Alfred W. Jacob

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Research Background

Reinforcement Learning | Natural Language Processing | Computer Vision

Research Experience

- **University of Texas at Austin** Jan 2022–Present
  Austin, Texas
  - Working with Prof. Peter Stone (UT Austin) on developing a simulation and agent using maximum entropy formulation of Reinforcement Learning.
- **Anuradha and Prashanth Palakurthi Centre for Artificial Intelligence Research (APPCAIR)** Aug 2021–Dec 2021
  - Worked on a Project in Machine Translation and Dataset Generation for low resource Indic Languages.
  - Used Semantic Analysis via Word Vectors to match sentences parallel datasets.
- **University of Texas at San Antonio** (Virtual) Jun 2021–Dec 2021
  - Researched field of Distributional Reinforcement Learning and its Applications under Prof. Heena Rathore.
- **Samsung Research Institute** (Virtual) Jun 2021– Jul 2021
  - Built a Collaborative Filtering-based Recommender System, which uses custom-engineered features which are passed into a neural network to generate predictions.
  - Recommendation feedback incorporated with gamma value similar to reward in Reinforcement Learning and integrated model with a DAPP and Blockchain Network.
- **Artificial Intellegence/ Machine Learning Lab** (BITS) Dec 2020–Oct 2021
  - Created a novel image feature based on relative object positioning and causal inference.
  - Achieved a 1.02 CIDEr-D and 0.33 BLEU-4 score improvement from the base model on the Karpathy Split of the Microsoft-COCO Dataset.
- **Web Intelligence and Social Computing Laboratory** (BITS) Mar 2020–Dec 2020
  - Developed Machine Learning Models using transformers, stacked embeddings and work vectors for detection of hate speech in Tweets.
  - Achieved F1-weighted score of 0.90 for coarse-grained hostility detection and 0.54 F1-weighted score for fine-grained hostility identification.

Selected Publications

1. Siva Sai *et. al,*. "Stacked Embeddings and Multiple Fine-Tuned XLM-RoBERTa Models for Enhanced Hostility Identification". *CONSTRAINT 2021, Presented at AAAI*, 2021.

Technical Skills

- *Programming Languages*: Python and Neural Net libraries (PyTorch, TensorFlow), C++, Flutter.
- *Certifications*: From Data to Insights Specialization- Sponsored by Google.

Education

- **Birla Institute of Technology and Science, Pilani (BITS Pilani)**, India (exp.) 2018–2022
  - B.E.(Hons.) in Department of Computer Science.
  - Teaching Assistant in Deep Learning, Selected as one of the three TAs from all students.
  - Relevant Coursework: Reinforcement Learning (UT Austin), Machine Learning, Artificial Intelligence, Neural Networks and Fuzzy Logic

Other Achievements

- Contributor to OpenAI's gym repository.
- Student Volunteer for EMNLP-2021.
- Member UT Austin RL Reading Group

Contact Information

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