Alfred W. Jacob

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CONTACT INFORMATION

GitHub: www.github.com/alfred100p
LinkedIn: www.linkedin.com/in/alfred-william-jacob
✉Email: alfredwilliamjacob@gmail.com
Phone: +91 9072709659

RESEARCH BACKGROUND

Cognitive AI | **Computer Vision**
Natural Language Processing | **Reinforcement Learning**

EDUCATION

Birla Institute of Technology and Science, Pilani (BITS Pilani), India 2018–2022 (exp.)

- B.E.(Hons.) in Department of Computer Science, GPA: 7.27/10.
- Teaching Assistant in Deep Learning, Selected as one of the three TAs from all students.

TECHNICAL SKILLS

- *Programming Languages*: Python, PyTorch, TensorFlow, Keras, C/C++, Flutter.
- *Certifications*: From Data to Insights Specialization- Sponsored by Google.

RESEARCH EXPERIENCE

- **Anuradha and Prashanth Palakurthi Centre for Artificial Intelligence Research (APPCAIR)** Aug 2021–Present
  Birla Institute of Technology and Science, Pilani.
  Working under Prof. Navneet Goyal (BITS Pilani), recipient of IBM Scalable Data Analytics Innovation Faculty Award 2010, on a Project in Natural Language Processing.

- **University of Texas at San Antonio** Jun 2021–Present
  Working under Prof. Heena Rathore (UTSA), in modelling uncertainity using Bayesian Reinforcement Learning to make improved administrative policies to combat pandemics.

- **Artificial Intellegence/ Machine Learning Lab** Dec 2020–Present
  Birla Institute of Technology and Science, Pilani.
  - Worked under Prof. Kamlesh Tiwari (BITS Pilani) and Prof. Sumit Kalra (IIT Jodhpur), to create 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** Mar 2020–Dec 2020
  Birla Institute of Technology and Science, Pilani.
  - Worked under Prof. Yashvardhan Sharma and 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, Collocated with AAAI*, 2021.

WORK EXPERIENCE

- **Samsung Research Institute** Jun 2021– Jul 2021
  Research Intern, New Delhi.
  - 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.

- **Tamil Nadu State Government, funded by the World Bank** May 2020– Jun 2020
  Data Analyst Intern, Chennai.
  - Created a district-wise model trained on tuberculosis data (yearly basis) and COVID-19 data (daily basis) separately.
  - Developed a tool to predict number of cases for diseases and provide improved visualizations allowing officials to make better decisions.
  - Used MLP and random forest models which were trained via genetic algorithm

PERSONAL PROJECTS

- Contributor to OpenAI's gym repository.
- Seq2Seq LSTM Chatbot
- Reinforcement Learning Agents for Space Invaders, Flappy Bird and Super Mario Bros.