

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

[May'19-Jul'19] • Developed an image processing methodology to extract phase fraction data from X-ray CT scans data sample

- Supervisor: Subhasish Mitra
- 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

Python [PyTorch, NLP, Keras, Scikit-Learn, Pandas, OpenCV], R, C++ Languages[Libraries]

Software MATLAB, LATEX, Git, GNU Octave

Competitive Coding, Computer Vision, NLP, Image Processing, Machine Learning Interest

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 $4*100$ m 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	$IIT\ Bombay$