

Yash Jain

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EDUCATION

Indian Institute of Technology Bombay

Bachelor of Technology in Computer Science

Cum. GPA: 8.78/ 10.0

Mumbai, India

July 2017 – August 2021

Relevant Courses: Artificial Intelligence & Machine Learning, Organisation of Web Information, Speech, Web & Natural Language Processing, Bachelors Thesis Project-1, Digital Image Processing

PUBLICATIONS

- [1] J. Wang, C. Pan, H. Jin, V. Singh, Y. Jain, J. I. Hong, C. Majidi, and S. Kumar. RFID Tattoo: A Wireless Platform for Speech Recognition. *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol.*, 3(4), Dec. 2019.

EXPERIENCE

Automated E-commerce Question-Answering system

Summer 2020

Guide: Nikesh Garera & Nithish Pai

Flipkart, India

- 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 [\[paper\]](#)

Summer 2019

Guide: Prof. Swarun Kumar

Carnegie Mellon University, USA

Best long paper award (1 out of 121 papers) | U.S. Patent pending

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

RESEARCH PROJECTS

Dynamic link prediction of Social Networks

Autumn 2020 - Present

Guide: Prof. Soumen Chakrabarti & Prof. Abir De | Bachelor's Thesis Project-2

InfoLab, IIT Bombay

- Creating a novel method for predicting the evolution of social networks across time steps

Deep Neural Matching Models for Graph Retrieval from Product Graph

Autumn 2020 - Present

Guide: Prof. Abir De & Prof. Soumen Chakrabarti | Bachelor's Thesis Project-2

InfoLab, IIT Bombay

- Developing a novel DNN approach for searching a subgraph from a corpus of sample graphs
- Working on decreasing the query time to sub-linear time by employing hashing of corpus graphs

Answer-type tagging through constant embeddings [\[report\]](#) [\[slides\]](#)

Spring 2020

Guide: Prof. Soumen Chakrabarti | Bachelor's Thesis Project-1

InfoLab, IIT Bombay

- Outperformed an existing Answer-Type Inference (ATI) RNN based manuscript system by almost 20% across 4 Question-Answering datasets by deploying BERT architecture

AWARDS

- Selected in **Summer Undergraduate Internship Program** at Carnegie Mellon University 2019
- **All India Rank 29** in **JEE-Advanced** out of 220,000 shortlisted candidates from 1.2 million students 2017
- **Gold Medalist** in theory and **Silver Medalist** in practicals representing India at 11th International Junior Science Olympiad held in Mendoza, Argentina 2014
- Selected in **top 300 students** in India to appear for Indian National Physics, Chemistry Olympiads 2017
- **All India Rank 8** in **KVPY Fellowship** by Dept. of Science & Technology, Govt. of India 2016
- Recipient of **National Talent Search Examination Fellowship** by NCERT, Govt. of India 2014

KEY COURSE PROJECTS

Adversarial Reprogramming of Neural Networks

Autumn 2019

Guide: Prof. Ajit Rajwade & Prof. Suyash Awate | *Digital Image Processing course*

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

Comparing Extractive and Abstractive Text Summarisation

Autumn 2019

Guide: Prof. Ganesh Ramakrishnan | *Artificial Intelligence & Machine Learning course*

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 ROGUE scores of only f-13%

Secure Personal Cloud

Autumn 2018

Guide: Prof. Soumen Chakrabarti | *Software Systems Lab course*

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

POSITION OF RESPONSIBILITY

Technical Head | NGO We Listen, India

Summer 2020 - Present

- Leading a team of interns developing a professional website for increasing mental health awareness during Covid-19
- Monitoring the development of a browser extension to automatically detect hate speech content on social media platforms while synchronously hiding it before the purview of the user creating a virtual hate-free space

Undergraduate Teaching Assistant | IIT Bombay

Spring 2020 & Autumn 2018

Computer Programming & Utilization

Spring 2020

- Responsible for setting algorithmic coding questions for graded and ungraded labs for 500+ freshmen

Quantum Physics & its Applications

Autumn 2018

- Conducted weekly course tutorials for a batch of 50 freshmen and evaluated their term papers

Academic Resource Facilitator | International Junior Science Olympiad cell, HBCSE

Summer 2018

- Student facilitator for mentoring top 35 students from India in International Junior Science Olympiad Selection Camp 2018

TECHNICAL SKILLS

Strong: Python (with Tensorflow and PyTorch), C/C++, Bash, MATLAB

Familiar: Java, SQL (Postgres), JavaScript, HTML/CSS, Android, Arduino

Tools: Git, Google Cloud Platform, L^AT_EX

EXTRACURRICULAR

- Regularly write a technical blog, **BitShots** for discussing various ML research papers in lucid language 2020
- Awarded with **special mention** under technical awards category by Hostel 3, IIT Bombay 2019
- **Champion of Champions** at a State level Abacus mental arithmetic competition 2014