Ananya Bhatnagar

+91 8799 763 627 | github.com/bananya-ml | bhatnagarananya64@outlook.com
+44 7425 957 649 | ananyabhatnagar.vercel.app | linkedin/in/ananyabhatnagar

Relevant Experience

The University of Manchester **September 2022 – Current**
Postgraduate Research Student *Manchester, Greater Manchester*

- Achieved excellent results as a Master's student, working on the development of deep learning models for fitting spectral simulations from Line Analysis Software (XCLASS) in the field of massive star formation.
- Enhanced the identification and characterization of the methanol (CH_3OH) molecule in spectra through research and fine-tuning of deep learning models like DCNN, DTNN, INN, transformer-based models etc.
- Created custom performance evaluation metrics beyond AUC-ROC and F1 scores of models for our application.

Other Experience

The University of Manchester **September 2022 – June 2023**
Graduate Teaching Assistant *Manchester, Greater Manchester*

- Provided guidance to 60+ students in astronomical computing and research labs leading to substantial improvements in undergraduate students' data analysis techniques, Python coding, and understanding of moderate-risk set-ups and procedures.
- Streamlined assessment and evaluations post experiments by conducting interviews and designing targeted questions, providing comprehensive feedback to students.
- Fostered a positive learning environment that facilitated students' improvement in report writing, experimental procedures, and result analysis leading to 80%+ grades across 90% of the batch.

RoboSlog, Ltd **July 2021 – September 2021**
IoT Robotics Engineer Intern *New Delhi, Delhi*

- Played a key role in the successful development and deployment of 3 commercial IoT projects utilizing diverse micro-controller technologies.
- Demonstrated strong teamwork and coordination skills while collaborating with a 4-member team, effectively utilizing version control systems like Git to streamline modifications and task assignments.
- Effectively integrated new environments for our application, using communication protocols like UART, enabling seamless functionality and improved performance in the developed systems.

Education

University of Manchester **Sep. 2022 – August 2023**
Master's by Research in Astrophysics and Astronomy *Manchester, Greater Manchester*
Results expected

Guru Gobind Singh Indraprastha University **Aug. 2018 – May 2023**
Bachelor of Technology in Electronics and Communications Engineering *New Delhi, Delhi*
GPA: 8.6/10

Projects

Anomaly Detection on real-world data | *Data processing, DL models, MLOps* (GitHub) **October 2023**

- Created a custom dataset by collecting data from requests to a public API and automated scraping and processing tasks with scripts.
- Utilized libraries like Dask and Modin to parallelize loading millions of instances on a local GPU to streamline data processing and transformation.
- Leveraged state-of-the-art models from recent conference papers to train anomaly detection models, including a DeepSVDD, Deep Isolation Forest, PReNet, and DeepSAD. DeepSAD notably outperformed all other models.
- Developed a Flask-based web app for API requests, management and handling of user and demo data in database and dockerized the app for easy deployment on high compute GCP and AWS instances.

Fine Tune BERT for text Classification with TensorFlow | *TF-Hub, TensorFlow, BERT* (GitHub) **July 2023**

- Acquired skills in building TensorFlow input pipelines for text data with the tf.data API, including tokenization and preprocessing of text for BERT.

- Successfully integrated a classification head to the BERT hub.KerasLayer and fine-tuned BERT for text classification, followed by evaluating the performance of the model.

Semantic Segmentation using SageMaker | *AWS, Deep Learning, SageMaker* (GitHub) **July 2022**

- Utilized a high level Amazon SageMaker interface estimator.Estimator() to implement a semantic segmentation algorithm on a preprocessed dataset.
- Deployed and evaluated model performance to achieve improved results.

Technical Skills

Languages: Python, C++, SQL (Postgres, NoSQL, sqlite3)
Developer Tools/Frameworks: Google Cloud, Amazon Web Services, Git, Docker, Tensorflow Extended, PyTorch