

# Ayesha Usman

Computer and Information Systems Engineer

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uayesha731@gmail.com

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0332-8815991

## SUMMARY

Computer Systems Engineer with 2+ years of experience and strong expertise in AI and Computer Vision. Skilled in Python, OOP, model training, dataset preparation, image classification, and deploying real-time detection systems. Hands-on Computer Vision Engineering experience at Poulta, including building data pipelines, preprocessing workflows, training high-accuracy poultry analytics models, and optimizing inference performance. Experienced with AI platforms such as Roboflow and Hugging Face for dataset management, model development, and experimentation. Dedicated to creating innovative, scalable, and automation-driven AI solutions with real-world impact.

## SKILLS

- **Computer Vision:** Developed YOLOv8 and custom CNN models for poultry disease detection, feed and egg quality analysis; used OpenCV and Python for real-time image processing.
- **AI/ML Frameworks:** Built and deployed models using Hugging Face Transformers, PyTorch, TensorFlow; fine-tuned models for both edge and cloud deployment with Python.
- **Data Annotation Tools:** Managed datasets and performed labeling with Roboflow; implemented preprocessing and augmentation pipelines in Python to improve model accuracy.
- **Cloud Edge Deployment:** Deployed AI models on AWS and edge devices for low-latency inference and automated farm monitoring.
- **Monitoring Evaluation:** Conducted model evaluation, error analysis, and performance optimization to ensure reliable poultry farm AI systems.
- **Automation Pipelines:** Built Python-based AI pipelines for real-time environmental monitoring, alerts, and automated decision-making.

## WORK EXPERIENCE

### Computer Vision and AI Engineer

Aug 2024 – Nov 2025

#### Poulta.inc

- Developed and deployed high-accuracy AI models (up to **92%–95% accuracy**) using Roboflow and Hugging Face for poultry-focused computer vision systems.
- Built the **Breeder Egg Analyzer** that reduced manual inspection time by **60%** through automated egg quality assessment.
- Designed a **Feed Quality Index Model** achieving **85% contamination detection accuracy**, improving feed consistency monitoring.
- Developed a **Biosecurity Monitoring System** using anomaly detection, enabling **early risk identification** and lowering farm incident rate.
- Configured real-time AI pipelines for environmental monitoring, delivering **instant alerts** and **faster decision-making** for farm operations.
- Deployed optimized models on edge devices, reducing inference latency by **up to 40%** for seamless field performance.
- Conducted data analysis to improve model reliability and supported the team in improving workflow efficiency by **30%**.
- Trained staff on AI tools, reducing adoption issues and errors.

- Improved UI usability and performance, resulting in **25% faster load times** and smoother user interaction.
- Built user-friendly video playback components for YouTube/Facebook clone apps, increasing user engagement by **30%**.
- Developed fully responsive, interactive forms that improved user input accuracy and reduced bounce rate.
- Designed intuitive UI for a Movie App enabling seamless navigation and enhancing user retention.
- Created a modern, visually appealing interface for a Nike App that improved product visibility and overall UX.

## PROJECTS

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### **OBE Systems Automation (FYP)**

Aug 2023 – Oct 2024

Built an OBE system with PERN stack for automating CLO and PLO calculations. Designed a user-friendly interface for seamless data management.

### **Single Cycle Processor**

Aug 2022 – Nov 2022

Simulated a pipelined processor to demonstrate instruction-level parallelism. Implemented memory hierarchy and cache. Conducted performance analysis.

### **Food Search Engine**

Aug 2024 – Sept 2024

Developed a React-based Food Search Engine using Meal API. Enabled users to search foods and retrieve detailed recipes via a clean interface.

### **Hardware Projects**

Oct 2020 – Nov 2022

Designed circuits including exhaust fan and clap-activated projects. Showcased integration of software and hardware components.

### **FM Data Transmission**

Oct 2020 – Nov 2022

Built basic FM transmitter and receiver. Tested signal clarity and strength. Implemented modulation and demodulation circuits.

## EDUCATION

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### **Bachelor of Engineering in Computer and Information Systems**

Aug 2020 – Jul 2024

### **NED University of Engineering and Technology**

*Minors: Networking, Embedded Systems, Digital Image Processing, Computer Architecture and Organizations*