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	8.78
Intermediate/+2	Bhagat Public Sr. Sec. School	CBSE	2017	96.00
Matriculation	St. Anselm's Pink City Sr. Sec. School	CBSE	2015	10.00

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 1.2 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)*

Internships

Automated E-commerce Question-Answering system *Summer 2020*
Guide: Nikesh Garera & Nithish Pai *Flipkart*

- Generated synthetic queries from a limited set of user query to increase the dataset size by more than 30%
- Combined the BERT and GPT-2 models for developing a target product-type classification system which would then prompt the text-generation model to answer user query in natural language all in real-time
- System might be implemented to the company's website, subject to quality check approval

RFID Tattoo: A wireless platform for speech recognition (Paper accepted at UbiComp, 2020) *Summer 2019*
Guide: Prof. Swarun Kumar *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 *Summer 2019*
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

Data Science projects

Deep Neural Matching Models for Graph Retrieval from Product Graph *Autumn 2020 - Present*
Guide: Prof. Soumen Chakrabarti & Prof. Abir De | Bachelor's Thesis Project *InfoLab, IIT Bombay*

- Developing a novel DNN approach for searching a subgraph from a corpus of sample graphs by scoring random walks in their product graph
- Working on decreasing the query time to sub-linear time by employing hashing of corpus graphs

Answer-type tagging through constant embeddings *Spring 2020*
Guide: Prof. Soumen Chakrabarti | R&D Project *InfoLab, IIT Bombay*

- Improved the performance of an existing Answer-Type Inference (ATI) RNN based manuscript by almost 5% through conducting experiments in 10 different settings across 4 QA datasets
- Outperformed the previous RNN system by 20% across the 4 QA datasets by deploying BERT architecture in ATI task

Extractive vs Abstractive Text Summarisation *Autumn 2019*
Guide: Prof. Ganesh Ramakrishnan | Course Project (Aritificial Intelligence & Machine Learning) *IIT Bombay*

- Implemented an extractive text summarizer using the page rank algorithm, achieved a ROGUE score of f-32%. Latent Semantic analysis of the generated summary and the ground truth revealed an overlap of 79%
- Comparatively, the abstractive summarizer built using seq2seq model with attention mechanism, achieved a ROUGE scores of only f-13%

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

- Reprogrammed ImageNet classification model - ResNet50v2 on MNIST dataset to perform an adversarial task by finding a single constant adversarial perturbation, added to all test inputs; achieved an accuracy of 80%
- Illustrated the vulnerability in deep neural networks that perform a task chosen by the adversary despite being not trained to do this task originally

OTHER KEY PROJECTS

Secure Personal Cloud *Autumn 2018*
Guide: Prof. Soumen Chakrabarti | 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 a 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 rumors (messages) from one user to all users connected on the P2P network allowing each user to save, discard or share rumors by a single swipe

Novel alternative to analyze multiple choice questions *Autumn 2018*
Guide: Dr. P.K. Joshi *TIFR*

- 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

TECHNICAL SKILLS

Programming	C++, Python, Java, Bash, Tensorflow, PyTorch
Web Development	HTML, CSS, JavaScript, Django
Software	MATLAB, GNU Octave, Android Studio, LaTeX , AutoCAD, GNU Radio, Wireshark

POSITIONS OF RESPONSIBILITY

Technical Head *Summer 2020 - Present*
We Listen | NGO

- Engineering a web browser extension to automatically detect hate speech on different social media platforms while synchronously hiding them before the purview of the user creating a virtual hate-free space for individuals
- Leading a team of interns in developing a professional website for the NGO for increasing its reach in spreading awareness of mental health issues across various colleges in India

Undergraduate Teaching Assistant *Spring 2020 & Autumn 2018*
CS101 - Computer Programming and Utilization & PH107 - Quantum Physics and its Applications *IIT Bombay*

- **CS101:** Responsible for setting algorithmic coding questions for graded and ungraded labs for 500+ freshmen
- **PH107:** Conducted weekly course tutorials for a batch of 50 freshmen and evaluated their term papers

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

EXTRACURRICULAR

- Started a blog, **Bitshots** for discussing various NLP research papers with the ML community in lucid language *(2020)*
- Awarded with **special mention** under technical awards category by Hostel 3, IIT Bombay *(2019)*
- Reached city finals of Asus-Tinkerthon competition working hands on Asus Tinker Board *(2018)*
- Directed and acted in a music video making competition organized by Institute Cultural Council *(2017)*
- **Champion of Champions** at a State level mental arithmetic competition organized by UCMAS, India *(2013)*