

Yash Jain

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EDUCATION

Indian Institute of Technology Bombay

Bachelor of Technology in Computer Science

Mumbai, India

July 2017 – August 2021

Cum. GPA: 8.91/ 10.0

Relevant Courses: Artificial Intelligence & Machine Learning, Organisation of Web Information, Speech, Web & Natural Language Processing, Bachelors Thesis Project-1&2, ML for Remote Sensing-II

PUBLICATION

- [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 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- Spring 2021

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 - Spring 2021

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

InfoLab, IIT Bombay

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

Answer-type Inference in QA systems [\[report\]](#) [\[slides\]](#)

Spring 2020

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

InfoLab, IIT Bombay

- Outperformed an existing Answer-Type Inference 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
- Gold Medalist** in theory and **Silver Medalist** in practicals representing India at 11th International Junior Science Olympiad held in Mendoza, Argentina 2014
- All India Rank 8** in **KVPY Fellowship** by Dept. of Science & Technology, Govt. of India 2016
- All India Rank 29** in **JEE-Advanced** out of 220,000 shortlisted candidates from 1.2 million students 2017
- Amongst **top 35 students** to reach Indian Team selection camp for International Astronomy Olympiad 2017
- Selected in **top 300 students** in India to appear for Indian National Physics, Chemistry Olympiads 2017
- Recipient of **National Talent Search Examination Fellowship** by NCERT, Govt. of India 2014

KEY COURSE PROJECTS

Meta Self-learning with Noisy Student <i>Guide: Prof. Biplab Banerjee Machine Learning for Remote Sensing-II course</i> <ul style="list-style-type: none">Combined the benefits of self-training with noisy student and MAML for few-shot image classificationWhile training large networks using MAML is expensive, our proposed method allows for training of large student networks using few-shot pseudo labels which outperforms the teacher learnt using MAML in fewer epochs	Autumn 2020 IIT Bombay
Adversarial Reprogramming of Neural Networks <i>Guide: Prof. Ajit Rajwade & Prof. Suyash Awate Digital Image Processing course</i> <ul style="list-style-type: none">Reprogrammed ImageNet classification model - ResNet50v2 on MNIST dataset to perform an adversarial task by finding a single constant learnable weight matrix, 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 not being trained to do this task originally	Autumn 2019 IIT Bombay
Comparing Extractive and Abstractive Text Summarisation <i>Guide: Prof. Ganesh Ramakrishnan Artificial Intelligence & Machine Learning course</i> <ul style="list-style-type: none">Implemented an extractive text summarizer using the page rank algorithm, achieved a ROGUE score of f-32%Comparatively, the abstractive summarizer built using seq2seq model with attention mechanism, achieved a ROGUE scores of only f-13%Latent Semantic analysis of the generated summary and the ground truth revealed an overlap of 79%	Autumn 2019 IIT Bombay
Secure Personal Cloud <i>Guide: Prof. Soumen Chakrabarti Software Systems Lab course</i> <ul style="list-style-type: none">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 sameDeveloped a bash interface along with a web client for an interactive user experience	Autumn 2018 IIT Bombay
Quarter to Sixth Sense <i>Institute Technical Summer Project Electronics and Robotics Club</i> <ul style="list-style-type: none">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	Summer 2018 IIT Bombay
Rumor - A social application <i>Seasons of Code Web and Coding Club</i> <ul style="list-style-type: none">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	Summer 2018 IIT Bombay


POSITION OF RESPONSIBILITY

Technical Head <i>NGO We Listen, India</i>  <ul style="list-style-type: none">Leading a team of interns in the development of a professional website for increasing mental health awarenessEngineering 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	Summer 2020 - Summer 2021
Undergraduate Teaching Assistant <i>IIT Bombay</i> <i>Introduction to Machine Learning</i> <ul style="list-style-type: none">Created teaching material and supervised exams during the online semester for 200+ students <i>Computer Programming & Utilization</i> <ul style="list-style-type: none">Responsible for setting algorithmic coding questions for graded and ungraded labs for 500+ freshmen <i>Quantum Physics & its Applications</i> <ul style="list-style-type: none">Conducted weekly course tutorials for a batch of 50 freshmen and evaluated their term papers	Spring 2021, 2020 & Autumn 2018 Spring 2021 Spring 2020 Autumn 2018
Academic Resource Facilitator <i>International Junior Science Olympiad cell (IJSO), HBCSE</i> <ul style="list-style-type: none">Student facilitator for mentoring top 35 students from India in IJSO Selection Camp 2018	Summer 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, LaTeX, SolidWorks

EXTRACURRICULAR

• Regularly writing 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