

## **AYUSH SAXENA (DATA SCIENTIST)**

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### **Professional Summary**

Dynamic AI Developer & Data Scientist with 7+ years of proven expertise in architecting, developing, and deploying cutting-edge AI, LLM-based, and computer vision solutions. Demonstrated excellence in designing multi-agent systems, Retrieval-Augmented Generation (RAG) frameworks, and real-time vision pipelines to solve complex business problems. Recognized for delivering high-impact, scalable, and performance-optimized AI systems that drive measurable business outcomes.

### **Professional Experience**

#### **Johnson & Johnson (via Questkart) (Aug 2024 – Present)**

##### **Project: Automated Data Loader**

- Design and development of a multi-agent system leveraging GPT-4o-PTU within the Azure OpenAI Assistant framework to automate retrieval of real-time data and metadata from Amazon S3 with dynamic Redshift Spectrum schema creation, enhancing automation efficiency. Integrated backend solutions using FastAPI and sandboxed environments to ensure secure execution.

##### **Project: Lint Issue Resolution Agent**

- Developed an intelligent agent using GPT-4o-PTU within the Azure OpenAI Assistant framework to automatically resolve lint issues in Python files, achieving a 9.5/10 score on Pylint and SonarQube. Orchestrated backend services with FastAPI, executed code safely in a sandbox environment, ran tests on modified code, and generated detailed change reports.

**Key Technologies:** Azure OpenAI, Multi-Agent Systems, FastAPI, Amazon S3, Redshift Spectrum

#### **Vrozart Finance (Sep 2023 – Aug 2024)**

##### **Project: Finabrain AI Agent**

- Designed RAG-based AI agents to automate client communication workflows, including summarization, reminders, and WhatsApp/email integration. Developed lead scoring algorithms, improving customer engagement metrics.
- Responsibilities included architecting using the Vertex AI framework, configuring FAISS vector store with Gemini 2.5-based paragraph embeddings for efficient summarization and context length optimization, enabling the agent to suggest and trigger appropriate actions.

**Key Technologies:** LLM, Google Gemini, FAISS Vector DB, Vertex AI, Python, RAG Pipeline

#### **Padmini VNA (Oct 2021 – Aug 2023)**

##### **Project: SOLTREK Autonomous Robot**

- Designed and implemented a transformer-based segmentation algorithm to classify panels, rocks, pillars, humans, and terrain irregularities across six scene classes, achieving 97% detection accuracy for solar panel identification under ideal lighting, enabling real-time navigation algorithms to adapt robot speed and turns, ensuring robotic

arm alignment

- Implemented ARUCO marker-based docking for seamless autonomous operation.

**Key Technologies:** Python, Transformer Models, Scene Classification, ARUCO Systems

### Applied Materials (Sep 2020 – Sep 2021)

#### **Project: Semiconductor Sheet Impurities Classification**

- Built a robust computer vision solution using OpenCV and Convolutional Neural Networks with 93% classification accuracy, integrated into QC pipelines for real-time analysis.
- Reduced false positives and improved processing throughput through advanced preprocessing.

*(Collaborated with process engineers to integrate the CV pipeline into the QC workflow, enabling real-time impurity detection and improving throughput. Conducted hyperparameter tuning and iterative model refinement to boost inference speed and maintain high accuracy in production-like simulations)*

**Key Technologies:** Python, OpenCV, CNNs, Computer Vision, semiconductor defect detection, dataset handling, model optimization, cross-functional collaboration

### INDIQUBE (Jul 2017 – Aug 2020)

#### **Project: Document Digitization**

- Developed OCR-based digitization systems achieving >70% text extraction accuracy for complex bank forms. Employed Tesseract OCR and unstructured text recognition techniques to extract handwritten content from scanned images
- Enhanced detection with hue correction, pattern recognition, and localization algorithms. Optimized preprocessing workflows, improving text extraction reliability under variable scan quality and lighting.

**Key Technologies:** Python, Tesseract OCR, OpenCV

#### **Project: Number Plate Recognition & Vehicle Counting**

- Delivered real-time high-speed traffic analysis with >80% license plate recognition accuracy. Optimized detection pipelines for 60 fps video without sacrificing accuracy.
- Engineered the detection pipeline using OpenCV's bounding box detection and Haar cascade classifiers, paired with OCR to accurately extract characters from number plates.

**Key Technologies:** Python, OpenCV, Haar Cascade, OCR

### **Core Competencies**

- **Artificial Intelligence & Machine Learning:** LLMs, RAG, Computer Vision, Transformer Models, CNNs
- **Cloud & Backend Development:** Azure OpenAI, Google Vertex AI, Amazon S3, Redshift Spectrum, FastAPI, FAISS Vector DB
- **Programming Tools:** Python, OpenCV, Tesseract OCR, Pylint, SonarQube, ARUCO Marker System

**Education:** B.Tech (Computer Science) - Rajasthan Technical University, Kota (2015)