

Karan Shah

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Education

Stony Brook University

Stony Brook, NY

MS IN COMPUTER SCIENCE | GPA : 3.68/4

Aug. 2019 - **Exp. Dec. 2020**

Coursework: Machine Learning, Computer Vision, Data Science, Probability and Statistics, Big Data Analytics, Theory of Database Systems

Gujarat Technological University

Ahmedabad, India

B.E. IN COMPUTER ENGINEERING | GPA : 8.03/10

Aug. 2014 - May. 2018

Coursework : Artificial Intelligence, Compiler Design, Data Structures, Algorithms, Software Engineering, Distributed Operating System

Work Experience

Software Developer Intern

Sept. 2020 - Current

QUANTIPHI

Marlborough, MA

- Building software tools in Python and React.js with Machine Learning Engineers to accelerate production-grade Conversational AI use cases in Docker Container over GCP cluster
- Using Flask based routing methods with multiprocessing to trigger underlying capabilities of **NVIDIA's** end-to-end ML framework and Socket+GRPC for live audio transcription

Software Engineer

June 2018 - April 2019

SIMFORM

Ahmedabad, India

- Developed an end to end Video Streaming system; allows user to upload and scan the content on the cloud, stream on cross-platform desktop application over globally separated clients; using AWS services (Lambda, S3, Cloudfront, MQTT), Electron.js, and React.js
- Built a software system to semi-automate Company's marketing work with Chrome Extension and REST API Web backend using Python and Node.js, efficient in reducing ~ **40 %** of Marketing team's manual work
- Designed and automated ETL jobs to process a huge realtime data using AWS services (Glue, Lambda, S3) and Spark

Research Intern, Machine Learning

July 2017 - May 2018

ISRO - INDIAN SPACE RESEARCH ORGANIZATION

Ahmedabad, India

- Designed generalized **CNN** architecture to handle multimodal and/or multispectral imagery along with adaptability to varying application requirements; trained on Potsdam benchmark dataset producing State of the art results to **Semantic Segmentation**
- Built software tools in **Python** for preprocessing of geographic remote sensing data, visualization, real-time performance evaluation, post-processing and output generation as a semi-automation approach
- Manipulated raster GIS data as a part of the pre-processing task using Python and QGIS application

Skills

Programming Python, Matlab, Javascript, JAVA, C/C++

Cloud/Big Data AWS, Google Cloud Platform, MapReduce, Spark

Tools/Technologies Docker, Kubernetes, Git, REST, GRPC, SQL, NoSQL

Frameworks/Libraries PyTorch, Tensorflow, Keras, OpenCV, Node.js, Django, Flask, React.js

Publication

Band-wise Independent Pansharpening Using Neural Networks with Shared Weights

PANKAJ BODANI, KARAN SHAH, SHASHIKANT SHARMA (ISRO)

SUBMITTED TO **GEOCARTO INTERNATIONAL JOURNAL**

Projects

Pansharpening Using Convolutional Neural Networks (Python, Keras)

Jan. 2019 - July 2019

- Fine-tuned a Convolutional Neural Network to super-resolve Multispectral Satellite Imagery to Panchromatic Resolution
- Delivered high performance in terms of reduced resolution quantitative assessment and visual inspection
- Achieved **1-20% better** results on various metrics compared to popular methods used for this purpose in the industry

Image Denoising using Deep Neural Networks (Python, Keras)

Oct. 2018 - Dec. 2018

- Designed a Deep Neural Network for Image Denoising and trained-performed on Overhead Images having Gaussian Noise
- Achieved computational efficiency and ability to generalize well despite limited training data
- Used Worldview Imagery samples provided by DigitalGlobe, achieving **90%** accuracy

Video Action Classification - Recognition (Python, PyTorch, Matlab)

Nov. 2019 - Dec. 2019

- Trained CNN for human action recognition task on the UCF101 data
- Achieved **86%** (1st in class) on image test data, and **84%** (2nd in class) on video frames test data
- Trained LSTM in RNN to actions classification on data collected by Kinect v2
- Used Transfer Learning to compute features for 60000 video frames with limited compute resources.

TV Series Scene Classification (Matlab)

Oct. 2019 - Nov. 2019

- Trained SVMs with different kernels and used them to classify scenes of a TV series, achieved **84.5%** categorization accuracy on test data
- Used Bag-of-Word representation, LibSVM, and implemented K-means clustering

Ultrasound Nerve Segmentation (Python, Tensorflow, Keras)

Nov. 2017 - Jan. 2018

- Designed and trained CNN based on U-net to segment a collection of Nerves in Ultrasound Images taken from a Kaggle competition
- Used pre-trained weights of VGG model in the Encoder of the network (transfer learning), gained **68 %** Test Accuracy (Top 100)