

Debdan Bhandari

Education

2019-present	M.Tech(Computer Sc. & Engg.)	Indian Institute of Technology, Kanpur	9.33
2015-2019	B.Tech(Computer Sc. & Engg.)	Institute of Engineering & Management, Kolkata	9.38
2013-2015	Higher Secondary Certificate	Jadavpur Vidyapith, Kolkata	93.6%
2007-2013	Secondary Certificate	Jadavpur Vidyapith, Kolkata	94.1%

M.Tech Thesis

- Speech to text transcriber with Deepspeech and NLIDB integration, Guide:** Prof. Nisheeth Srivastava Aug 2020-present
- Developed a node based server to record and transcribe audio inputs using the Mozilla Deepspeech API.
 - Integrated Natural Language Interfaces for Databases into transcription models for voice-based MongoDB queries.

Course Projects

- Static and Dynamic Analysis of Malwares | Course:** Malware Analysis and Intrusion Detection(CS698M) Mar 2020
- Extracted behavioral features from runtime data like API usage, files created, etc to segregate malwares from benign-wares.
 - Implemented decision tree-based ensemble model with hard voting for classification of executable files.
- DeCAPTCHA, a captcha recognition system | Course:** Introduction to Machine Learning(CS771) Nov 2019
- Extracted features from images based on repeated application of image processing techniques like erosion and dilation.
 - Implemented a kernelized SVM model to classify letters in the captcha.
- Diffusion map based analysis of grid conditions | Course:** Cyber Security of Critical Infrastructures(CS631) Nov 2019
- Created an RBF kernel based diffusion map over the input space to obtain optimal statistical dimension for feature reduction.
 - Implemented the K-means algorithm to visualize the clustering of normal and stressed conditions in the diffusion space.
- PASAD, an SVD based intrusion detection system | Course:** Cyber Security of Critical Infrastructures(CS631) Sep 2019
- Performed singular and eigenvalue decomposition of the lag vectors and analyzed their departure scores.
 - Obtained signal subspace projection using partial isometric linear maps to determine the threshold value for intrusions.
- Viterbi algorithm based POS tagger | Course:** Machine Translation(CS673) Mar 2020
- Implemented forward pass of the Viterbi algorithm to obtain an average F-score of over 91.5% over all the POS values.
 - Computed bigram and lexical probabilities along with handling words with missing parts of speech.

Self Projects

- Genetic Algorithm based Autonomous Driving Simulation** May 2019
- Implemented a genetic neural network based system to simulate driving through a randomly generated path.
 - Observed the simulation of the learning algorithm over varying crossover and mutation techniques.
- Student Portal** Jan 2017
- Created a PHP based application with MySQL server to maintain student and academic records.
 - Provided features like registration, exam notification, notice management, etc.

Technical Skills

Languages: C, C++, Python, Javascript

Tools, Libraries, and Frameworks: Scikit-learn, NumPy, pandas, Node, Express, MongoDB, Git

Achievements

- Secured **AIR 253** in GATE 2019.
- AIR 81** in round 2 of TCS CodeVita 2017 among 99473 participants.
- AIR 729** in Codechef Snackdown 2017 pre-elimination round A among 12859 teams.
- Maximum rating **2007** (Yellow) on CodeChef.
- Maximum rating **1929** on LeetCode.
- Obtained a highest rank of **109** in Lunchtime(Mar 2017) and **380** in CodeChef Long challenge(Sep 2017).

Positions Of Responsibility

- Teaching Assistant** Indian Institute of Technology, Kanpur Aug 2019 - Mar 2020
- Assisted the course 'Fundamentals of Computing (ESC101)' at IIT Kanpur by handling lab duties and evaluating exam copies.
- Problem Setter** Institute of Engineering & Management, Kolkata Apr 2019
- Created and tested algorithmic problems for IEMCO, the annual coding contest of IEM Kolkata.