Amit Kumar

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EDUCATION

Indian Institute of Space Science and Technology Thiruvananthapuram, Kerala
- Master of Technology in Machine Learning and Computing
  Department of Mathematics Aug. 2020 – May, 2022
  CGPA: 8.29/10

Jabalpur Engineering College Jabalpur, Madhya Pradesh
- Bachelor of Engineering in Information Technology Aug. 2016 – July, 2020
  CGPA: 7.44/10

EXPERIENCE

Circlebase (Intelligent Health Outcomes) Bengaluru, Karnataka
- NLP Engineer Nov 2021 - Present
  - Developed various NLP pipelines and models to identify patient-related entities, social determinants of health, drug relations, adverse drug events, and generate QA pairs for clinical trials.
  - Streamlined processes through the development of executable files, integration with Django-based applications, and Dockerization of chatbot for easier deployment.
  - Forecasted drug consumption for the next 7 days using ARIMA, Holt-Winters, and XGBoost. Evaluated the models with statistical tests.

Omdena (Internet & Jurisdiction Policy Network) Remote
- Machine Learning Engineer Sept 2021 - Nov 2021
  - Built a knowledge graph with a triplet extractor algorithm that pulls info from Wikipedia articles.
  - Created Datasphere using natural language processing tools like Spacy, Stanfordcore NLP, and NLTK.
  - Used Datasphere to analyze and visualize big textual data, helping policymakers understand complex issues.

PROJECTS

- **Clinical Trial Chatbot**
  - Utilized Named Entity Recognition to identify adverse drug events(ADEs) and associated drugs, and employed relation extraction to link them. Matched participants with clinical coordinators based on ADE severity.
  - Developed a question-answering system for clinical trials using Haystack and generated QA pairs.
  - Enhanced chatbot by creating a dashboard and suggestion features, utilizing large language models for better results, and dockerized it for easier deployment.

- **Drug Consumption Forecasting**
  - Conducted exploratory data analysis and anomaly detection on hospital data to uncover drug consumption trends and patterns.
  - Improved drug consumption forecasting models through applied feature selection and engineering techniques.
  - Implemented various modeling approaches, including ARIMA, Holt-Winters exponential smoothing, and XGBoost achieving a MAPE below 20% for multiple drugs.

- **Abnormal Event Detection in Video**
  - Developed a model to enable machines to distinguish between everyday events and unusual activities.
  - Utilized spatial and temporal information for understanding the temporal evolution of spatial features.
  - Achieved a precision of 95% on the UCSD Dataset through thorough experiments and evaluation.

TECHNICAL SKILLS

- **Languages:** C++, C, SQL, Python
- **Technologies:** SQLite, Git, Docker, GCP

ACHIEVEMENTS

- Qualified for the ACM ICPC 2018 Kolkata-Kanpur site contest held at UIET, CSJM University, Kanpur.
- Codechef Rating - 1883 (amit_9)
- "So you think you can code" Organised a coding competition on Hackerearth.
- Gold medal in chess Avahan 2018 (Intra college competition).