Preetham Ganesh

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EDUCATION

Master of Science in Computer Science — August 2019 - May 2021
The University of Texas at Arlington — Arlington, TX

Bachelor of Technology in Computer Science and Engineering — July 2015 - April 2019
Amrita Vishwa Vidyapeetham — Coimbatore, India

EXPERIENCE

Software Developer - AI & ML — March 2022 – Present
Clarium Managed Services LLC — Atlanta, GA (Working remotely)

- Building an end-to-end deep learning application for extracting & summarizing text from scanned medical information documents.
- Developed a synthetic dataset that simulates original scanned medical documents for Text-Line Segmentation and Recognition Tasks.
- Trained U-Net & Attention-based Seq2Seq models for Text-Line Segmentation & Recognition tasks which produced an accuracy of 95%.
- **Tech Stack:** Tensorflow, OpenCV, Scikit-Learn, Spacy, NumPy.

Search Language Specialist — October 2021 – March 2022
Qualitest, Supporting Google — Austin, TX

- Provided natural native-language expertise for Google Search & Android TV. Also, supported by defining software needs for maintenance.
- Performed Extraction, Transformation, & Loading of data into the Search Engine. Analyzed the annotation to trigger for a query.

Graduate Student Researcher — February 2020 – May 2021
VLM Research Lab, University of Texas at Arlington — Arlington, TX

- Developed a proof-of-concept application for translating Sentence-based ASL to English language Speech under Prof. Vassilis Athitsos.
- Extracted Human & Hand Pose Keypoints from the videos, improved efficiency of it by converting models to PyTorch, and pre-processed it.
- Implemented Attention-based Seq2Seq & Transformer architectures for training all models & performed hyper-parameter tuning.
- Video Sign Language Recognition module achieved a state-of-the-art Top-5 accuracy of 98%. **Tech used**: TensorFlow, OpenCV, PyTorch.

SKILLS

- **Languages**: Python, C, SQL, R, C++, Java
- **Frameworks & Tools**: TensorFlow, Keras, Scikit-Learn, NumPy, OpenCV, Pandas, Pickle, Matplotlib, SpaCy, Flask, NLTK, Git, AWS, BigQuery.

PUBLICATIONS & ACHIEVEMENTS

- POS Tagging-based Neural Machine Translation System for European Languages using Transformers: WSEAS (1st Author) — May 2021
- Personalized System for Human Gym Activity Recognition using an RGB Camera: PETRA (Scopus Indexed – 1st Author) — June 2020
- Estimation of Rainfall Quantity using Hybrid Ensemble Regression: ICACC (Scopus Indexed – 1st Author) — February 2020
- Forecast of Rainfall Quantity and its Variation using Environmental Features: IPACT (Scopus Indexed – 1st Author) — January 2020
- Recipient of the **Outstanding Student Award** by the Department of CSE: Amrita Vishwa Vidyapeetham — April 2019

ACADEMIC PROJECTS

POS Tagging-based Neural Machine Translation System for European Languages using Transformers — July 2020 - February 2021

- Built a production ready end-to-end application for translating text using inter-language word similarity.
- Performed Multi-threaded sentence pre-processing on multiple datasets and reduced processing time by 70%.
- Implemented & trained Luong Attention-based Seq2Seq & Transformer networks. Utilized Flask for connecting models to webpage.
- Attained a METEOR score of 68.4 on the test set for EN-ES Transformer model. **Tech used**: TensorFlow, Spacy. **Links**: [Video]

Captioning of Images using Luong Attention Mechanism — November 2020

- Developed a full-stack web application for predicting captions of an image given by the user and hosted the model on cloud.
- Pre-processed & tokenized captions using SentencePiece tokenizer. Used pre-trained InceptionV3 model to extract spatial features.
- Trained & tested Attention-based Seq2Seq model which produced loss of 0.628 on test set. **Tech used**: TensorFlow, Flask. **Links**: [Video]

Personalized System for Human Gym Activity Recognition using an RGB Camera — September 2019 - February 2020

- Developed an android application to recognize gym activities & provide feedback on accuracy of joint movement.
- Attended weekly scrum meetings & communicated with members to integrate modules. Created a dataset & pre-processed it.
- Extracted keypoints using OpenPose. Classified activities using Random Forest, which achieved an accuracy of 98%. **Tech used**: Scikit-Learn.