Anthony John Dsouza

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Education

- **Universität des Saarlandes** Saarbrücken, Germany
  MSc. Language Science Technology (Computational Linguistics) *October 2023 - Present*
  Courses: ***Computational Linguistics, Foundations of Linguistics, Statistics with R, Introduction to Python***
  Seminars: ***Advances in Question Answering***
- **Agnel Charities' Fr. C. Rodrigues Institute of Technology** Navi Mumbai, India
  Bachelors of Engineering in Information Technology; CGPA: 8.51/10.0 *July 2018 - June 2022*
  Courses: ***Arificial Intelligence, Computer Organization and Architecure, Operating Systems, Automata Theory, Advanced Data Structures and Analysis of Algorithms, Information Retrieval Systems, Big Data, IoT.***

Skills Summary

- **Languages**: Python, C, SQL, Bash, LaTeX
- **Tools**: JAX/Flax/Haiku, PyTorch, TensorFlow/Keras, Accelerate, Transformers, TensorBoard, FastAPI, Docker, Triton, GIT, SQL

Goals

- **Long Term Goals**: Research **Explainability in AI** in decision making process.

Research Projects

- **Using CLIP to detect poachers** **(Machine Learning, Multimodality, Information Retrieval, IoT, Anti-poaching)** : Developed a solution to **detect poaching and illegal tree felling using multimodal models**. Given text prompts, the model could accurately detect poachers and tree fellers BEFORE the act. A node comprising of a low power SBC like Raspberry Pi Zero with camera, IR sensor, GPS and a PIR sensor is used to detect, capture images/videos and send data over to a backend server for further processing using trained CLIP model. **(Feb '22 to Mar '22)**
- **Voice Deepfakes for Video Dubbing** **(Machine Learning, Speech Processing, AI for Education, Bachelor's Project)**: Developed a solution to **transcend linguistic barriers in education** by training ASR, NMT, Speech Synthesis model with desired voice and prosody so that learners are able to avail resources irrespective of the source language. **(Feb '21 to Mar '22)**
- **AI based sub-millisecond poacher detection system** **(Computer Vision, IoT, Anti-poaching, Object Detection)**: Developed a solution to **detect poachers on the edge using quantized object detection model**. Deployed Raspberry Pi 3B+ nodes with PIR, IR and Camera modules detected poachers on device and communicated over a pub-sub network. **(Feb '21 to Mar '21)**
- **DeepFake detection using CNN and Remote Photoplethysmography** **(Computer Vision, Fake News Detection)**: Implemented a system to detect **image manipulation using remote photoplethysmography (rppg) and CNN**, based on the hypothesis that ***GANs are superficial learners, and hence cannot accurately model data without artefacts.*** **(Jan '20 to Mar '20)**

Publications

- **SynthPipe : AI based Human in the Loop Video Dubbing Pipeline**: A. J. Dsouza, A. Rachel Kumar, A. K. Wilson and R. Deshmukh, 2022 Second International Conference on Advances in Electrical, Computing, Communication and Sustainable Technologies (ICAECT), 2022, pp. 1-5, doi: 10.1109/ICAECT54875.2022.9807853

Certifications

- **Structuring Machine Learning Projects**: *Coursera Certificate*
- **Natural Language Processing with Classification and Vector Spaces**: *Coursera Certificate*
- **Natural Language Processing in TensorFlow**: *Coursera Certificate*
- **Convolutional Neural Networks in TensorFlow**: *Coursera Certificate*