AKASH RAO

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EDUCATION

Auburn University **January 2025 - August 2028**
PhD, Computer Science *GPA: 3.8*

Auburn University **August 2023 - August 2025**
Master's, Data Science *GPA: 3.8*

AMC Engineering College, Bengaluru, India **August 2017 - August 2021**
Bachelor's, Computer Science *GPA: 3.7*

PUBLICATIONS

Shubham Trehan, Udhav Ramachandran, Akash Rao, Ruth Scimeca and S.N Aakur, *"FSP-DETR: Fewshot Prototypical Parasitic Ova Detection"*
https://arxiv.org/abs/2510.09583 (Accepted WACV 2026)

- Developed a unified transformer-based framework (FSP-DETR) for few-shot and zero-shot object detection in biomedical images, significantly outperforming existing methods on novel parasite ova, blood cell, and malaria benchmarks. Led the design of a prototype-driven approach combining class-agnostic DETR proposals with supervised embedding and augmentation strategies, enabling robust detection, open-set recognition, and domain transfer under extreme label scarcity.

PROFESSIONAL EXPERIENCE

ICAMS at Auburn University **Auburn, AL**
Graduate Research Assistant *October 2024 - Present*

- Architected and launched a multi-user job management platform (React, Redis, Docker) automating lab workflow and job tracking for daily users, deployed for active research operations.
- Developed a real-time camera surveillance system (React, MQTT, Docker, Flask), enabling secure, on-premises monitoring with motion detection and video alert prioritization, enhancing shop floor safety and compliance.
- Built and deployed an RFID-based authentication tool, streamlining user assignment and equipment access with robust, secure protocols.
- Created dynamic Grafana dashboards for research and operational metrics, facilitating data-driven decisions by faculty and research teams.
- Designed a scalable ETL pipeline to process and transform datasets exceeding 1 million records, accelerating analytics and reporting cycles.

D.code Solutions **Dubai, United Arab Emirates**
Software Engineer *October 2021 - June 2023*

- Delivered and maintained Android and Windows enterprise applications (Java, MSSQL Server) customized for logistics and government clients.
- Led the development and integration of an asset tracking system for the Ministry of Monitor and Control, U.A.E., enhancing asset visibility and reducing audit errors through automated barcode and reporting tools.
- Designed and launched a custom warehouse management platform for Dubai Duty-Free, supporting real-time inventory flow and reducing manual stock-taking time .
- Presented technical solutions and actionable analytics to enterprise clients, shaping pre-sales strategies and post-delivery optimization.

Digital Centroid **Remote**
React Native Developer Intern *April 2021 - May 2021*

- Developed a cross-platform React Native mobile app to streamline receipt workflow for reimbursements, boosting end-user productivity and adoption.
- Integrated real-time API connections for instant data syncing, ensuring error-free reimbursement processing.
- Designed intuitive UI/UX for mobile platforms, focusing on navigation efficiency and clarity.
- Leveraged Expo to accelerate development timeline and enable one-click deployment across iOS and Android.

Scientia Innovations **Bengaluru, KA, India**
Software Engineer Intern *October 2020 - December 2020*

- Developed a Flutter-based mobile e-commerce solution for educational content, enabling seamless discovery, creation, and access to online courses.
- Engineered user-centric, robust cross-platform interfaces that improved engagement and learning outcomes for students and educators alike.

PROJECTS

Zero-shot Genome classification

- Developed a scalable, taxonomy-aware embedding framework that enables zero-shot genome classification by mapping whole genomes to pseudo-image representations for robust species recognition in highly imbalanced, scarcely-labeled setting.

Video Object Detection Benchmarking

- Benchmarked DETR and Faster R-CNN models for object detection on a custom video dataset, conducting a comparative study on detection accuracy and speed across diverse visual tasks.

SKILLS

Programming languages
Python, Java, SQL, React, React Native, Flutter, HTML/CSS.
Machine Learning & AI: PyTorch, TensorFlow, Scikit-learn,
DETR, Faster R-CNN, Gensim, Word2Vec, Transformers.
Developer Tools & Platforms: Docker, Redis, MQTT, Git, Linux.
Embedded Systems: Raspberry Pi, NVIDIA Jetson.