



Mohanish Verma
Metallurgical Engineering and Materials Science
Indian Institute of Technology, Bombay
Specialization: Metallurgical Process Engg.

16D110022
Dual Degree (B.Tech. + M.Tech.)
Gender: Male
DOB: 19-04-1997

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2021	7.00

Professional Experience

Automation and Image Segmentation of CT Scan Images **University of Newcastle, Australia**
Supervisor: Subhasish Mitra [May'19-Jul'19]

- Developed an image processing methodology to extract phase fraction data from X-ray CT scans data sample
- Incorporated various blends of OpenCV techniques such as **Thresholding** for differentiating pixels, **MorphologyEx** to remove noises and **Contour** for composition distribution on high-temperature softening-melting test samples
- Automated composition calculation procedure for sample lump quenched at **1100°C** & sinter ore quenched at **1200°C**
- Results were validated with the calculations performed at **CSIRO** using a commercial software reaching up to **91%**
- Received a **Letter of Recommendation** from the professor for excellent work during the research project

Technical Projects & Thesis

Multiclass Image Classification, *Guide: Prof.Asim Tiwari* **Computer Vision**, [Jan'19-Mar'19]

- Built the **LeNet-5** CNN architecture which effectively categorizes unlabelled images into **10** different section
- Implemented **Data Augmentation** techniques to increase dataset size and used **Dropout** to counter overfitting

Supervised Text Summarization, *Guide: Prof.Asim Tiwari* **Natural Language Processing**, [Sep'18-Dec'18]

- Built **information retrieving** NLP model to fetch important semantic data from the corpus
- Implemented the **TF-IDF matrix** to calculate scores for words and sentences to create an executive summary

Spam Message Classification, *Guide: Prof.Asim Tiwari* **Natural Language Processing**, [Sep'18-Dec'18]

- Built the Bag of Words (**BOW**) model and translated it into a TF-IDF model increasing its accuracy by **3%**
- Preprocessed data using the regular expression library and implemented a Logistic Regression classifier

Robotic Arm, *Institute Technical Council, IIT Bombay* **Image Processing**, [May'17-Jun'17]

- Replicated the human hand using a 3D Model in Solidworks to counterfeit gestures of the palm and fingers
- Designed the algorithm using OpenCV to detect and replicate the movement of the hand using color coding

Invisible Cloak, *Self Project* **Image Processing**, [Jan'20-Mar'20]

- Designed an algorithm using OpenCV to fetch real time movement and apply invisible mask on realframe videos
- Manipulated the cloak in the foreground by repixelating it with a specific color from the background

Anti-Soiling Coating for Photo-voltaic Application, *Prof. Sudhanshu Mallick Master's Thesis*, [Aug'20-Present]

- Formulation of a coating material which shows higher durable hydrophobic nature and have lower refractive index
- Deposition of thin film of such coating material on a glass substrate using spraying method and their characterisation

Skills and Interest

Languages[Libraries] Python [PyTorch, NLP, Keras, Scikit-Learn, Pandas, OpenCV], R, C++
Software MATLAB, L^AT_EX, Git, GNU Octave
Interest Competitive Coding, Computer Vision, NLP, Image Processing, Machine Learning

Positions Of Responsibility

Teaching Assistant, *Guide: Prof.Gururajan* [Aug'20-Present]

- Working in a team of 5, mentoring **120+** undergraduate students in a **Data Analysis and Interpretation** Course

Design Secretary, *Hostel Council* [Jul'17-Apr'18]

- Elected representative of **400+** students to design posters for various social cultural and sports event of the hostel

Extracurricular Activities

2019	Won Gold medal in a 4*100m mixed-Relay among 30 other teams organized by IITB	IIT Bombay
2019	Won Bronze medal for 2 consecutive years in an open competition of High Jump	Aavhan
2018	Won Gold medal in 4*100m Relay among 14 hostels in Athletics General Championship	IIT Bombay
2018	Selected to represent college in UBISOFT Game Jam, built a 3D puzzle game	Ubisoft, Pune
2017	Selected for Inter-IIT Athletics Camp among 10k+ students for 2 consecutive years	IIT Bombay
2017	Volunteered for CURED , a free diabetes checkup camp which benefited 500+ people	IIT Bombay