Harshul Gupta

Software Developer I

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Skills

Programming & CS Concepts Python, C++, C, Java, Bash, Algorithms, Data Structures, Operating Systems
Cloud & DevOps AWS, GCP, Docker, Linux, Git
Miscellaneous Django, Spring Boot, MySQL, HTML5, CSS, JavaScript

Work Experience

DeepThought Initiative
Bengaluru, India

Software Developer I
Dec 2022 – Present

- Outsourced by NASA for the STScI project to enhance PACMan, a Naive Bayesian routine for automating science proposal classification, reducing processing time from weeks to days and saving 1,000+ hours annually.
- Developed backend functionalities using Python, Django, and Jupyter Notebook, integrating PACMan with a server-based system to enable real-time proposal categorization, process files stored in server folders, and manage data efficiently for enhanced proposal sorting.
- Collaborated with cross-functional teams, connecting backend services to the user interface and ensuring smooth data flow between systems.
- Integrated a command-line accessible web interface, streamlining user interaction with the server and providing seamless system access.

Tata Consultancy Services
Bengaluru, India

Assistant System Engineer
Aug 2021 – Nov 2022

- Architected and deployed 10+ scalable data pipelines using Apache Airflow, optimizing market data ingestion and reducing processing time by over 30% for Nielsen.
- Developed robust backend solutions using Python, optimizing Airflow DAG execution, enhancing data processing reliability, and automating troubleshooting for production systems.
- Integrated server-based workflows to enable efficient data processing and seamless integration between pipeline components.
- Worked closely with data engineers and software teams to enhance backend data flow architecture, ensuring smooth communication between data sources and analytics services.

Open Source Contributions

Google Summer of Code
Bengaluru, India

Project Mentor
Mar. 2023 – Oct. 2024

- Mentored four students in optimizing TARDIS, an open source Python based software, resulting in a 15% performance improvement and the development of 4+ advanced data visualization features.
- Utilized Hugo templating and JSONs to design and build a dynamic website, streamlining content management leading to a 27% increase in user engagement.

Projects

Exoplanet Detection
Data Analysis

College Project
2021

- Utilized Python libraries like AstroML, Seaborn, ExoData, NumPy, Matplotlib and Pandas to analyze data from the NASA Exoplanet Archive, identifying 34 known exoplanets and visualizing their average temperature changes over 3 decades.

COVID-19 Detection with Machine Learning
Python

Collaboration Project
Oct 2020 - Jan 2021

- Developed a COVID-19 detection model by classifying chest X-ray images using machine learning techniques. Leveraged pre-trained models and applied data augmentation to enhance the model's accuracy.
- Evaluated the model's performance using metrics like accuracy, precision, and recall. Adjusted the model to improve results and prevent overfitting.

Ionospheric Data Analysis
Machine Learning

Project Volunteer under ISRO Scientist
Jun 2018 - Mar 2019

- Leveraged Python, NumPy, and Pandas to optimize large-scale datasets for ionospheric event classification, integrating data preprocessing, feature engineering, and model optimization, achieving over 80%+ accuracy in temporal event analysis.
- Developed an automation tool using scikit-learn to detect ionospheric disturbances through pattern recognition in the Project Transient Electromagnetic Noise Analysis Localization Initiative (TENALI), identifying 10+ disturbance events.

Education

Rajasthan Technical University
Jaipur, India

B.Tech. in Computer Science Engineering
Aug. 2017 - Jul. 2021