Rachit Agrawal

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Education

BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI, IN
B.E. Computer Science | M.Sc. Chemistry (Expected 2021)
CGPA: **7.78/10**

Experience

SUMMER RESEARCH INTERN, **NESAC(ISRO)**
Umiam, IN, May 2018- July 2018

- Worked in the Remote Sensing Lab at North-Eastern Space Applications Centre under mentorship of Shri Nilay Nishant and Mr. Soham Mukherjee.
- Worked on the Research Project titled *Spatio-temporal analysis of urban sprawl of North-Eastern India using DMSP-OLS and VIIRS DNB night light data from 1992-2017*.
- Used various statistical models like GI* and CV along with various Image Processing techniques to determine the urban growth of capital cities of North-Eastern India.
- Tech stack - ArcGIS, R

Key Projects

CROSS LINGUAL DOCUMENT TRANSLATOR, **Information Retrieval**
Mentor: Dr. Lavika Goel, October 2019- November 2019

- Implemented IBM models on bilingual English-Dutch europal dataset in python and built a CLIR system to perform both English and Dutch query processing.
- Used ensemble techniques like Bagging and Boosting to improve translations and hence precision and recall of CLIR.
- Tech Stack - Python

SAFEMAPS, **Android Application**
Personal-Project, July 2018- September 2018

- Developed simple Android Application which provides a safer route between any given origin and destination.
- Determined the features which makes a route safer and ranked the routes based on predefined weights for each of the features.
- Tech Stack - Android Studio, Google Maps API, Google Places API

DIMENSIONALITY REDUCTION AND CLASSIFICATION, **Machine Learning**
Course Project, March 2020- April 2020

- Implemented various dimensionality reduction techniques including PCA, RCA and LDA with KNN classification.
- Tech Stack- R

TURN TO TURN ROUTE RECOMMENDER SYSTEM, **Artificial Intelligence**
Mentor: Dr. Kamlesh Tiwari, November 2019- Present

- Working in AI/ML lab on MapMyIndia sponsored Project.
- Implemented navigation feature. Working on route planning using K shortest path algorithm.

OBJECT LOCALIZATION, **Computer Vision**
Personal-Project, February 2019 - March 2019

- Added a 4th layer to ResNet-18 to return the coordinates of the bounding boxes.
- Added a custom train generator in keras for very large datasets. This also increased accuracy from 85% to 90%. Tech stack - Python, Colab

COMPILER CONSTRUCTION, **Compiler**
Course Project, January 2020 - April 2020

- Implemented the syntax analyser and generated the parse tree for a given hypothetical language "ERPLAG" in C++.
- Implemented the type checking, abstract syntax tree (AST) and symbol table generation module.

Selected Coursework

Computer Science

- Information Retrieval
- Data Structures and Algorithms
- Database Systems
- Object-Oriented Programming
- Logic in Computer Science
- Machine Learning
- Compiler Construction
- Computer Networks
- Image Processing
- Operating Systems

Skills

Programming	Tools
C, C++, Python, Java, SQL, R	Git, NLTK, ArcGIS

Achievements

- Secured **First** position in Megathon 2018 (a hackathon organised by IIIT Hyderabad and IIT Hyderabad based on theme of *Women Safety*) at National level.
- Secured **First** position in Paper Presentation Event at APOGEE '18 (technical festival organised by BITS Pilani) at college level.

Extra-Curricular Activities

- *Safemaps* application incubated under PIED (Pilani Innovation & Entrepreneurship Development Society).