



Uddhav Aggarwal
Electrical Engineering
Indian Institute of Technology, Bombay

170070054
B.Tech.
Gender: Male
DOB: 01-06-1999

Examination	University	Institute	Year
Graduation	IIT Bombay	IIT Bombay	2021

WORK EXPERIENCE

Deep Learning to Optimize Leaf Tobacco Procurement Costs | ITC | Awarded LOR [May - July '20]

Approach	<ul style="list-style-type: none">Trained and optimized a classifier Neural Network to predict data-based interventionsCollaborated with stakeholders to outline factors affecting tobacco price; suggested prioritization mechanisms for grades by analyzing past buying and offering patterns in auctioning marketsDesigned efficient dashboard with competition data analysis for assistance in decision making
Results	<ul style="list-style-type: none">Achieved 85% accuracy in intervention-prediction; reduced costs; increased process efficiency

Floorplan Segmentation | Infurnia - 3D Architectural Design Software | Awarded LOR [May - July '19]

Approach	<ul style="list-style-type: none">Developed a Computer Vision based solution to automatically detect semantic features: walls, doors and windows from architectural floor plans in Python; integrated with InfurniaPerformed Spectral Clustering (with SSIM metric) to find correlations in extracted features
Results	<ul style="list-style-type: none">Achieved > 80% accuracy in segmentation; developed website for file handling and user interface

KEY TECHNICAL PROJECTS

Covid Detection using Chest X-Ray (Bachelor Thesis Project) | Prof. Amit Sethi [Aug '20 - Present]

- Training and optimizing a **GAN** for **augmentation** of Covid X-Ray (IEEE-8023) dataset in **PyTorch**
- Exploring **Transfer Learning** to test accuracy of **GoogleNet**, **ResNet**, **AlexNet** on augmented dataset; **designing** and training own **CNN** classifier architecture based on insights to **increase** detection accuracy

Physiological Monitoring of Driver - Computer Vision | Mercedes Benz RnD, India [Dec '19 - Jan '20]

- Developed a **Python** program to measure **cardiac rate within 5% relative error** by extracting facial **skin colour variation** data; passing through **Butterworth** Filter and applying **FFT** to data buffer
- Used **Eulerian** Video Magnification to measure respiratory rate **within 1% relative error** in **MATLAB**

Prior Image Constrained Compressed Sensing (PICCS) | AIP Course Project [Jan - Apr '20]

- Reduced** acquisition time of fMRI by **100x** compared to TTV & k-t faster, **preserving** BOLD activation
- Employed the **Split-Bregman** Method to solve **L1 constrained optimization** problem for PICCS

SCHOLASTIC ACHIEVEMENTS

- JEE-Main **AIR 75** | JEE-Advanced **AIR 243** | KVPY **AIR 282** | NTSE Scholar (**State Rank 4**)
- Pursuing a Minor in **Computer Science & Engineering** (ML, Data Structures, Computer Networks & Security)
- Competitive Programming**: Solved **500+** algorithmic problems, highest rated **1765** - Codeforces, **1952** - Codechef
- Key Courses** : Data Analysis and Interpretation, Advanced Machine Learning, Game Theory, Random Processes
- Key Technical Skills**: C/C++, Python (**Highly proficient**); PyTorch, Scikit-Learn, JavaScript, MATLAB

POSITION OF RESPONSIBILITY

Teaching Assistant: Quantum Physics and its Applications [July - Nov '19 , July - Nov '18]

- Responsible for conducting weekly **tutorial sessions** for **50+** students; initiated **interactive two-way learning**
- Held a **TSC** (Tutorial Service Centre) session for **Quantum Physics** for **150+** students; assisted in **exam-checking**

MISCELLANEOUS

HONDA Y-E-S Award	<ul style="list-style-type: none">Identified as a future leader in Science and Technology; amongst 14 selected from 500 participantsAwarded fully funded research internship in Japan in Summers 2021 (10000 USD) [2020]
Mercedes Benz Digital Challenge	<ul style="list-style-type: none">Winner amongst 350+ applicants from all over India for presenting a Computer Vision based non-invasive Physiological Monitoring (via camera) solution to reduce road accidents [2020]Awarded funded trip to showcase the solution at 4YFN Startup Conference (MWC) in Spain
Cricket	<ul style="list-style-type: none">Captained the winning team comprising of 16 players in Freshmen Cricket League [2018]
Others	<ul style="list-style-type: none">Leading a team of 20+ students in the making of a nationwide MOOC on NPTEL [Ongoing]Spearheaded a team of 5; represented Chandigarh in National Children Science Congress [2015] <p><i>Scholastic achievements and extracurricular activities are not verified by the Placement Cell</i></p>