SUNIL MEENA
Electrical Engineering
Indian Institute of Technology Bombay

170070025
UG Third Year(B.Tech.)
Male
DOB: 10/01/2000

Examination	University	Institute	Year	CPI /%
Graduation	IIT Bombay	IIT Bombay	2020	7.86
Intermediate/+2	CBSE	JNV	2016	91.40
Matriculation	CBSE	JNV	2014	9.80

RESEARCH PROJECTS

Semi-Supervised Mammograms Classification *Spring 2020*
Guide: Prof. Amit Sethi *IIT Bombay*

- Classified Mammograms using negligible amount of images compared to Supervised learning into benign, malignant cases of Mass and Calcification types
- Processed DICOM(.dcm) images from CBIS-DDSM dataset for training and testing
- Used self-labeling on the images by breaking them into patches and ordering the patches from 1 to 9
- Trained Siamese-Network for puzzle-solving task using self-labels, obtained from the ordering of the patches, in order to learn features more accurately
- Used dataset labels in the Second part of training for Mammograms classification into four categories

Image-to-Image translation *Spring 2020*
Guide: Prof. Biplab Banerjee *IIT Bombay*

- Used VAE having Imagenet-pretrained-encoder with attention layer to get better reconstruction image
- Performed domain translation by feeding the latent variables from one VAE trained in one domain to another VAE trained in another domain
- Used perceptual loss in latent space to make the probability distributions of the two domains more closer

Image classification *Spring 2019*
Self project *IIT Bombay*

- Classified images from social networking app into Human, Documents, Memes categories
- Used parameter un-freezing on imagenet pretrained VGG-19 to get better results

Neural Style Transfer *Spring 2018*
Course project—Guide: Prof. Biplab Banerjee *IIT Bombay*

- Style transfer is a feed-forward technique of recomposing images in the style of other images
- Implemented the research paper "A Neural Algorithm of Artistic Style" for texture synthesis method by feature representations
- Used VGG-16 pre-trained CNN to extract image features and minimize the loss function to continuously update the composite image

Multi-Cycle Processor Design *Spring 2018*
Course project—Guide: Prof. Virendra Singh *IIT Bombay*

- Designed a **multi-cycle processor** based on the **Little Computer Architecture** using VHDL
- Created a design that was able to **correctly execute 14 different 16-bit instructions** which can together can perform **any general task** regardless of complexity
- Implemented the instructions in the form of a finite state machine with several overlapping states between instructions, helping lower the complexity of the design
- Simulated the processor design using **Quartus** and tested for correctness

Booth Multiplier Spring 2018
Course project—Guide: Prof. Virendra Singh *IIT Bombay*
- Designed a signed booth encoded multiplier using Structural VHDL
- Incorporated the design into a quarter precision floating point multiplier

Scholastic Achievements

- Achieved **3rd position** in ST category in **IIT JEE-Advanced** among 16,096 candidates *(2017)*
- Secured **99.52 percentile** in **JEE-Main** out of 1.18 million candidates *(2017)*
- Selected for **INSPIRE Camp** conducted by University of Jaipur for the interactions between bright young students and leading researchers in the fields of Science *(2015)*
- Awarded Letter of Appreciation for Excellent performance in MHRD - TEQIP III - KITE Activity Mathematics in Engineering, Initiative of the MHRD, Govt. of India

Technical Skills

Programming	C++	Python	ngSpice	VHDL
Softwares	MATLAB	Gnuplot	AutoCAD	SolidWorks	Xcircuit	VirtualBox
	Latex	Quartus-altra	ModelSim	

Positions of Responsibility

Competition & LYP Coordinator | Mood Indigo | *January 2018 - Present*
Mood Indigo is the Asia's largest annual cultural festival of IIT Bombay | *IIT Bombay*

- Planned for the execution of multiple events of Dance Competitions in IIT Bombay
- Introduced a new event for Solo Dance Competition in the genre
- Implemented the idea of online eliminations for solo dance competition

Courses Undertaken

Electrical	Network Theory, Signals and Systems, Digital Circuits Lab, Digital Systems, Digital Communication
Computer Science	Computer Programming and Utilization, Machine Learning for Remote Sensing, Âdvanced Machine Learning, Fundamentals of Digital Image Processing, Supervised Research Exposition
Mathematics	Data Analysis & Interpretation, Probability and Random Processes, Differential Êquations , Differential Equations II, Complex Analysis, Linear Algebra, Calculus
Others	Engineering Graphics & Drawing, Economics, Sociology, Quantum Physics and application, Basics of Electricity & Magnetism, Physical Chemistry, Organic & Inorganic Chemistry, Electromagnetic waves

*to be completed by December 2019

Extracurriculars

- Participated in **Annual InSync's Dance Show** organised by InSync, IIT Bombay *(2017)*
- Partook in **Annual Training Camp** organized under the commanding officer **Colonel A.S. Mehta** *(2017)*
- Successfully completed one year course under **2 Maharashtra Engineering Regiment National Cadet Corps** (NCC) IIT Bombay involving introduction to National Security Forces and fitness training *(2017-18)*
- Marched with Senior Under Officer and other cadets on the gymkhana ground of IIT Bombay on **Republic Day** in front of **Dean of Student Affairs** *(2018)*
- Participated in the social activity for the underprivileged students conducted by Abhyuday, IIT Bombay *(2018)*
- Came in top 25 in 5km **Crossy** (Running competition in IIT Bombay) among 500 participants *(2019)*
- Came **4th** in Segretta(Cryptic hunt competition) organised by Techfest *(2019)*
- Successfully completed three courses namely Python for everybody, Python data structure and Using python to access web data for python learning on coursera offered by **University of Michigan**