

Deepti Saravanan

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EDUCATION

- **National Institute of Technology Trichy, India - Btech CSE** CGPA 8.3
• *Relevant Courses:* ML, NLP, Advanced DBMS, Image Processing, Probability Theory, Design Thinking May 2020
- **Class 12 CBSE, Srimathi Sundaravalli Memorial School** 94.4 percent
• *Mathematics and Biology group* May 2016
- **Class 10 CBSE, Srimathi Sundaravalli Memorial School** CGPA 10/10
• May 2014

RESEARCH AND DEVELOPMENT EXPERIENCE

- **Single-Cell RNA-Protein sequencing and pseudotime trajectory inference** July 2020 - Present
• *Guide:* Prof. Dr. Hamim Zafar, Dept. of Biological Sciences and Bioengineering, IIT-Kanpur
 - : Developing an algorithm that can efficiently sequence cells based on RNA and Protein data and perform inter-cluster analysis to develop a pseudotime trajectory
 - **Technologies used:** Biopython, SciPy, Variational Inference, Post-predictive Analysis, Latent Space
- **Language Model for SEBI Regulatory Documents** July 2020 - Present
• *Guide:* Prof. Dr. Kamalakara Karlapalem, Dept. of Computer Science, IIIT-Hyderabad
 - : Developing a Language Model for the Indian financial regulatory documents. Also, creating a general template for the SEBI regulatory documents using NLP techniques that capture the contextual relationships between the regulatory rules, enhanced with legal cases and news articles analysis.
 - **Technologies used:** NLP, BERT, Bit Vectors, Dependency Tree, Web Scraping, Topic Modeling
- **Adaptive Learning Management Expert System** Jan 2020 - July 2020
• *Guide:* Prof. Dr. M. Brindha, Dept. of Computer Science, NIT-Trichy
 - : Developing an interactive e-learning platform for the field of Management Studies with evaluation tests where contents are recommended based on the learning quotient of the users, dynamic difficulty indices of materials and their preferred mode of content, incorporating any feedback from the users for a dynamic knowledge base.
 - **Technologies used:** MEAN Stack, Threshold-based classification, Web Scraping, LDA
- **Multimodal problem - Image Processing using Deep Learning** August 2019 - Dec 2019
• *Guide:* Prof. Dr. M. Sridevi, Dept. of Computer Science, NIT-Trichy
 - : Developed automated system for image recognition, segmentation and classification of brain tumors.
 - **Technologies used:** CNN, OpenCV, tensorflow, keras and numpy as the training architecture.
- **Explainable Graph Classification** May 2019 - July 2019
• *Guide:* Prof. Dr. Arijit Khan, School of Computer Science and Engineering, NTU Singapore
 - : Extracted frequent subgraphs from the given dataset.
 - : Created subgraph embeddings using graph2vec algorithm.
 - : Embeddings converted to 2D image grids by stacking 2D histograms for classification by a CNN.
 - : Important features(subgraphs) are extracted using Deeplift Model and the test data classified based on the important subgraphs.
 - **Technologies used:** CNN, numpy, subgraph algorithms, vectorization algorithms, tensorflow and keras architecture.
- **Development of Application Tracking System (Resume Classifier)** May 2018 - July 2018
• *Scorpion Ventures, Chennai*
 - : Developed Application Tracking System as a software product for Smart Resume Classification using Named Entity Recognition, Machine Learning and NLP Algorithms.
 - **Technologies used:** spaCy, NER, gold parser, gensim, cosine similarity, vector space model.
- **Dynamic Estimation of hidden layers in a neural network** Dec 2017 - Feb 2018
• *Guide:* Prof. Dr. C. Mala, Dept. of Computer Science, NIT-Trichy

- : Compared and analyzed the performance of Neural Networks based on the number of hidden layers with a given constant weightage for the datasets.
- : Completed comparison of performance based on different weights allotted to the features of the dataset with constant number of hidden layers.
- **Technologies used:** MATLAB, Neural Nets and graph plot libraries.

PUBLICATION

- **Dynamic Estimation of hidden layers in a neural network for a city scale transportation system**
Deepti Saravanan, Dr.C.Mala
 - : Presented in International Conference on Electrical, Communication, Electronics, Instrumentation and Computing (IEEE ICECEIC) and published in IEEE Xplore digital library.

TECHNICAL SKILLS

- **Proficient:** Python, R, C/C++, Tensorflow, Keras, MySQL, MATLAB
- **Intermediate:** Android Studio, Django, Javascript, HTML, CSS, Git
- **OS:** Linux, Windows

PROJECTS

- **Twitter Datamining (Oct 2017):** Extracted Mr.Narendra Modi's tweets and developed code to count the number of tweets every two hours when I was learning R Programming. **Technologies used:** R, Wordcloud.
- **Sexual Assault Data and Sentiment Analysis (Oct 2017):** Manually scraped thousands of data from twitter and facebook who posted "MeToo" statuses and analysed the dangers in various states using plots. Also, extracted whatsapp chat data and performed sentiment analysis and wordcloud analysis. **Technologies used:** R, Wordcloud, Sentiment analysis package.
- **Online Intern Search Portal (Oct 2018-Nov 2018):** Developed a web application with separate homepage facilities for students and professors respectively to match interest fields and connect them. **Technologies used:** NodeJS, MySQL, HTML, CSS.

LEADERSHIP EXPERIENCE

- **Research Head, DataByte, NIT-Trichy:** Led a team of undergraduates to work on research projects on various Machine Learning and Data Science domain topics. Also, conducted an introductory workshop on the basics of Machine Learning concepts and programming in Python for sophomores.
- **Webmaster, IEEE Student Branch of NIT-Trichy:** Responsible to maintain the IEEE SB of NIT-T's webpage and social media to update students regarding upcoming events.
- **Head, Workshops Team, Vortex 2020:** National Level Symposium of the Department of CSE. Led a team of students of the department to bring down renowned researchers for conducting workshops at NIT Trichy and outreach workshops at other universities.

EXTRA CURRICULARS

- **Coordinator, Events Team, Festember '18 and '19:** National Level Cultural Festival of NIT Trichy with footfall of more than 5000. Responsible for ideating event ideas and coordinating more than 50 events conducted by the various literary and arts clubs of NIT Trichy.
- **Coordinator, Workshops Team, Vortex '18 and '19:** Brought down researchers and companies to conduct technical workshops at NIT, Trichy.
- **UCMAS distinguished graduate:** One of the youngest to finish all the ten levels of the UCMAS Abacus course at the age of 10.
- **Keyboard Player, Informal Learning:** Trained for a span of **6 years** during the school days.
- **Classical Dancer, Informal Learning:** Trained for a span of **10 years** during the school days by the fine arts club.