

# Sheel Dey

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## Career Summary

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- Pursuing MS in Computer Science with expertise in Deep Learning, Machine Learning, and Computer Vision
- Strong programming skills in **Python (2+ years)**, **TensorFlow (1+ years)**, **MATLAB (3+ years)**
- Hands-on experience in importing, cleaning, visualizing, and feature engineering on structured and unstructured data
- Projects on Computer Vision and Deep Learning through the **Udacity Self-Driving Car Engineer** Nanodegree program

## Work Experience

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**Deep Learning Intern**, BNSF Railway, Fort Worth, TX Aug 2018 – Present

- Developed exception reporting tools to automate the offline detection of defects on railway tracks from 4K videos
- Building time-series and survival analysis models to predict the time to failure of railway track components

*Technologies:* Python, MXNet, Gluon, Docker

**Research Assistant**, Texas A&M Transportation Institute, College Station, TX Jul 2017 – Aug 2018

- Implemented machine learning algorithms for [real-time detection of emergency vehicle sirens](#) around a car
- Achieved a test accuracy of about 85% on cleaned Google AudioSet data using a Neural Network with 34 input features

## Education

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**Texas A&M University**, College Station (TAMU) Aug 2016 – Dec 2018

- Master of Science in Computer Science GPA: 3.63

*Thesis:* [Registration of brain regions in rodent brain images](#), *Advisor:* [Dr. Zhangyang Wang](#)

- Developing algorithms for automatic image registration of rodent brain images using robust feature detectors
- Achieved an average accuracy of about 95% on the region-wise count of activated neurons in the brain images

**National Institute of Technology (NIT)**, Tiruchirappalli, India Jul 2011 – May 2015

- Bachelor of Technology in Electronics and Communication Engineering GPA: 3.90

## Technical Skills

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- **Machine Learning and Deep Learning Methods:** Linear Models, Support Vector Machines, Decision Trees, Ensembles, Clustering, Convolutional Neural Networks, Recurrent Neural Networks
- **Programming Languages:** Python (2+ years), MATLAB (3+ years), C++ (<1 year), SQL (<1 year)
- **Data Science Libraries:** Pandas (2+ years), Scikit-learn (2+ years), Matplotlib (2+ years), XGBoost (<1 year)
- **Deep Learning and Computer Vision Libraries:** TensorFlow (1+ years), Keras (1+ years), OpenCV (2+ years)

## Publications

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- Narendra, S., **Dey, S.**, Coad, J., Polsley, S., & Hammond, T. (2017) "[FreeStyle: A Sketch-based Wireframing Tool](#)", Conference on Pen and Touch Technology in Education (CPTTE-2017)

## Relevant Projects

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**How did the Chicago Taxi industry decline?** Apr 2018

- Analyzed more than 110 million taxi trips in Chicago over a period of 4 years (2013-2017) through visualizations
- Key indicators used: Hourly, weekly, daily, and monthly number of taxi trips and revenue, city regions, cab company
- [Built predictive models](#) based on a 2-layer LSTM Network and Generalized Additive Models (Facebook Prophet)

*Technologies and Concepts:* Python, Plotly, Keras, Time-Series data analysis, Recurrent Neural Networks

**Activity Recognition from Low Bitrate Videos**, *Computer Vision, TAMU* Sep 2017 – Dec 2017

- [Designed a 6-layer 3D Convolutional Neural Network](#) (3D CNN) to classify human actions from low resolution videos
- Achieved a test accuracy of 33.09% on UCF-101 dataset; gained a performance of 2.2% by using an ensemble model

*Technologies and Concepts:* Python, Keras, Ensemble learning

**German Traffic Sign Recognition**, *Self-Driving Car Engineer Nanodegree, Udacity* May 2017 – Jun 2017

- [Trained a 5-layer ConvNet](#) similar to the LeNet-5 network to classify 43 different types of German traffic signs
- Achieved an accuracy of 94.5% on the test dataset obtained from "The German Traffic Sign Recognition Benchmark"

*Technologies and Concepts:* Python, TensorFlow, Convolutional Neural Networks

**FAKER: Amazon Online Fake Reviews Detection**, *Information Storage and Retrieval, TAMU* Mar 2017 – May 2017

- Developed criteria to put 5000 online reviewers into different groups based on their review content and activities
- Implemented an [unsupervised deep learning clustering](#) algorithm (Self Organizing Map) to identify fake reviewers

*Technologies and Concepts:* Python, Self-Organizing Map