Dewang Modi

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EDUCATION

Indian Institute of Technology Kharagpur **West Bengal,India**
B.Tech and M.Tech Dual Degree *July 2017 – Present*
Computer Science and Engineering

- Cumulative GPA – **9.83/10**
- Department Rank – **2/44**

INTERNSHIPS AND PROJECTS

Data Science Research Internship | Delhivery, India *May 2019 - July 2019*
Guides *- Mr. Rohan Anand(Senior Manager) and Ms. Pankhuri Agarwal(Senior Software Developer)*

- The aim of the project was development of a pipeline to **validate and categorize proof of delivery** documents, along with automated re-training of model on new data. This system replaced the manual method of handling proof of delivery documents and reduced their overall time and cost.
- Implemented several methods for the task - used **Image Processing** to detect barcode,signature,stamp and orientation of document, **Object Detection** and **Image Segmentation** to detect essential elements in document. Used MXNet and Tensorflow, and Amazon Sagemaker for training.
- Worked on implementation and fine-tuning of models, analyzing and comparing the models and algorithms, and design and implementation of heuristic functions to improve results.
- Made evaluation metrics for comparison of different approaches to the task, automated the system by sending images to be labeled regularly, automated determination of hard data and retraining of models, and scheduled generation of reports of performance of different models.

Development of efficient domain specific search engine *March 2019*

- The aim of the project was developing an efficient **domain-specific search system** for legal search and retrieval, especially in the Indian context, for domain experts and ordinary users, and capable of handling various forms of queries along with a feedback system, support for different forms of queries and filters.
- Experimented with different methods of selecting and storing key information for efficiently answering queries. Extracted important information from documents and generated summary for each document.
- For retrieval of documents, used **inverted indexing** method. Retrieval of documents semantically related to query was done with the help of **WordNet**. Implemented spelling correction and resolution using edit distance,implemented query expansion using relevance feedback and a simple query suggestion feature.
- Worked on listing acts cited in documents, disambiguation between similar acts and handling abbreviations.

Prediction of Network Congestion in Telecom Tower *February 2019*

- The aim was analysis and prediction of type of network congestion in telecom towers.Performed data analysis and developed and compared Machine Learning algorithms for four categories of congestion in cell towers.
- Performed data visualization, data pre-processing, feature engineering and feature importance analysis.
- Experimented with **classification algorithms** such as Logistic Regression, K-nearest neighbour, Naive Bayes, Support Vector Machines, Random Forest, Neural Networks and Boosting.

Work Management System *March 2019 - April 2019*
Guide *- Professor Sudip Misra, Department of Computer Science and Engineering*

- The aim was developing a Work Management System - a software to manage workers and jobs.
- Designed and implemented algorithm for scheduling workers on jobs based on factors like distance, job priority,job requirements,worker availability,worker rating and past performance of workers.

Disaster Handling System | Code.Fun.Do++ | Microsoft Hackathon *October 2018*

- The aim of this project was development of Disaster Handling System - a web app to manage victims, volunteers and rescue team. Implemented forums for discussions,a help portal for victims to make help requests and an announcements section for rescue teams and a donation section for volunteers.

SKILLS

• Python • C • C++ • Java • Git • Tensorflow • Keras • Linux • Amazon Sagemaker • Numpy • Pandas • Matplotlib • Scikit-Learn •OpenCV • Flask • HTML • CSS • Javascript • Selenium • BeautifulSoup

AWARDS AND ACHIEVEMENTS

- Secured Joint Entrance Examination - Advanced (Indian Examination) **Rank 321**, amongst nearly 1.7 Lakh candidates.
- Secured Joint Entrance Examination - Mains (Indian Examination) **Rank 160** amongst 12 Lakh candidates.
- Secured KVPY (Indian Examination) **Rank 983** amongst nearly 50 thousand candidates.
- Department **Rank 2** out of 44 students in Computer Science and Engineering with a **CGPA 9.83/10**.
- Won **Gold Medal** in Data Analytics Event on "Prediction of Network Congestion in Telecom Towers"

RELEVANT COURSEWORK

•University

- Programming and Data Structures*
- Algorithms*
- Algorithms-II **
- Algorithmic Game Theory **
- Linear Algebra **
- Probability and Statistics
- Discrete Structures
- Formal Language and Automata Theory
- Software Engineering*
- Compilers* **
- Switching Circuits and Logic Design*
- Computer Organization and Architecture* **
- Signals and Networks*
- Introduction to Electronics*

* denoted course has laboratory component as well
** denotes ongoing course

•Coursera

- Machine Learning
- Neural Networks and Deep Learning
- Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization
- Structuring Machine Learning Projects
- Convolutional Neural Networks
- Sequence Models

EXTRA-CURRICULAR ACTIVITIES

- Vice Captain of Data Analytics team and OpenSoft team at Patel Hall of Residence, IIT Kharagpur.
- Volunteer at National Service Scheme, which works for the upliftment of rural people by providing education, vocational training to students, local youth and farmers.