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
Graduation	IIT Bombay	IIT Bombay	2021

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, LaTeX , 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*