VIKRAM KUMAR

ACADEMIC DETAILS

Year	Degree / Board	Institute	GPA / Marks(%)
---	B.Tech in Civil Engineering	Indian Institute of Technology, Delhi	6.451
2015	RBSE Class XII	Mayur Nobles Academy, Barmer	91.80%
2013	RBSE Class X	Mayur Nobles Academy, Barmer	95.33%

SCHOLASTIC ACHIEVEMENTS

Indian Institute of Technology Joint Entrance Examination : Secured All India Rank 2458(GE) [2016]

State Merit List, Rajasthan Board of Secondary Education : Secured State Rank **14** in Class Xth Board Examination [2013]

- Awarded **Silver Medal** and certification of merit by Board of Secondary Education, Rajasthan

District Merit List, 4th Rank : Honoured by District Collector for excellent performance in class XII board examination [2015]

PROJECTS

Motion Capture Character 3D Animation of Yoga Postures (Prof. Rahul Garg): [May, 2019 - July,2019]

- Developed a python program to preprocess and animate **Kinect** sensor generated motion capture dataset of human joints
- Implemented a parser script for raw motion capture dataset and applied **filtering to reduce random fluctuation** in motion
- Developed a python program to **track vertices coordinates** of 3D human model in pixel space and Blender 3D space
- Analyzed mechanism of creating **Densepose-COCO** dataset which is a dense correpondence of 2D images to surface based representation of human body such as **SMPL** model which is made up of 8K vertices

Algorithms Implementation and Data Structures (Prof. Amit Kumar) : Course Project [Jan, 2019 - May, 2019]

- **Pattern Searching**: Implemented suffix tree data structure to search all occurrences of a given text from a large text file
- **LZW Encoding**: Implemented dictionary based look-up algorithm LZW to encode and decode files such as text and image files
- **Storing Hierarchical Structure of a Company**: Implemented AVL tree data structure to organize hierarchical data of a company
- **Bin Packing**: Implemented Best Fit algorithm to pack objects into bins in logarithmic time and linear space complexity

Microscopic Modelling of Pedestrian Dynamics (Prof. K. Ramachandra Rao) : [May, 2018 - July, 2018]

- Programmed an **agent based** simulation model to mimic the pedestrian flow while evacuating from a closed space
- The model imitates simple rules practiced by pedestrians while walking and simulates real time variation in flow parameters
- Model predicts **time-clusterized behavior** of pedestrian movements and provide important insight of a stampede situation
- Model is capable of simulating different crowd levels and validated by the data collected from Delhi railway foot over bridge

Twitter Sentiment Classification (Prof. K. Ramachandra Rao) : [May, 2018 - July, 2018]

- Fetched and parsed around **1K** tweets about DMRC and trained multiple classifier to predicts sentiment of users
- Highest obtained test accuracy score was around **82%** obtained by logistic regression as well as by naivebayes classifier

TECHNICAL SKILLS

- **Languages** : Python, JAVA, SQL, PHP, C++ **|| Tools and Frameworks**: Tableau, TensorFlow, Keras, Scikit-learn, GraphLab
- **Softwares** : Microsoft Office, MATLAB, Blender3D, QGIS, HEC-RAS **|| Operating Systems**: Windows, Linux, macOS

EXTRA CURRICULAR ACTIVITIES

Deep Learning Specialization, Coursera : Accomplished a **5-course** specialization by **deeplearning.ai** on Coursera

- Learned about Convolutional and Recurrent Neural Networks, LSTM, Adam Optimization, Dropout etc
- **Car Detection For Autonomous Driving** : Used pretrained model **YOLO** for object detection in real time with bounding boxes
- **Face Recognition System**: Built a face recognition system using pretrained **FaceNet** model which encodes face images into 128 dimensional vectors and use triplet loss function for training, implemented the triplet loss function

Machine Learning, Andrew Ng Coursera : Completed 11 weeks long course by **Stanford University** offered through Coursera

- Course helped me to gain deep understanding of various supervised and unsupervised algorithms and their applications
- Impemented regression, support vector machines, clustering, dimensionality reduction, recommender systems algorithms etc

Workshop on Ethical Hacking and Information Security : Participated in a two-day workshop organised by CoE-CSIA, IITD

- Developed basic understanding of various topics such as Cyber Ethics, System Hacking, Cyber Crime Investigation etc

Web Designing : Created an academic portfolio website and simple user login-logout system for exploring web designing interests

Winner in Cricket : Team member of winning team of Extragavanza, CEF cricket tournament

Singing : Stage performance on hostel house day and intra hostel singing event, praised by hostel management team and friends

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IIT COURSE

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B.Tech in Civil Engineering	Indian Institute of Technology, Delhi	6.451

QUALIFYING EXAM

- **Joint Entrance Examination (JEE) Advanced Rank:** 2458 (GE)

COURSES DONE

Intro. To Computer Science, Data Structures And Algorithms, Introduction To Economics, Macro Economics, Fundamentals Of Language Sciences, Calculus, Linear Algebra & Diffe. Equa., Intro. To Biology For Engineer