Deepti Saravanan

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EDUCATION

- **New York University's Courant Institute - MS in Computer Science** **2021-2023**
  ***Coursework**: Artificial Intelligence, Deep Learning, Computational Cognitive Modeling*
- **National Institute of Technology Trichy, India - B.Tech CSE, Mgmt Studies (Minor)** **2016-2020**
  ***GPA: 8.3 CS Courses**: Machine Learning, Natural Language Processing, Image Processing*
  Management Courses: Marketing, Finance and Supply Chain Management

RESEARCH AND DEVELOPMENT EXPERIENCE

- **JPM Chase Project: Regulatory Compliance in Investment Banking** **Jun 2020 - Mar 2021**
  Advisor:Prof. Dr. Kamalakar Karlapalem, Dept. of Computer Science, IIIT-Hyderabad
  - Built 3 sub systems towards building a QA system for regulatory policies.
  - Deep attention-based network for answer ranking in the retrieval module of the automated QA Model.
  - Created a generic template for policy parsing and a multi-layered semantic net for concepts and linkages across documents.
  - **Technologies used:** CoreNLP, BERT, Attention Networks, Siamese Model, Topic Modeling, Hierarchical Clustering, SpaCy Custom Model, Word2vec Embedding, Scikit-learn
- **Single-Cell RNA-Protein Sequencing - Pseudotime Trajectory inference** **Jun 2020 - Jun 2021**
  Advisor:Prof. Dr. Hamim Zafar, Dept. of Biological Sciences and Bioengineering, IIT-Kanpur
  - Implemented a generative model followed by inter-cluster analysis and linkage in the latent space, delivering data visualization results for feasibility assessment of building an intelligent solution for pseudotime trajectory creation in cell development.
  - **Technologies used:** Biopython, SciPy, Variational Inference, Post-Predictive Analysis, PAGA, Seurat
- **Adaptive Learning Management Expert System** **Jan 2020 - Jul 2020**
  Advisor:Prof. Dr. M. Brindha, Dept. of Computer Science, NIT-Trichy
  - Created a statistical cognitive mathematical model that relates learning speed of students with the difficulty level of the course and time taken to complete a single learning unit.
  - Novel dynamic estimation of course difficulty indices to ensure optimal cognitive load during learning.
  - Implemented a system with dynamic knowledge base and interactive UI for students of management courses at NIT.
  - **Technologies used:** MEAN Stack, Threshold-based Classification, LDA, Heroku, Django
  - **Publication:** Education and Information Technologies Journal 26, 5895–5916 (2021)
- **Autonomous Vehicles: Neural Network Hidden Layers Estimation** **Dec 2017 - Feb 2018**
  Advisor:Prof. Dr. C. Mala, Dept. of Computer Science, NIT-Trichy
  - Compared and analyzed the performance of neural networks with analytical tools and techniques based on the number of hidden layers with a given constant weightage and vice-versa for datasets related to autonomous vehicle systems.
  - **Technologies used:** MATLAB,Neural Nets and Graph Plot Libraries
  - **Publication:** Proceedings of ICECEIC Jan 30-Jan 31, 2019
- **Big-Graph Analytics: Explainable Graph Classification** **May 2019 - Jul 2019**
  Advisor:Prof. Dr.Arijit Khan, School of Computer Science and Engineering, NTU Singapore
  - Developed a feature extraction technique to analyze embeddings of subgraphs extracted from a given PBMC dataset for more accurate classification by a CNN. Utilized a deepLift model to establish importance of subgraphs available for carcinogenic chemicals. Achieved 80 percent accuracy.
  - **Technologies used:** CNN, Numpy, Subgraph Algorithms, Vectorization Algorithms, Tensorflow and Keras Architecture

SKILLS

- **Proficient**: Python - multi-year experience using Open Source ML packages, R, Tensorflow, Keras, MySQL, MATLAB
- **Intermediate**: Android Studio, Django, Javascript, HTML, CSS, Git
- **Others**: Linux, Windows, Git, Latex
- **Interests**: Writing, Piano, Travel

MINI-PROJECTS

- Multimodal problem - **Image Processing** using Deep Learning, August 2019 - Dec 2019
- Development of a **Job Application Tracking System** - Resume Classifier, May 2018 - July 2018
- Twitter **Data Mining**, Oct 2017
- **Sentiment Analysis** of Sexual Assault Data, Oct 2017
- Online **Intern Search Portal**, Oct 2018-Nov 2018

LEADERSHIP EXPERIENCE

- **Research Head, DataByte, NIT-Trichy:** Led a team of undergraduates to work on AI research projects and conducted an introductory workshop on the basics of Machine Learning concepts and programming in Python for sophomores.
  Soft Skills: Communication skills, Effective collaboration, Team Leadership, Analytical skills and Interpersonal skills.
- **Webmaster, IEEE Student Branch of NIT-Trichy:** Maintained the IEEE Student Branch of NITT's webpage.
  Soft Skills: Time Management.
- **Head, Workshops Team, Vortex 2020:** National Level Symposium of the Department of CSE. Led a team of 20 students. Invited renowned researchers to conduct workshops at NIT Trichy and outreach workshops at other universities.
  Soft Skills: Decision Making Skills.

EXTRA-CURRICULARS

- **Coordinator, Events Team, Festember '18 and '19:** National Level Cultural Festival of NIT Trichy with footfall of more than 5000. Responsible for creating new event ideas and coordinating more than 50 events conducted by the various literary and arts clubs of NIT Trichy.