence & Machine Learning)

Autumn 2019

IIT Bombay

- Implemented Pointer-Generator networks building summary using both text and word banks
- Improved efficiency over Seq-to-Seq attention model by avoiding information fallacy and word repetitions

### Adversarial Reprogramming of Neural Networks

Guide: Prof. Ajit Rajwade & Prof. Suyash Awate | Course Project (Digital Image Processing)

Autumn 2019

IIT Bombay

- Reprogrammed ImageNet classification model on MNIST and CIFAR-10 dataset to perform a task chosen by the attacker by finding a single adversarial perturbation added to all test inputs
- Illustrated the vulnerability in neural networks that perform a task chosen by the adversary despite being not trained to do this task originally

### Novel alternative to analyze multiple choice questions

Guide: Dr. P.K. Joshi

Autumn 2018

TIFR

(Paper under review in Practical Assessment, Research Evaluation (PARE) journal, 2019)

- Devised an alternate approach for educational assessment of multiple choice questions using Discriminant Index
- Compared existing and new approach against conjecture data and data from an international competitive exam

### Nuclear data survey

Guide: Dr. P.K. Joshi

Winter 2018

TIFR

(Paper accepted at DAE-BRNS Symposium on Nuclear Physics, 2019)

- Created robust scripts for parsing nuclear values from raw datasets to standardize a vast number of known nuclei

## TECHNICAL PROJECTS

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### Simple Email Client

Spring 2019

Guide: Prof. Kameswari Chebrolu | Course Project (Computer Networks Lab)

IIT Bombay

- Implemented POP3 email protocol between multiple clients and server supporting simultaneous message exchanges

### Simple Network Management Protocol

Spring 2019

Guide: Prof. Ashwin Gumaste | Course Project (Digital Logic Design Lab)

IIT Bombay

- Simulated working of SNMP manager to handle multiple agents via GET/ SET requests while employing Abstract Syntax Notation One (ASN.1) data types to decide packet format

### Secure Personal Cloud

Autumn 2018

Guide: Prof. Soumen Chakraborty | Course Project (Software Systems Lab)

IIT Bombay

- Implemented a cloud based file storing system for Linux system with block level customizable file encryption schema allowing multiple clients to decrypt their data at real time simultaneously or share the same
- Developed a bash interface along with a web client for an interactive user experience

### Quarter to Sixth Sense

Summer 2018

Institute Technical Summer Project | Electronics and Robotics Club

IIT Bombay

- Remodeled a wearable gesture interface by programming color tracking algorithms that perform functions in correspondence with hand gestures by recognizing the color markers on fingers

### Wireless Game Console

Summer 2018

Institute Technical Summer Project | Electronics and Robotics Club

IIT Bombay

- Prototyped a remote with air mouse capability which recognizes its relative change in orientation and position in 2D plane using a gyroscope and IP algorithms on a PiCamera

### Rumor -A social application

Summer 2018

Seasons of Code | Web and Coding Club

IIT Bombay

- Built an android app which broadcast rumours (messages) from one user to all users connected on the P2P network allowing each user to save, discard or share rumours by a single swipe

### Twitter Simulation

Autumn 2018

Guide: Prof. Amitabh Sanyal | Course Project (Abstractions and Paradigms for Programming)

IIT Bombay

- Programmed an alternative version of Twitter under functional programming paradigm
- Devised an object-oriented abstraction to handle password authenticated database of every account

### SAT Solver

Autumn 2018

Guide: Prof. Amitabha Sanyal | Course Project (Abstractions and Paradigms for Programming)

IIT Bombay

- Implemented the **Davis-Putnam-Logemann-Loveland** (DPLL) procedure, a SAT solving method in Racket

## TECHNICAL SKILLS

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### Programming

C++, Python, Java, Sed, Awk, Bash, Racket, VHDL

### Web Development

HTML, CSS, JavaScript, Django

### Software

MATLAB, GNU Octave, Android Studio, L<sup>A</sup>T<sub>E</sub>X, AutoCAD, GNU Radio, Wireshark

## POSITIONS OF RESPONSIBILITY

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### Teaching Assistant

Autumn 2018

PH107 - Quantum Physics and its Applications under Prof. S. Mahapatra

IIT Bombay

- Responsible for conducting weekly tutorials for a batch of 50 freshmen to help them with concepts
- Coordinated with the Physics Department to conduct regular tutorial sessions and evaluate term papers

### Competitions Admin Coordinator, Mood Indigo

Autumn 2018

Asia's largest College Cultural festival

IIT Bombay

- Led a team of 50 convenors and allotted them relevant work related to planning and execution of events
- Contacted renowned artists and 50+ colleges to invite them for competing in 10+ competitions

### Academic Resource Facilitator

Summer 2018

International Junior Science Olympiad cell

HBCSE

- Student facilitator for mentoring and evaluating top 35 students from India at Junior Science OCSC 2018
- Monitored and mentored the students to help them get acquainted with experimental skills