Divyansha

Department of Computer Science and Engineering · National Institute of Technology Silchar

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Education

National Institute of Technology Silchar, India — *Overall GPA: 8.69*

Bachelor of Technology in Computer Science and Engineering — *Aug. 2017 - June. 2021 (Expected)*

Rukmani Birla Modern High School, Jaipur, India — *Percentage: 92.1%*

Intermediate Science (Physics, Chemistry, Mathematics, Biology) — *May. 2015 - June. 2017*

Experience

Brown University — *Rhode Island, U.S.A*

Researcher Intern — *Dec. 2020 - Present*

- Working under Prof. Thomas Serre in the Cognitive Linguistic & Psychological Sciences Department.
- Working on adaptive reinforcement learning.

Max Planck Institute for Brain Research — *Frankfurt, Germany*

Researcher Intern — *Jun. 2020 - Dec. 2020*

- Worked under Prof. Moritz Helmstaedter in the Department of Connectomics.
- Worked on Automatic Astrocyte Segmentation on a 3D electron microscopy dataset taken from Layer 4 of a mouse neocortex.

International Institute of Information Technology Hyderabad — *Hyderabad, India*

Undergraduate Research Intern — *May. 2019 - July. 2019*

- Worked in Speech Laboratory of Language Technologies Research Center (LTRC), IIIT H, under Prof. Suryakanth V Gangashetty on a parallel voice conversion project from a male to female voice.
- Implemented the algorithm to create VSA(Vowel Space Area) and explored its utility in PTSD detection.
- Exploited the features obtained by leveraging MFCC feature extraction in emotion recognition and speaker identification tasks using deep neural nets.

Roghaari — *Silchar, India*

Machine Learning Engineer — *Dec. 2017 - Aug. 2018*

- Worked to develop a deep learning based engine that analysed the client's monthly health data to anticipate any health risks.
- The data was collected through wearables and uploaded on monthly basis to a cloud server.

Publication

Divyansha, Thoudam Doren Singh, Apoorva Vikram Singh, Abdullah Khilji. "A Hybrid Classification Approach using Topic Modeling and Graph Convolution Networks" *International Conference on Computational Performance Evaluation (ComPE). IEEE, 2020.*

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

Divyansha, Thoudam Doren Singh, Abdullah Khilji, Apoorva Vikram Singh, Surmila Thokchom, Sivaji Bandyopadhyay. "Predictive Approaches for the UNIX Command Line: Curating and Exploiting Domain Knowledge in Semantics Deficit Data" *Multimedia Tools and Applications, Springer*

Key Projects

CredCheck: Debunking Fake News by Leveraging Speaker Credibility and BERT

May. 2019 - Aug. 2019

Guide: Dr. Thoudam Doren Singh

Link to Project

- Re-engineered Google's BERT embeddings on LIAR dataset for multi-class classification task of Fake news detection.
- Used multimodal data to leverage speaker's personal specifics and his/her credibility to rate the legitimacy of the statement.
- Used refocusing mechanisms to further refine the results to achieve state-of-the-art results.

A Hybrid Classification Approach using Topic Modeling and Graph Convolution Networks

July. 2019

Guide: Dr. Thoudam Doren Singh

Link to Project

- 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.

Electronic Health Record (EHR) based Patient Case Similarity

Mar. 2019

Problem statement by eZDI, inc.

Presented in Grand Finale of Smart India Hackathon organized by MHRD India

Link to Project

- 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.

Predictive Approaches for the UNIX Command Line

Sep. 2018 - Dec. 2018

Guide: Dr. Thoudam Doren Singh

Link to Project

- Developed a self-curated knowledge base for all the commands presents in UNIX.
- Integrated information from the knowledge graph with UNIX data considering contextual knowledge they possess.
- Used a Seq2Seq architecture to harvest sequential intelligence of data to achieve a state-of-the-art results in predicting next command for given 'n' previous commmands.

Academic Achievements

2020	**Acceped as a scholar Qubit by Qubit's Introduction to Quantum Computing**	*The Coding School and IBM Quantum*
2020	**Accepted into Google AI Summer School 2020.** I was selected for a class of 50 among thousands of applicants for the computer vision track.	*Google Research*
2020	**Innovation and Entrepreneurship Development Centre (IEDC) Grant Winner** for the project "Deep Reinforcement Learning (DRL) Based Liquid Lens Auto-Focus system"	*NIT Silchar*
2020	**Undergraduate Research Council (UGRC) Grant Winner** for the project "AssistiveMRI: A deep learning approach to Medical Image Processing"	*NIT Silchar*
2020	**Winner of Data Strata, Tecnoesis' 20** for the problem statement "Analysis of Global Terrorism Events"	*NIT Silchar*
2019	**Finalist in Smart India Hackathon organized by Ministry of Human Resource Developement**	*NIT Warangal*
2019	**Winner of Data Strata, Tecnoesis' 19** for the problem statement "What is the best approach to become a Data Scientist"	*NIT Silchar*
2017	**Kishore Vaigyanik Protsahan Yojana (KVPY) Scholarship** It is awarded to the top 125 students of the country to pursue research.	*Indian Institute of Science, Bengaluru*

Key Courses Undertaken

Computer Science: Deep learning[1] , Machine Learning[2], Winter Course on Machine Intelligence and Brain Research[3], Neurobiology of Learning and Memory[4], Data Structures and Algorithms,Discrete Structures, Design and Analysis of Algorithms,Signals and Data Communication, Java SE8 Programming.

Mathematics and Statistics: Calculus, Linear Algebra, Differential Equations, Real Analysis, Complex Analysis, Numerical Analysis, Probability and Statistics, Discrete Mathematics, Stochastic Process

Technical Strengths

Computer Languages	Python, MATLAB, C/C++
Software and Tools	GNU Octave, LaTeX, Vim, Microsoft SQL Server
Frameworks and Platforms	CodeIgniter, Node.js, Flask, MongoDB, Bootstrap, ASP.NET, Express.js
Scripting and Query Languages	PHP, JQuery, MySql, MongoDB
Data Analysis, ML, DL	Pytorch, Keras, scikit-learn, NLTK, OpenCv

[1] 5 course specialization by deeplearning.ai on Coursera
[2] Course by Stanford on Coursera
[3] CCBR IIT Madras
[4] NPTEL