

Harsha Vardhini Vasu

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EDUCATION

Master of Science in Computer Science | University of Texas at Dallas | Richardson, TX | May 2021 | Selected Courses: Natural Language Processing, Machine Learning, Computer Vision

Bachelor of Technology in Computer Science | Amrita Vishwa Vidyapeetham | Coimbatore, India | April 2019 | Selected Courses: Data Mining & Machine Learning, Database Management System

EXPERIENCE

Undergraduate Student Researcher | Amrita Machine Learning Lab | Coimbatore, India | June 2018 - July 2019

- Developed an Indian district rainfall prediction application using location-based analysis to reduce the error rate by 10%.
- Implemented Cluster-based rainfall data model using regression algorithms such as Decision Tree, Random Forest, & XGBoost.
- Combined regression model using ensemble techniques such as Stacking. The final hybrid ensemble model achieved an EVS of 0.911.
- Publication links: http://bit.ly/rainfall_1_publication, http://bit.ly/rainfall_2_publication.

SKILLS

Proficient: Python, C, SQL | TensorFlow, Keras, Scikit-Learn, NumPy, Pandas, Matplotlib | Git, GitHub | Latex

Intermediate: C++, Java, LISP, Prolog, HTML, CSS, JSP | Pytorch, Caffe, SciPy, OpenCV, Flask | Docker

PROJECTS

Neural networks from scratch | University of Texas at Dallas | December 2020 - February 2021

- Implemented all building blocks of Dense Neural Network (DNN) from scratch using NumPy for a cat classifier - 80% Test accuracy.
- Implemented all building blocks of Convolutional NN (CNN) from scratch using NumPy for Sign classification - 78.3 % Test accuracy.
- Built a Residual Network (ResNet) based CNN from scratch for classifying Numerical Hand Signs - 86.6% Test accuracy.
- Built a basic RNN-based and LSTM-based character level language model to generate new dinosaurs names from scratch.

Neural Machine Translation with Attention Mechanism | University of Texas at Dallas | February 2021

- Developed an application to translate all formats of human-readable dates to machine-readable format (YYYY-MM-DD).
- Used Bidirectional LSTM Encoder, Unidirectional LSTM Decoder model, and Bahdanau Attention for developing Neural Network.
- Optimized the output using Adam optimizer and visualized attention weights learned by the network.
- Tech Stack used: Keras, Numpy, Matplotlib, TensorFlow.

Art generation with Neural Style Transfer | University of Texas at Dallas | January 2021

- Built a Neural Style Transfer application for generating fictive artwork, which modifies the input image based on a painting's visual style.
- Used pre-trained VGG-19 network for transfer learning. Implemented Content cost and style cost to compute cost function.
- Tech Stack used: Tensorflow, Keras, Numpy, Scipy, Matplotlib.

Car detection with YOLO | University of Texas at Dallas | January 2021

- Developed an Object detection application using the YOLO model to detect cars in traffic cam Images.
- Chose Anchor boxes based on training data, Trained using Darknet-19 Architecture (CNN), Filtered anchor boxes based on the threshold, Eliminated overlapping anchor boxes using non-max suppression, Plotted anchor boxes on the output image.
- Tech Stack used: Tensorflow, Keras, Numpy, Pandas, Scipy, Matplotlib.

Machine Learning from Scratch | UTD Machine Learning | January 2020 - May 2020

- Implemented Machine Learning algorithms (Linear regression, Decision Tree, Naive Bayes, Logistic Regression) from scratch.
- Tech Stack Used: NumPy, Pandas, Matplotlib, Collections.

CERTIFICATIONS

Deep Learning Specialization (5 Course) | Deeplearning.ai | Coursera | February 2021

AI for Medical Diagnosis | Coursera | February 2021

Machine Learning Foundations: A Case Study Approach | University of Washington | Coursera | November 2017

INVOLVEMENT

Event Manager | Amrita Vishwa Vidyapeetham | Anokha National Techfest | December 2017 - February 2018

- Led a team of 6 members to organize a MATLAB-based Machine Learning and IoT Workshop for 61 participants.
- 82% of the participants provided a 100% satisfaction rate on the concepts taught and hospitality provided at the event.