Ayush Ashish Shirsat

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EDUCATION

Boston University College of Engineering **(Sep 2018 - May 2020)**
Master of Science in Electrical and Computer Engineering (*Specialization in Data Analytics*)

Birla Institute of Technology & Science (BITS), Pilani - Dubai Campus **(Sep 2014 - Jun 2018)**
Bachelor of Engineering (Honours) in Electronics & Communication Engineering

* Relevant Coursework - Deep Learning, Learning from Data, Artificial Intelligence, Computational Tools for Data Science, Advanced Data Structures and Digital Image Processing

PROFESSIONAL & RESEARCH EXPERIENCE

Boston University, Boston, USA - *Grading Teaching Assistant - ECE Department* **(Sep 2019 - Dec 2019)**
- Graded Assignments and tutored a class of 50 students for course Computational Linear Algebra

Team IFOR, Dubai, UAE - *Research group - BITS Pilani Dubai Campus* **(Aug 2016 - May 2018)**
- Researched Computer Vision algorithms for detection and tracking
- Presented technical paper at International Aerial Robotics Competition, Georgia Tech, USA
- Built a UAV to detect oil spills in sea using thermal imagery and absorb oil using hydrophobic material

BITS Pilani Dubai Campus, Dubai, UAE - *Academic Thesis - ECE Department* **(Aug 2017 - Dec 2017)**
- Researched papers and patents related to self-driving electric cars
- Implemented an equation-based approach to model control systems and path planning of self-driving car

Mahindra & Mahindra Ltd, Mumbai, India - *Summer Intern - Corporate IT* **(Jun 2016 - Sep 2016)**
- Worked on compiling, parsing and storing of data in an IT environment
- Presented a report on functioning of Blue Coat proxy

SOFTWARE SKILLS

Languages: Python, C++, SQL

Software/Tools: TensorFlow, Keras, PyTorch, OpenCV, NumPy, Pandas, Scikit-learn, Matplotlib, Seaborn, MATLAB and Simulink, MySQL, Twitter API (Tweepy), Google Cloud Video Intelligence API, Git and Jupyter Notebooks, Windows and Linux

Modeling: Linear Regression, Time series Modeling, Random Forest, Logistic Regression, Decision Tree, Predictive Modeling, Clustering, Support Vector Machine, k-NN, naïve Bayes, Neural Networks, CNN, Masked RCNN, RNN, LSTM, Autoencoders and Hypothesis testing

ACADEMIC PROJECTS

311 Haverhill request **(Sep 2019 - Dec 2019)**
- Gathered data using QAlert API and performed exploratory data analysis using Seaborn and Matplotlib
- Predicted trends in user complaints based on seasons using SVM and Linear regression
- Details: https://github.com/Ayush-Shirsat/Haverhill_request

Data-driven Enhancement of JPEG compressed images **(Jan 2019 - May 2019)**
- Implemented Super Resolution CNN in TensorFlow to reduce blocking artefact in JPEG images
- Achieved 10%-15% better PSNR in output images when compared to compressed images
- Details: https://github.com/Ayush-Shirsat/DIP-project

3D Image Reconstruction from 2D images **(Sep 2018 - Dec 2018)**
- Performed segmentation of tower from background using a neural network (U-Net architecture in Keras)
- Implemented Structure from Motion (SFM) in MATLAB to convert 2D images of tower to a 3D model
- Details: https://github.com/3DMBDP/3D_Drone_Reconstruction

PUBLICATIONS

- Shirsat, Ayush Ashish, and Jagadish Nayak. "Visible light communication using MIMO channel to achieve better SNR at high bit rate." *2017 8th International Conference on Computing, Communication and Networking Technologies (ICCCNT)*. IEEE, 2017.
- Debnath, Saptadeep, et al. "Unmanned Aerial Vehicle of Team IFOR for the International Aerial Robotics Competition 2017."