SHIVAM GUPTA

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OBJECTIVE

In anticipation of an opportunity to research and explore in various fields of computer science and to improve upon my knowledge and skills and contribute to the growth of my mentor organization.

EDUCATION QUALIFICATIONS

HARCOURT BUTLER TECHNICAL UNIVERSITY (HBTU), Kanpur   **July 2014- Current**
- Bachelor of Technology in Electronics and Communication Engineering (Current percentage-72.90% till 6th Semester, GPA-3.80/4.00)

SEMESTER	I	II	III	IV	V	VI
PERCENTAGE (%)	70.50	75.10	75.30	74.70	73.80	68.00

METHODIST HIGH SCHOOL, Kanpur   **2013**
- Indian School Certificate Examination (ISC) (Percentage-88.20%)

UNITED PUBLIC SCHOOL, KANPUR   **2011**
- Indian Certificate of Secondary Examination (ICSE) (Percentage: 87.30%)

INTERNSHIP EXPERIENCE

SUMMER RESEARCH INTERN UNDER PROFESSOR TAPAN K. GANDHI, IIT Delhi   **IIT Delhi**
(Machine Learning, Signal Processing, Wavelets, MATLAB)   **May 2017-July 2017**
- Worked on the Detection of Obstructive Sleep Apnea using Heart Rate Variability in ECG Signals using the Time Domain and Frequency Domain methods and Classification is done using SVM(Support Vector Machines) and K-Means Clustering.
- Also worked to calculate the LF/HF Ratio in the ECG signals using Wavelets Packet Decomposition and FFT Methods for the detection of Obstructive Sleep Apnea and Compared these two methods for the LF/HF Ratios values during Sleep Apnea.
- Completed the Research Paper titled "DETECTION OF OBSTRUCTIVE SLEEP APNEA USING HEART RATE VARIABILITY IN ECG SIGNALS" which is under review.

RESEARCH INTERN UNDER PROFESSOR GAURAV PANDEY, IIT Kanpur   **IIT Kanpur, Kanpur**
(**Machine Learning, Computer Vision, Image Processing, Python**)   **December 2016-November 2017**
- Worked on the Support Vector Machine (SVM) based emotion recognition in static images, videos and in Real Time as well in Python with an accuracy of around 93.7%.
- Worked on OpenCV and Dlib libraries for the detection of Face and the Facial Landmarks in real time and static images and trained the model using various Machine Learning algorithms from Cohn-Kanade Datasets (CK&CK+).
- The research paper titled "Facial Emotion Recognition in Real-time and static images" got accepted and presented in the conference ICISC 2018 and will be published in IEEE digital Xplore library.

SUMMER RESEARCH INTERN UNDER PROFESSOR DUSHYANT KUMAR SINGH   **MNNIT, ALLAHABAD**
(**Machine Learning, Computer vision, Image Processing, MATLAB**)   **May 2016-July 2016**
- Worked on the Optical Flow-Based moving Object Detection and Tracking using MATLAB which is based on the Lucas Kanade method and also modified in the manner to reduce the effect of noise and increase the precision.
- Applications of this technique are to use it for interaction between machines and humans, security and surveillance, supplemented authenticity, monitoring traffic in roads, medicinal image processing, and other video processing. Also published a Research paper on this research project in IEEE.
- This system was successfully working on many live videos through webcam and videos captured through the camera.
- Also implemented Face detection on images using Viola-Jones Algorithm.

ACADEMIC PROJECTS

X-RAY IMAGES SEGMENTATION FOR FRACTURE DETECTION   **July 2017-present**
- Working on the B-TECH Project under Dr. Rachna Asthana, HBTU Kanpur using Machine Learning. Done with the segmentation of different types of bones using thresholding and morphological operations, now working on the Fracture location.

OPTICAL CHARACTER RECOGNITION   **August 2016-April 2017**
- This System Recognizes text in images which is useful in many computer vision applications such as image search, document analysis, and robot navigation through MATLAB.

SPAM CLASSIFIER   **February – May 2016**
- Developed a system which can classify a sample email as a spam or a non-spam using the concept of Support Vector Machine (SVM) on GNU Octave.
- There is a dataset of vocabulary list and Word Indices list for sample Email and extracting the features based on SVM.

WORKLOAD ANALYZER   **January-February 2016**
- Developed an electronic circuit on the breadboard which will distribute and display the work to the two machines according to the initial workload they had using adder, Magnitude comparator, AND, OR ICs
- Also successfully implemented this circuit on the electronics based software-PROTEUS.

HANDWRITTEN DIGITS RECOGNITION   **September–December 2015**
- Developed a system which can recognize the handwritten digits using the concept of Multi-class Classification and Neural Networks in Machine Learning on GNU Octave.
- This system is based on vectorizing the logistic regression through a given dataset and then applying Feedforward Propagation and Backpropagation.

8-BIT LOCKER   **January- April 2015**
- Developed an electronic circuit on the breadboard which will decide the appliance (LED) to work or not according to the 8-bit lock code preset by us using IC-7485 so that there cannot be any unauthorized use.
- Also successfully implemented this circuit on the electronics based software-PROTEUS.

ACHIEVEMENTS / EXTRACURRICULAR ACTIVITIES

- The research paper named "Facial Emotion Recognition in Real-time and static images" got accepted in the 2nd International Conference on Inventive Systems and Control, ICISC 2018 and presented on January 2018 and will be published in the IEEE digital Xplore library.
- The research paper named " Review of Optical Flow Technique for Moving Object Detection" got accepted in 2nd International Conference on Contemporary Computing and Informatics IC3I, 2016 and got published in the IEEE digital Xplore library.
- Current Department rank 5 in a batch of 52 students.
- Won the 3rd prize in the Event 'ANADIGILOGIX' of TechEra 2016, the annual technical Fest of ECE Department.
- Member of the marketing team of **TechEra** 2016, the annual technical fest of ECE Department.
- Won 2nd prize in the Events 'DESIGN IT'&'TORPEDO' of **TechEra** 2015, the Annual technical fest of ECE Department.
- Won 1st prize in singles & doubles Badminton championship of our society in 2012&2013.Also was a part of School football team

TECHNICAL SKILLS, INTERESTS AND RELEVANT COURSEWORK
- **Programming languages & Databases**: C, C++, JAVA, HTML, CSS, JavaScript, PHP, Python, MATLAB, MySQL
- **Courses:** Data Structures, Artificial intelligence, Machine Learning, Computer vision, Database management system (DBMS), Digital Electronics, Microprocessors, Signal Processing and Data Mining.
- **Area of interests:** Image Processing, Sub-fields of Artificial Intelligence like Machine Learning, Computer Vision, Natural language processing, Deep Learning and Competitive programming.
- **Others:** Natural language processing, Web development, Android app development (Basics).
- **Packages**: MATLAB, GNU OCTAVE, PyCharm, Jupyter Notebook, PROTEUS, LABVIEW (Basics), Xilinx, Atmel STUDIO, Win AVR, 8085 Simulator, Android studio (basics).