

Arpit Chandrakar

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SUMMARY

Data Scientist with 3 years of experience at Tata Consultancy Services, specializing in AI-driven solutions and large-scale data analytics. Skilled in developing data-driven strategies, predictive models, and handling dataset of over 1 TB. Proficient in Python, SQL, and advanced machine learning techniques. Currently pursuing a Master's in Computer Science at Arizona State University, with a focus on leveraging data to optimize scalable ML systems for real-world applications.

EDUCATION

Master of Science, Computer Science

Arizona State University

August 2023 - May 2025

Tempe, United States

Bachelor of Technology (Honors), Computer Science & Engineering

Chhattisgarh Swami Vivekananda Technical University

July 2016 - September 2020

Bhilai, India

PROFESSIONAL EXPERIENCE

Tata Consultancy Services, Mumbai, India: Data Scientist

October 2020 - June 2023

Developed Artificial Intelligence-driven solutions for banking and finance sector clients, utilizing Python and SQL for data analysis, fraud detection, and process automation, optimizing business operations and enhancing data security.

- Analyzed large datasets using Python, SQL, and Hadoop to extract actionable insights that improved clients' marketing strategies by 25%, while conducting A/B testing to validate and refine these strategies.
- Engineered an OCR and NLP pipeline using Tesseract and EasyOCR for document processing and fraud detection in the insurance sector.
- Reinforced the system with advanced models such as RetinaNet, Faster R-CNN, and YOLO, achieving high accuracy in detecting fraudulent documents and improving fraud detection efficiency by 20%.
- Automated customer data extraction and database creation, strengthened the fraud detection tool, significantly reducing full-time equivalent (FTE) requirements by 50%.
- Designed and deployed an automated PII detection and masking system, enhancing data security, regulatory compliance, customer trust, and reducing human intervention by 70%.

RESEARCH EXPERIENCE

Arizona State University, Tempe, Arizona: Data Science Research Aide

January 2024 - May 2024

Researched and implemented advanced computer vision techniques, adversarial attack resistance, and data processing methods to improve accuracy and efficiency for satellite-based image analysis.

- Enhanced image classification accuracy and robustness against adversarial attacks by implementing ResNet, and FastViT architectures, also using heatmaps, scatter plots, t-SNE, and PCA to analyze and interpret complex datasets.
- Devised and maintained scalable ETL pipelines with a focus on performance tuning and monitoring. Applied regression modeling on large datasets using Python to extract insights and support strategic decisions.

PROJECTS

Enhancing Satellite Image Analysis with YOLO Models and Explainable AI

January 2024 - May 2024

- Leveraged YOLO models enhanced with Explainable AI to achieve groundbreaking accuracy in object detection from satellite imagery, with scalable applications across diverse operational environments.
- Performed strategic adversarial testing on white-box & black-box attacks to thoroughly evaluate and enhance the resilience of these models, improving the understanding of the models' behavior and decision-making.

Optimizing Robotic Performance with Multi-Objective Reinforcement Learning

September 2023 – December 2023

- Implemented customized terrains in the Gym MuJoCo simulation using XML and grayscale image processing to evaluate and optimize robotic performance metrics, achieving a 15% improvement in energy efficiency.
- Spearheaded model training using advanced reinforcement learning algorithms (SAC, A2C, DQN), with SAC and DQN outperforming A2C, improving rewards by up to 20% over 1000 episodes across varied environments.

TECHNICAL SKILLS

Programming/Databases: Python, Java, C, C++, MySQL, SQLite, NoSQL, PostgreSQL, Scala

Data Visualization & Big Data Tools: Seaborn and Matplotlib in Python, Tableau, Hadoop, Docker, Spark

Data Science Techniques: Text Mining, Image Analytics, Data Modelling, Statistical Analysis, Machine Learning, Neural Networks, Regression Analysis, Time Series Analysis, A/B Testing, Natural Language Processing

Software & Development Tools: GitHub, Bitbucket, Excel, AWS, Anaconda, Visual Studio

Frameworks: TensorFlow, PyTorch, Scikit-Learn, Keras, Django, Flask, OpenCV, NumPy, Pandas, PyQt