Girish Chandar G
Fourth Year Undergraduate
Electrical Engineering
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Education

Degree	Institute	CPI/%	Year
B.Tech	IIT Gandhinagar	8.85/10	2016-present
Class XII	Suguna PIP School	93.6 %	2016
Class X	PSG Public Schools	10/10	2014

Skills

- **Languages:-** Python, C and C++*(Basics)*, Verilog(VDHL)
- **Python Libraries:-** PyTorch, Keras, Tensorflow, Scikit-learn, MXNet, Pandas, Numpy
- **Softwares/Tools:-** MATLAB, GPU-CUDA, LabView, Arduino*(Basics)*, Mathematica*(Basics)*
- **Operating System:-** Windows, Linux, MacOS

Internships

- ***Optimization based Inverse Rendering, University of Texas at Dallas, TX, USA*** *May 2019-July 2019*
  Advisor: Dr. Xiaohu Guo, Professor, Deparment of Computer Science [GitHub]
  - Implemented an algorithm to address the problem of dense 3D face reconstruction from a single 2D image for text/speech to facial expression conversion.
  - Implementation done on PyTorch, MXNet and Numpy and the code open sourced in GitHub.
  - Learnt how to critically analyse a research paper and developed Numpy and PyTorch implementation based on previous research papers.
- ***Microscopic Image Analysis, Micro and Nano Fluids Lab, Clemson University, SC, USA*** *May 2018-July 2018*
  Advisor: Dr. Konstantin G Kornev, Professor, Deparment of Materials Science and Engineering [GitHub]
  - Primarily developed LabView scripts for analyzing images from Magnetic Rotational Spectroscopy (MRS) experiment.
  - Developed a generic script for microscopic image analysis in LabView that can be extended to cater various needs of different experiments.
  - Demonstrated the versatility of the LabView scripts by applying them in the experiments of graduate students.

Research Projects

- ***Forensic Camera Model Classification using Local Binary Pattern*** *January 2018 - April 2018*
  Advisor: Dr. Nitin Khanna, Assistant Professor, Department of Electrical Engineering
  - Implemented an algorithm to classify images based on the type of source camera.
  - Implemented one vs all machine learning model in MATLAB to classify the images based on the Local Binary Pattern(LBP) features.
  - Created dataset of images, taken from different types and models of phones to train our model.

Projects

- ***Classfication of Cancer Progression by Structuring Clinical Data*** *August 2019 - December 2019*
  Advisor: Dr. Mayank Singh, Assistant Professor, Department of Computer Science Engineering
  - Developed a novel model to predict the probability of cancer by structuring Electronic Health Records using Natural Language Processing techniques.
  - Explored MIMIC-III dataset extensively and verified its potential to be used for cancer prediction.

- Implemented the model in Keras Tensorflow by structuring the clinical data using CliNER, and BioBERT embedding.

- ***Unsupervised Cross-Domain Image Transfer using GAN*** *January 2019 - April 2019*
  Advisor: Dr. Nipun Batra, Assistant Professor, Department of Computer Science Engineering [GitHub]
  - Generated images in the domain of MNIST and Bitmoji by the method of style transfer from the domain of SVHN dataset and MS-Celeb dataset respectively.
  - Implemented modified Generative Adverserial Network to achieve domain transfer in unsupervised manner.

- ***Acoustics 3-D Sound Source Localization*** *January 2019 - February 2019*
  (IEEE Signal Processing Cup 2019)
  Advisor: Dr. Nithin V. George, Associate Professor, Department of Electrical Engineering
  - Developed an algorithm to determine the azimuth angle and elevation of the direction of the sound source based on the data received from 8 microphones mounted on a drone.
  - Implemented available models on 3D sound source localization to verify its performance on the task assigned.
  - Designed an 8 microphone array to mimic the the test setup of the competition and created our own dataset to test the robustness of our algorithm.

- ***Face Detection using Eigenfaces*** *August 2018 - November 2018*
  Advisor: Dr. Shanmuganathan Raman, Associate Professor, Department of Electrical Engineering [GitHub]
  - Implemented the work of Turk et al. titled “Eigenfaces for Recognition".
  - Developed the code using OpenCV library of Python and successfully demonstrated the results.

Research Interests and Relevant Courses

- **Research Interests:** Computer Vision and Graphics, Image Processing, Machine Learning, Digital Signal Processing.
- **Relevant Courses:** Mathematical Foundation for Computer Vision and Graphics, Machine Learning, Digital Image Processing, Probability and Random Processes, Natural Language Processing, Signals and Systems.

Academic Achievements

- Secured **Highest Grade** awarded in the following courses: Digital Signal Processing (10/10), Mathematical Foundation for Computer Vision and Graphics (10/10), Machine Learning (10/10) and Probability and Random Processes (9/10).
- Dean’s List Awardee for four semesters; awarded by the institute for **outstanding performance** in each semester.
- Cleared 1st level NSE (National Science Examination) in Chemistry (January 2016).
- Secured 500th rank in National Science Olympiad (2015).