Yash Jain
Computer Science & Engineering
Indian Institute of Technology Bombay
Specialization: Human Computer Interaction

UG Third Year (B.Tech.)
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Examination	University	Institute	Year	CPI/%
Graduation	IIT Bombay	IIT Bombay	2019	8.65
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 *Summer 2019*
Guide: Prof. Swarun Kumar *Carnegie Mellon University*
(Paper accepted at UbiComp, 2020)

- 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 *Summer 2019 - Present*
Guide: Prof. Swarun Kumar *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 *Autumn 2019*
Guide: Prof. Ganesh Ramakrishnan | Course Project (Aritificial Intelligence & Machine Learning) *IIT Bombay*

- Implemented Pointer-Generator network with Coverage building summary from both text and word bank
- Improved efficiency over Seq-to-Seq attention model by avoiding information fallacy and word repetitions

Adversarial Reprogramming of Neural Networks *Autumn 2019*
Guide: Prof. Ajit Rajwade & Prof. Suyash Awate | Course Project (Digital Image Processing) *IIT Bombay*

- Reprogrammed the six ImageNet classification models 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 *Autumn 2018*
Guide: Dr. P.K. Joshi *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 *Winter 2018*
Guide: Dr. P.K. Joshi *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

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

Programming	C++, Python, Java, Sed, Awk, Bash, Racket, VHDL
Web Development	HTML, CSS, JavaScript, Django
Software	MATLAB, GNU Octave, Android Studio, LaTeX , AutoCAD, GNU Radio, Wireshark

Positions of Responsibility

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