Rajdeep Biswas

Data Scientist / Machine Learning Engineer

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Skills

Languages / Libraries: Python (Numpy, Pandas, Sklearn, Matplotlib), Tensorflow (Keras), PyTorch, MATLAB / GNU Octave, Flask.

Areas: Sequence2Sequence Natural Language Processing Models, Transformers, Unsupervised / Semi-Supervised Anomaly Detection, LSTM Autoencoders, Deep Learning, Machine Learning, Data Engineering, NLP Multilabel Classification, RESTful Microservices, MVC Architecture, Backend Engineering & Model Deployment.

Work History

Aug, 2020 - Present

Engineer

SAP Labs, Bangalore

Team: **Innovation Center Network** (Oct 2021 - Present)
• Exploratory Data Analysis phase on F5 Load Balancer Telemetry data with HANA Infra Analytics.
• Conclusive feasibility check for an **NL2SQL** project. Assessing various pretrained models like GPT-J, T5 + WikiSQL, SQLNet, etc. on a limited training dataset.

Team: **API Management** (June - Dec 2021)
• Developed an **Anomaly Detection** service for API traffic across various Tenants. Wrote a Deep Learning model that uses an **LSTM Autoencoder** architecture. This used Tensorflow (Keras). Attained ~90% accuracy over 1 year of training data.
• Analyzed decomposition based libraries like Facebook-Prophet and Microsoft's SR-CNN.
• Containerized all three models via **Docker** carrying RESTful **Flask** applications, for an ensemble consensus-based outlier detection service.

Hackathon: **InnVent** (Sept - Oct 2021)
• Wrote a **Custom Transformer Sequence-to-Sequence** architecture for an **NL to Cloud CLI Commands Assistant** bot. Used PyTorch. Attained ~80% accuracy, on a dataset that was hand-curated majorly by myself from web resources..

Hackathon: **Innovision** (May - June 2021)
• Created an NLP **Multilabel Classification** pipeline which used a **Bidirectional LSTM** architecture using Tensorflow (Keras) in order to identify the type of service required based on a given sentence and predict a class.
• Deployed a Flask API on **CloudFoundry** with multiple endpoints for inference, retraining with more data & model switch.

Team: **Spend Visibility, Ariba** (Sept 2020 - Apr 2021)
• Implemented a feature enhancement that significantly minimized pipeline freezes, from **90%** of the time to **< 10%** of the time, which were caused by dataload limitations involving sizes of 1m+ of records. (SpringBoot, Python)
• Took over various product bugfixes and delivered them in record time. (SpringBoot, Angular, Python)
• Tested various Time Series forecasting methods that SAP HANA Db PAL (Predictive Analysis Library) had to offer, wrote a custom Python pipeline that analyzes about eight of said algorithms and asses the performance of each across the entire dataset containing various customers, commodities and their expenses.
• Post analysis of best algorithms, implemented an expense forecast Proof of Concept with custom stored procedures written on HANA invoked via a SpringBoot backend.

Jun - Aug, 2019

Intern - Conversational AI

SAP Labs, Bangalore

• For **CoPilot,** assessed the performance of various ML clustering and classification algorithms on matching intents and contributed to its NLP pipeline.
• Took up various bugfixes on the frontend of the product, based on ReactJS. Responded to and fixed multiple internal and customer incidents and backlogs.
• Contributed in migration of a few modules of the product's backend from Ruby to Java SpringBoot, a microservices framework.

Publications

• COVID-19 Prediction Effectiveness Time Series and Lockdown. **International Conference on Computational Intelligence in Data Mining (ICCIDM) 2021**. (Submission & presentation concluded. Publication incoming in March, 2022).
• Predictive Analysis of the Recovery Rate From Coronavirus. **International Conference on Cyber Intelligence and Information Retrieval (CIIR), 2020**. (Done in collaboration with Master's seniors during final year of college).

Education

2020 - 2024

Birla Institute of Technology And Science, Pilani

Master of Technology - Software Engineering. 9.26 CGPA.

2017 - 2020

Institute of Engineering & Management

Bachelor of Computer Application. 8.89 DGPA.