Preetham Ganesh

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EDUCATION

Master of Science in Computer Science | University of Texas at Arlington | Arlington, TX | May 2021
Selected Coursework: Computer Vision, Machine Learning, Neural Networks, Data Mining

Bachelor of Technology in Computer Science | Amrita Vishwa Vidyapeetham | Coimbatore, India | April 2019
Selected Coursework: Intelligent Systems, Software Engineering, Database Management System. **Awards:** Outstanding Student Award 2019.

EXPERIENCE

Graduate Student Researcher | Vision-Learning-Mining Research Lab | Arlington, TX | February 2020 - Present
- Developing a video classifier to classify Continuous American Sign Language videos using Convolutional RNN & 3D CNN.
- Used VGG-16 & OpenPose to extract features from the videos & used GRU to predict the sequence of words with the help of Softmax layer.
- The current version of the application achieved a Top-5 Accuracy of 55.45% on the test WLASL dataset.
- **Technology Stack used:** TensorFlow, OpenCV, Keras, Pandas, Scikit-Learn, NumPy, SciPy, Pickle.

Bachelor Thesis | Amrita Vishwa Vidyapeetham | Coimbatore, India | June 2018 - July 2019
- Developed an application to predict rainfall in Indian districts using district-wise location-based analysis to increase the EVS by 10%.
- District and State rainfall data modeled using regression algorithms such as Decision Tree, Polynomial, Random Forest, & XGBoost, and combined results using ensemble techniques such as Stacking. The final hybrid ensemble regression model achieved an EVS score of 0.911.
- **Technology Stack used:** Pandas, NumPy, SciPy, Scikit-Learn, Collections, Matplotlib, Itertools.
- **Publications:** bit.ly/rainfall_1_publication, bit.ly/rainfall_2_publication. **GitHub:** bit.ly/rainfall_1_git, bit.ly/rainfall_2_git.

SKILLS

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

Intermediate: C++, Java, JavaScript, MATLAB, R | PyTorch, Caffe, SciPy, OpenCV, Flask, Multiprocessing | Docker | Apache Tomcat

PROJECTS

POS-Tagging based Neural Machine Translation | University of Texas at Arlington | July 2020 - Present
- Developing a full-stack web application for translating text entered by the user from European languages to English and vice versa.
- Performed Multi-threaded preprocessing on Paracrawl dataset. Implemented Luong Attention-based Seq2Seq & Transformer models.
- Developed front-end using HTML & CSS and connected developed models to front-end using Flask.
- The English-Spanish Transformer model achieved a BLEU score of 44.673 and METEOR score of 68.43 on the testing dataset.
- **Technology Stack used:** TensorFlow, Keras, Flask, Multiprocessing, Scikit-Learn, Pickle, HTML, CSS, Regex. **GitHub:** bit.ly/lang_trans_github.

Text Classification using Recurrent Neural Networks | University of Texas at Arlington | December 2020
- Developed a full-stack web application for predicting the sentiment of movie review from IMDB database.
- Preprocessed sentences to remove unwanted characters & tokenized sentences. Implemented LSTM based text classifier for classifying text.
- The model produced an accuracy of 87.2% on test set. Developed front-end using HTML & CSS and connected model to front-end using Flask.
- **Technology Stack used:** TensorFlow, OpenCV, NumPy, Scikit-Learn, Pandas, Flask, HTML, CSS.

Captioning of Images using Luong Attention | UTA Human Data Interaction Lab | November 2020
- Developed a full-stack web application for predicting captions of an image given by the user.
- Preprocessed captions and tokenized using SentencePiece tokenizer. Used pre-trained InceptionV3 network to extract features from the images.
- Built Attention-based Seq2Seq LSTM model for predicting captions from extracted features. The model produced a loss of 0.628 on the test set.
- **Technology Stack used:** TensorFlow, OpenCV, NumPy, Scikit-Learn, Pandas, Flask, HTML. **Links:** bit.ly/caption_git, bit.ly/caption_medium.

Personalized System for Human Gym Activity Recognition | UTA Heracleia Lab | September 2019 - February 2020
- Led a team of 3 members to develop an android application to recognize gym activities and provide feedback on the correctness of joint movement.
- Created a new dataset from scratch, preprocessed videos, used OpenPose to extract pose-information of people and normalized extracted keypoints.
- Implemented correctness of workout module using Dynamic Time Warping. Used Random Forest classifier and attained an accuracy of 98.98%.
- **Technology Stack used:** Scikit-Learn, Caffe, OpenCV, NumPy, Django, Flask. **GitHub:** bit.ly/gym_git, **Publication:** bit.ly/gym_publication.

LEADERSHIP

ASCII Technical Club | Amrita Vishwa Vidyapeetham | Chairman | June 2018 - April 2019
- Led a team of 32 members to organize multiple events such as Quizzes, Workshops, Gaming Events, & also published Newsletters.
- Improved the student turnout for events by 75% (compared to the previous year) and received an average event satisfaction score of 85%.

Anokha National Techfest | Amrita Vishwa Vidyapeetham | Event Manager | 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.