

Amitesh Sharma

M.Tech Machine Learning and Computing

Education

- 2018–2020 **M.Tech**, *Indian Institute of Space Science and Technology*.
M.Tech Machine Learning and Computing, GPA – 8.63/10
- 2013–2017 **B.E.**, *Rajiv Gandhi Institute of Technology –Mumbai University*.
Computer Engineering, GPA – 7.78/10
- 2013 **Intermediate**, *Maharashtra State Board*.
Higher Secondary School Certificate, Percentage – 81.83%
- 2011 **Xth Board**, *Maharashtra State Board*.
Secondary School Certificate, Percentage – 93.09%

Experience

- July 2020– **Gaian Solutions**, *Data Scientist*.
Present Working as a Data Scientist in the advertisement domain.
- June 2019– **Quantela Inc**, *Data Science Intern*.
- June 2020 **Multivariate Time series Imputation and Forecasting:**
A. Imputation of missing data: Compared GAIN - Missing Data Imputation using Generative Adversarial Nets and Multi-directional Recurrent Neural Networks for missing sensor data.
B. Forecasting for sensor data: Performed Multivariate Time series forecasting using Temporal pattern attention and GRU-D.
Created end to end solution for Multivariate Time series imputation and forecasting.
- 3. Univariate Time Series forecasting:**
Created end to end solution for Univariate Time series forecasting using Neural Beats.

Projects

- August 2019– **Adaptive traffic signal control using Deep Reinforcement Learning in a Generalized manner**, *M.Tech Thesis Project*.
June 2020 Created a policy structure by network sharing for different topological road structures to reduce training time and get signal phases for large maps. This was achieved using multi-headed attention for co-operation amongst the traffic intersections and deep Q network for selecting an action for traffic signals.
- January 2019– **Comparative Analysis of LSTM and its variants on Part-of-Speech Tagging problem**,
May 2019 *Mini Project*.
POS Tagger was implemented using LSTM and its variants and comparative analysis was performed to determine which variant works best for the problem.
- August 2018– **Image segmentation using K-Means, Fuzzy C-means and Mean Shift Algorithm**, *Mini Project*.
October 2018 Various techniques for image segmentation were compared with each other using the ground truth.
- July 2016– **Real time object detection, recognition and estimation of the price of the object**, *B.E. Major Project*.
March 2017 A real time system which takes frames from web camera and detects and recognizes objects, for which the machine is trained, within the frame. The system predicts price range for the identified object and also provides purchase links for the identified object using vendor API.

Papers

- March 2017 **Real time object detection and recognition and estimation of the price of the object**, *Conference Paper*.
Acknowledged and Published by: International Journal of Research in Science and Engineering in the Special Issue 7-ICEMTE March 2017 edition.
- April 2017 **Detection and Recognition of Objects and Providing Purchase links using APIs**, *Journal Paper*.
Acknowledged and Published by: International Journal of Engineering Science and Computing in Volume 7 Issue No.4 (April 2017).

Open Source Work

- February 2020 **nbeats-forecast**, *Python library for Univariate Time Series Forecasting*.
nbeats-forecast is an end to end library for univariate time series forecasting using N-BEATS. This library uses nbeats-pytorch as base and simplifies the task of forecasting using N-BEATS by providing a interface similar to scikit-learn and keras.
Link: <https://pypi.org/project/nbeats-forecast/>

Achievements

- December 2019 **Pune Urban Data Exchange (PUDX) Datathon**, *organised by Robert Bosch Centre for Cyber-Physical Systems @ IISC Bangalore*.
Member of the winning team for Pollution Exposure Data Analytics.
Contribution: Performed Seasonally Decomposed Missing Value Imputation using Kalman filter for missing time-series data and trained Neural Beats (<https://arxiv.org/abs/1905.10437>) model for univariate forecasting of PM 2.5 values.
Link: <https://cps.iisc.ac.in/pudx/>

Skills

- Languages: Python, MATLAB, C, C++, Java, PHP, SQL
Libraries: Numpy, Scipy, Pandas, Matplotlib, Scikit-learn, OpenCV, PyTorch, Bootstrap
- Technologies/Tools: HTML, CSS , Weka, Wireshark

Certification

- November 2019 **Deep Learning - Part 1, NPTEL**.
Verify:<https://nptel.ac.in/content/noc/NOC19/SEM2/Ecertificates/106/noc19-cs85/Course/NPTEL19CS85S31141482191053128.jpg>
- May 2017 **Machine Learning**, *Stanford University – Coursera*.
Verify:<https://www.coursera.org/account/accomplishments/verify/EYD6A4M47SDV>

Area of Interest

Data Mining, Deep Learning, Computer Vision, Natural Language Processing, Reinforcement Learning

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