# Vishal Manam

Seattle, WA (open to relocation) | (602) 628-7403 | vmanam1@asu.edu | vishalmanam.dev

## EDUCATION

**Arizona State University** — Tempe, AZ
Master of Science - Computer Science, **GPA:** 3.90/4.00 — Aug 2024 - May 2026

**International Institute of Information Technology(IIIT), Bhubaneswar** — Bhubaneswar, India
Bachelor of Technology - Information Technology, **GPA:** 8.10/10.00 — Nov 2020 - May 2024

## SKILLS

**Programming Languages**: C, C++, Python, Java, JavaScript, Typescript, Bash

**Cloud & Databases:** AWS (IAM, EC2, S3, DynamoDB), Google Cloud, MySQL, PostgreSQL, RocksDB, SQLite

**Development Tools**: HTML, CSS, PHP, Node.js, React.js, Angular.js, Next.js, Vue.js, jQuery, Django, Flask, REST, VSCode

**AI/ML Tools:** NumPy, Pandas, Matplotlib, Plotly, scikit-learn, PySpark, PyTorch, OpenCV, TensorFlow, Keras, NLTK

**Other Tools**: Docker, Kubernetes, Hadoop, Spark, Kafka, Neo4j, Scala, Jenkins, GitHub, CI/CD, Postman, Jira, DeepStream

**Coursework**: Data Structures & Algorithms, OOPs, Operating Systems, Database Management Systems, Computer Networks, Data Processing at Scale, Statistical Machine Learning, Data Visualization, Data Mining & Engineering Blockchain Applications

## PROFESSIONAL EXPERIENCE

**Laboratory for Energy and Power Solutions at ASU | Software Engineer** — Jun 2026 – Present

- Building scalable Python-based data pipelines and implementing end-to-end automated data collection and processing systems, focusing on data ingestion, standardization, validation, archival, scalability, fault tolerance, data consistency, and maintainability using modern software engineering practices.

**Eternal Robotics | Computer Vision Engineer Intern** — Dec 2023 – Jun 2024

- Delivered real-time computer vision solutions for large-scale enterprise manufacturing clients including **Denso India, CNH Industrial, and Maruti Suzuki**, achieving **95%+ detection and tracking accuracy** while meeting strict production reliability and uptime requirements.
- Improved system performance by **~80%** and reduced end-to-end inference latency by optimizing computer vision models and pipelines for **edge and industrial GPU platforms (Jetson Nano, Jetson Orin)**, enabling stable real-time operation under production constraints.

**Worley | Digital Solutions Consultant Intern** — May 2023 – Aug 2023

- Reduced manual inspection time by **~65%** by developing a **Python-based PDF comparison tool** using **OpenCV, SIFT, and overlay techniques** to automate visual change detection in engineering drawings.
- Implemented robust image alignment and revision analysis using **homography, feature matching, and color-coded XOR visualization**, enabling accurate comparison across scaled, rotated, and low-resolution technical documents.

**FOREEDGE Services | PHP Developer Intern** — May 2022 - Jul 2022

- Developed a responsive user registration system using **Bootstrap**, **JavaScript**, **PHP**, and **MySQL**, incorporating client-side validation and secure server-side processing to enhance usability and system performance.

## PROJECTS

**RAG Pipeline for Efficient ArXiv Paper Querying** Github ↗ — **(PyPDF2, FAISS, RocksDB, OpenAI CLIP, AWS)**

- Built a specialized Retrieval-Augmented Generation (RAG) pipeline to efficiently query over 100 ArXiv research papers by scraping, parsing, and structuring scientific metadata. Generated 512-dimensional vector embeddings for both text and figures using OpenAI's CLIP model to enable multimodal semantic search. Implemented FAISS for fast and scalable similarity search and used RocksDB for persistent, high-performance metadata storage. Deployed components on AWS infrastructure for scalable access and integrated OpenAI's LLM to return context-aware, research-grade responses.

**NYC Taxi Data Scalable Analytics Pipeline** Github ↗ — **(Kafka, Neo4j, Kubernetes, Docker, GDS Library)**

- Built a real-time analytics pipeline to process NYC taxi data using Kafka for streaming and Neo4j for graph storage with dynamic relationship modeling. Applied BFS and PageRank for graph-based insights and deployed the solution in a Kubernetes cluster with Docker containers. Enabled scalable, low-latency data ingestion with automated graph updates, supporting continuous analysis and monitoring.

**Django-Based Blogging Platform** Github ↗ — **(Django, SQLite, AWS S3 & IAM)**

- Developed a full-featured blogging web application using Django with secure user authentication and CRUD functionality. Integrated AWS S3 for media storage and IAM for access control, ensuring reliability and scalability. Implemented email verification, password reset, and responsive UI for seamless user experience.

**Automatic License Plate Detector** Github ↗ — **(Python, YOLOv8, SORT, OCR)**

- Created a license plate detection system using YOLOv8 for vehicle detection and SORT for object tracking. Applied OCR techniques to extract plate numbers from video frames and stored the output in structured CSV files. Oversaw missing frames through interpolation and visualized bounding boxes on output video for improved tracking accuracy.