Rohan Dubey

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EXPERIENCE

Applied Scientist Intern
June 2022 – Nov. 2022

Amazon
Bangalore, India

- Engineered and developed the methodologies to mitigate the bias of model performance across different clusters of the NLU Model for the Alexa NLU data and achieved equitable learning goals, and removed language biases using cross-lingual data and data augmentation techniques.
- Monitored the Alexa NLU models and assisted in the successful model release.

Summer Research Intern
June 2020 – July 2020

Andhra Pradesh Human Resource Development Institute (APHRDI)
Bapatla, India

- Qualitative and Quantitative Research on COVID-19 in India to predict and plan out the COVID-19 outbreak.
- Predicted and Plotted the COVID-19 Data using Machine learning tools using a modified SEIR model.

Research Intern
May 2019 – July 2019

Indian Institute of Technology-BHU
Varansai, India

- Simulation of weighted Cost-Sharing Network Game in Multi-cast Routing Networks.
- Planned out the network paths for a hypothetical city using Modified Nash Equilibrium and Graph and Network Theory for better network routing.

EDUCATION

Birla Institute of Technology and Science
Pilani, India

M.Sc in Mathematics and B.E in Electrical & Electronics Engineering
Aug. 2018 – June 2023

PROJECTS

Bias Mitigation for Equitable Learning | *Python, PyTorch, BERT*
Alexa-NU, Amazon, Bangalore, India.

- Proposed sequential fine-tuning with continual learning methods (EWC, MAS and their combinations) to reduce algorithmic bias in NLU models and evaluated the methods on MultiNLI and Alexa NLU datasets and claims to outperform existing and baseline models.
- Provided extensive reasoning for the use of continual learning as a method to tackle algorithmic bias for unbiased AI development.

Face Mask Detector | *YOLOv5, OpenCV, PyTorch, Tkinter*
Govt. of Rajasthan, India.

- Developed an AI solution with built-in GUI based on the YOLOv5 model, RetinaNet and OpenCV to detect those wearing masks or not.
- This program can run on multiple camera sources and store images without a mask for future identification.

Heart-rate Monitoring System | *OpenCV, Scipy, Python*
BITS, Pilani, Hyderabad.

- Developed contactless pulse detection software using OpenCV and signal transformation techniques.
- Tested the software with webcam and network IP camera sources and demonstrated its usefulness for hypersensitive people and COVID-19 situation.

Object Detection using Homography Techniques | *OpenCV, Python, Numpy*
BITS, Pilani, Hyderabad.

- Implemented real-time object detection with SIFT, FLANN and KNN algorithms using homography and feature matching.

PUBLICATIONS

Handwritten Image Detection using DCGAN with SIFT and ORB Optical Features | May 2023, *R. Dubey, I. Das,* 6th International Conference on Information Systems and Computer Networks, doi: 10.1109/ISCON57294.2023.10112139.

Coordinated load frequency control of a smart hybrid power system using the DEMA-TD3 algorithm | March 2023, *R. Loka, R. Dubey, A. M. Parimi,* Control Engineering Practice, Volume 134, doi: 10.1016/j.conengprac.2023.105480.

Maintaining the frequency of AI-based power system model using Twin Delayed DDPG(TD3) implementation | March 2022, *R. Dubey, R. Loka, A. M. Parimi,* 2nd International Conference on Power Electronics IoT Applications in Renewable Energy and its Control (PARC) PARC), doi: 10.1109/PARC52418.2022.9726615.