

# Amit Kumar

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## EDUCATION

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### 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

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### 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

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### • 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 (LLM) 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

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

## ACHIEVEMENTS

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- 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).