Anubhav **Sachan**

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Education

National Institute of Technology Silchar
Silchar, Assam

B. Tech. in Electronics and Communication Engineering
June 2021 (Expected)

Puranchandra Vidyaniketan
Kanpur, Uttar Pradesh

Intermediate Sciences (Physics, Chemistry, Mathematics, Computer Science)
May 2016

Experience

Saarthi.ai
Bengaluru, India

Research Intern, Speech and Language Technology Lab
April 2020 - June 2020

- Developed a *Model-based Offline Multi-Agent Dialogue Policy Learning* technique using *Advantage Actor Critic* algorithm in *Deep Reinforcement Learning* to improve the performance of the dialogue manager for their conversational AI product.
- Implemented and focused on *Few-shot Unsupervised Dialogue Generation* to understand the interpretability of latent action space for insights in the improvement in representation learning methods.

Indian Institute of Technology Indore
Indore, India

Undergraduate Research Intern
May 2019 - July 2019

- Worked in Pattern Recognition and Image Analysis (PRIA) Laboratory, IIT Indore, under *Dr. Vivek Kanhangad*, Discipline of Electrical Engineering, IIT Indore.
- Developed a a pore feature-based *Fingerprint Recognition System* using the **multitask residual learning-based Convolutional Neural Network**, referred to as PoreNet that learns distinctive feature representations from the pore patches.

Key Projects

Model-based Offline Multi-Agent Dialogue Policy Learning

Reinforcement Learning, Dialogue Modelling
June 2020

- The implemented learning paradigm relentlessly focuses on user agent to learn along with the system agent in a joint/shared fashion with the incorporation of the actor critic framework for the optimization of the model-based offline learned dialogue policy.

Few-shot Unsupervised Discrete Sentence Representation Learning based Dialogue Generation

Natural Language Processing, ML Interpretability
May 2020

- A discrete sentence representation learning method through a Variational Autoencoder is devised and implemented to enhance the performance of dialogue manager.
- The generated latent space provides the flexibility of integration with any existing encoder-decoder dialogue model, for an interpretable response generation in a few-shot fashion.

A Hybrid Classification Approach using Topic Modeling and Graph Convolutional Networks

Published in ComPE 2020, India
October 2019

- Constructed a structured heterogeneous text corpus graph to transform text classification problem into a node classification problem.
- Created semantic rich features by using Text GCN and topic modeling based approach-LDA which are then fed into a novel classification model.

Fingerprint Recognition System with Unsupervised Domain Adaptation

IMAGE ANALYSIS AND PATTERN RECOGNITION *July 2019*

- A customized deep learning based fingerprint recognition system has been developed using the multitask residual learning based convolutional neural network architecture to extract the fixed length feature representations from a high resolution pore latches.
- The concept of domain adaptation in the absence of labelled training data for a deep learning architecture (DeepResPore) was implemented by augmenting the given deep neural network with the proposed new gradient reversal layer.

Electronic Health Record (EHR) based Patient Case Similarity

PROBLEM STATEMENT BY eZDI, INC.

PRESENTED IN GRAND FINALE OF SMART INDIA HACKATHON ORGANIZED BY MHRD INDIA *March 2019*

- Calculation of Patient Similarity based on Patient Demographic and Case Details extracted from XML annotations in Electronic Health Records (EHR).
- XSLT used for transforming and extracting annotated data into CSV.
- An ensemble model consisting of both Word Mover's Distance (WMD) and General Feature Extraction based on curated list of important sections weighted in the ratio 3:1.

Publication

Thoudam Doren Singh, Divyansha, Apoorva Vikram Singh, **Anubhav Sachan**, Abdullah Khilji. **"Debunking Fake News by Leveraging Speaker Credibility and BERT Based Model"**, Accepted at *IEEE/WIC/ACM International Joint Conference on Web Intelligence and Intelligent Agent Technology (WI-IAT '20)*, Melbourne, Australia.

Achievements

2020	**Winner, IEDC and UGRC Grants** worth *Rs. 1.25L* for the projects "Deep Reinforcement Learning based Liquid Lens Auto-Focus system" and "AssistiveMRI: A deep learning approach to Medical Image Processing" respectively.	*NIT Silchar*
2019	**Winner, Hackathon, NIT Conclave '19** organized by NIT Rourkela among all 31 NITs.	*NIT Rourkela*
2019	**National Finalist, Smart India Hackathon '19** (Software Edition) organized by Ministry of Human Resource Development, Government of India.	*NIT Warangal*
2018	**Recipient of Prime Minister Scholarship Scheme with AIR 729.**	*New Delhi*

Skills & Interests

Programming	**Python 3.6** (PyTorch, Flask, PyPI) **Data Structures and Algorithms** using **C++, C.**
Machine Learning	**Deep Learning** with **PyTorch** in **Natural Language Processing** (Dialogue Systems & Representation Learning) and **Pattern Recognition** (Biometric Systems).
Utilities	SQL, Linux, AWS, Git VCS, LaTeX, Jekyll, HTML5, CSS3, JS
Interests	**Reinforcement Learning**, *Neural Networks*, Advanced Pattern Recognition, Sentiment Analysis, Data Analytics, *Advanced Algorithms*