Ovais Yusuf

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Professional Summary

AI/ML Engineer and published researcher with nearly three years of experience building computer vision pipelines, retrieval-grounded LLM applications, and production AI systems. Skilled in Python, PyTorch, YOLOv8, ByteTrack, FastAPI, PostgreSQL, Docker, and OpenAI APIs, with 12 peer-reviewed publications and an M.S. GPA of 4.0.

Education

Bridgewater State University — Bridgewater, MA
Master of Science in Computer Science; GPA: 4.0 — *Jan. 2025 – Dec. 2026*

- **Coursework:** Advanced Artificial Intelligence, Computer Vision, Deep Learning, Advanced Algorithms, Research Methods in Computer Science

Technical Skills

Programming & ML: Python, SQL, JavaScript, PyTorch, scikit-learn, deep learning, model training and evaluation

Computer Vision: YOLO, YOLOv8, ByteTrack, OpenCV, object detection, multi-object tracking, aerial imagery

LLM & Backend: RAG, LLM tool calling, prompt engineering, OpenAI API, FastAPI, REST APIs, PostgreSQL

Deployment & Tools: Docker, Railway, Vercel, Alembic, Git, GitHub

Relevant Experience

AI/ML Engineer – Graduate Assistant — Sept. 2026 – Present
Bridgewater State University — Live — Github — *Bridgewater, MA*

- Built a YOLOv8x + ByteTrack UAV pedestrian-analysis pipeline across 589 frames, reducing 130 raw tracker IDs to 64 unique people vs. ∼58–60 manually counted through persistence and entry-zone logic.
- Implemented spatial analysis over a 10×10 occupancy grid and 58,900 cell records; localized neighboring-cell search reduced pair checks from 142,196 to 51,310 (∼64%) while matching all-pairs results across all 589 frames.

AI Engineer – Automated Theorem Proving — May 2026 – Aug. 2026
Bridgewater State University — *Bridgewater, MA*

- Built an unattended Lean 4 workflow that decomposed mathematical research goals, generated candidate proofs, independently reviewed outputs, and merged only type-checked results.
- Engineered job tracking, budget enforcement, retries, duplicate prevention, and checkpoint recovery; validated the automation through 181 passing tests while coordinating 35 accepted proof tasks.

AI Developer (Intern) — Jan. – May 2026
Metro South Chamber of Commerce — *Brockton, MA*

- Built two retrieval-grounded AI applications: a public FastAPI chatbot for chamber services and an internal RAG assistant for accreditation documents, policies, and organizational records.
- Created ingestion and retrieval pipelines for website content, newsletters, and internal documents; evaluated responses against sources and refined retrieval and prompts to reduce unsupported answers.

Machine Learning Researcher — Aug. 2022 – Aug. 2024
Computer Science Department — Google Scholar

- Developed and evaluated computer vision pipelines for aerial vehicle detection and traffic analysis using Python, YOLO, OpenCV, CNNs, BiLSTMs, and hybrid deep-learning models.
- Published 12 peer-reviewed AI/ML papers, including 2 IEEE Access articles, 2 Frontiers in Neurorobotics articles, and 8 IEEE conference papers.

Projects

Echo Madrid – Ask Echo | *Python, FastAPI, PostgreSQL, OpenAI API, Docker, Railway* — Live — Github

- Built and deployed an LLM tool-calling assistant that answers Real Madrid match and La Liga questions from live PostgreSQL data, grounding responses in database query results.
- Engineered idempotent ingestion, a normalized schema, typed FastAPI endpoints, Docker deployment, and Alembic migrations for reliable production updates.

FIFA WC26 Matchday Intelligence | *Next.js, ESPN API, API-Football, Vercel* — Live — Github

- Built and deployed an automated match companion integrating two sports-data APIs for scores, events, lineups, formations, and post-match reports, with layered caching and automatic refreshes.