

# Aman Raj

[amanrajonworld@gmail.com](mailto:amanrajonworld@gmail.com) | (+91) 8454951810

## EDUCATION

<b>Indian Institute of Technology, Bombay</b> B. Tech in Mechanical Engineering   CPI – 8.02/10	<b>Mumbai, Maharashtra</b> 2016 - 2020
<b>K. N. M. Academy</b> Intermediate/12th   % - 94.6	<b>Munger, Bihar</b> 2014 – 2016
<b>K. N. M. Academy</b> Matriculation/10th   CGPA – 10/10	<b>Munger, Bihar</b> 2014

## SKILLS & INTERESTS

<b>Languages:</b>	Python (Numpy, Pandas, Scikit-learn, PyTorch, Matplotlib, opencv), C++, PostgreSQL, Java, JavaScript, HTML/CSS
<b>Software/Tools:</b>	React, NodeJs, Spring Boot, JPA, Tableau, Excel, Git, RESTful API, Agile development

## PROFESSIONAL EXPERIENCE

### Standard Chartered GBS

Currently Working as a **Java Backend Developer in Trade Finance Division** of Standard Chartered

### Campus Induction Program, Standard Chartered GBS

Oct'20 – Nov'20

- Awarded the **best project** to our team for building a **Payments Initiation** Web Application for Corporates
- Build the frontend and backend for the **Dashboard page** using React components and Spring Boot JPA

### Algo trading based on sentiment analysis of news articles | [Github](#)

Dec'20

Axess Graduate Hackathon, Standard Chartered

- Scraped past 6-month news articles from sites like Moneycontrol, ETMarkets to fine-tune the BERT Model using python modules like **Selenium** and **BeautifulSoup**
- Used a pretrained **BERT** model with a classification layer on top to get the sentiments of the news articles
- Achieved an accuracy of **76% on real-time scraped news articles** from the sites and **f1 score of 0.78**
- Developed a basic frontend and backend framework to showcase the project using **React** and **Flask**

### Meru Mobility Tech Private Ltd.

**Mumbai, Maharashtra**

Deep Learning Intern

May'19 – July'19

**Objective** – Real time Person detection and its re-identification in a video feed

- Surveyed literature on **Person detection and Re-identification models** used in a video input
- Implemented a Siamese Recurrent – Convolutional network for the re-identification task on a dataset consisting of **500+** image sequences for **300** distinct pedestrians
- Extracted **normalized Optic flow** between adjoining frames using Lucas-Kanade method
- Implemented a jointly attentive Spatial-Temporal Pooling Network (ASTPN) in **PyTorch** framework
- Constructed **spatial pyramid pooling (SPP)** layer as the component attentive spatial pooling to make the model robust to image sequence of **arbitrary resolution**

## TECHNICAL PROJECTS

### 3D face Reconstruction

Course Project, Prof. B. Palaniappan

August'19 - Nov'19

- Constructed 3D face images from 2D images using **3DMM model** for shape and texture generation
- The parameters for the shape and texture model were learned by a pre-trained Convolutional network

## Hand Pose Estimation

Course Project, Prof. Sunita Sarawagi

Feb'19 - April'19

- Applied Truncated signed distance function (**TSDF**) to convert RGB depth images to 3D images
- Implemented a **3D CNN** network to predict **21** hand joint locations using point cloud data using **TensorFlow**
- Performed 3D data augmentation on the training data to make the 3D CNN model robust to different orientation and sizes

## CFD modelling of Laser Cladding process

Course Project, Prof. Ramesh Singh

Autumn'18

- Simulated a model of melt pool geometry involved in the Laser cladding process
- Performed **computational fluid dynamics** to simulate the solidification process, predict the temperature variation and porosity in the melt pool

## Data Mining Project

Course Project, Prof. Asim Tewari

Autumn'18

- Compared the linear regression model with the KNN model to find the best fit for given data
- Applied **PCA** for dimensionality reduction and **subset sampling** for reducing number of predictors

## Human Hand Modeling & Animation

Course Project, Prof. S. S. Pande

August '19 – Nov'19

- Surveyed literature on the structure of hand anatomy comprising of **27 bones** and the joint rotations
- Defined each movement of hand in form of **4 basic movements** (DOF) to simplify the animation model
- Developed the animation model by defining the hand joints and their respective degree of freedom (DOFs) using **Python** and **Vizard** Library, taking account of the proposed simplifications and removing redundancy

## KEY COURSES

---

**Math & Computing:** Data analysis & Interpretation, Computer Programming and Utilization, Numerical Analysis, Engineering Data Mining and Applications, Deep Learning, Advanced Machine Learning, Computer Graphics and Product Modelling

**Other Courses:** Operations Analysis, Microprocessor and Automatic control, Computer aided simulation of Machines

## ACHIEVEMENTS & EXTRA-CURRICULARS

---

- Secured **98.7** percentile in Joint Entrance Examination (**JEE**) **Advanced** among 0.2 million students (2016)
- Secured **99.86** percentile in Joint Entrance Examination (**JEE**) **Mains** among 1.2 million students (2016)
- Bagged **1<sup>st</sup> position** in Intra school Hindi Essay Competition (2012)
- Participated in the Annual training camp under **2 Maharashtra Engg. Regiment, NCC** (Dec '16)
- Participated and successfully completed the Boy's Crossy General Championship (GC), IITB (Jan '20)
- Handled the Position of **Coordinator for Mood Indigo** (Cultural Festival of IIT Bombay) (Dec'17)
  - Ideated, planned and executed **30+ events** around **20 venues** in a team of 30+ coordinators
  - Incorporated innovative branding involvement and event integrations for sponsors
  - Spearheaded a team of **15+ organizers** ensuring proper work allotment and coordination
- Involved in '**SHE**', spreading awareness about Menstrual cycle and targeting over **200k+** distribution of sanitary pads in rural areas of Maharashtra (Autumn'17)
- Administered a diabetes awareness camp **CURED**, procuring **65,000+** attendance (Autumn'17)
- Participated in the Beat Plastic Pollution campaign organized by **Abhyuday, IIT Bombay** on the occasion of World Environment day (June'18)