

Md Faruk Alam

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EXPERIENCE

Anuba Technologies

May 2025 – Jun 2026

Head of Engineering

- Developed a real-time computer vision pipeline on multiple NVIDIA Jetson Orin devices, processing RTSP camera streams with deep learning detection and OCR models to capture operational data.
- Optimized deployed models with TensorRT and wrote custom preprocessing and postprocessing pipelines in C++ for multi-stream real-time inference.
- Built a FastAPI and PostgreSQL backend ingesting inference metadata from the Jetson fleet and serving it to an AWS-hosted web frontend, giving operators live visibility into monitored sites.

Accu-Label Inc.

Dec 2024 – May 2025

Computer Vision Engineer

- Deployed a YOLO11 segmentation model across multiple NVIDIA Jetson devices, detecting apples on a conveyor belt and computing precise firing coordinates for an automated labeling machine.
- Integrated a 3D depth camera for calibration and real-time pixels-per-inch estimation, improving coordinate accuracy at the firing point.
- Fine-tuned the model on a custom dataset and optimized it via TensorRT, reaching sub-100ms latency per frame.

German Research Center for AI (DFKI)

Jun 2024 – Dec 2024

Computer Vision Research Engineer

- Developed a custom algorithm to address tracking drift in segmentation-based pipelines, reducing ID switches by ~30% and improving overall tracking consistency.
- Trained custom wheel-segmentation models enabling precise inter-vehicle distance estimation via wheel-to-wheel pixel measurement.

Automated Medical Technologies

Nov 2023 – May 2024

Computer Vision Engineer

- Developed a multi-camera object detection system for a medical device, driving robotic arm movement directly from model output instead of manual positioning.
- Implemented camera calibration to recover precise 3D target coordinates from synchronized live feeds.

EDUCATION

Bangladesh Agricultural University

Oct 2025 – Oct 2026

Master of Science (M.S.) in Farm Power and Machinery

Sylhet Agricultural University, Bangladesh

Jan 2020 – Jun 2025

Bachelor of Science in Agricultural Engineering

CGPA: 3.632

PROJECTS

RF-DETR CPP

2026

- Implemented a fused CUDA preprocessing kernel performing bilinear resize, BGR→RGB conversion, per-channel normalization, and HWC→CHW transpose in a single pass, with normalization constants folded host-side to keep the kernel body branch-free.
- Built the TensorRT runtime around CUDA Graph capture of the inference and device-to-host stages, with pinned-memory staging, RAII-managed device buffers, and dynamic-batch support driven by versioned metadata embedded in the engine file.
- Implemented DETR-style postprocessing in C++ (sigmoid and top-k over query-class logits, no NMS) plus a CUDA kernel for instance-segmentation mask upsampling, exposed through a C ABI shared library for Python, Rust, and Go bindings.

Automated Monitoring of Carel Controllers

2024

- Annotated 2,000+ GoPro images of Carel controllers across 6 defined classes using Roboflow.
- Trained a YOLOv8-nano detector on Colab L4 GPUs, identifying operational and defrost statuses at 95% accuracy on unseen images.
- Applied PaddleOCR to extract temperature readings and pulled timestamps from image metadata, compiling data from 43,000 images into a structured CSV of time, status, and temperature.

Skin Problem Identification

2023

- Collected and annotated 4,000 images of skin conditions from public datasets and trained a classifier reaching 90% prediction accuracy.
- Deployed the recognition system on AWS EC2 and evaluated it under load with 1,500 generated requests.

SKILLS

Languages: Python, C++, CUDA
CV & ML: YOLO, RF-DETR, OpenCV, PyTorch, TensorFlow, Kornia, Supervision, PaddleOCR
Edge & Hardware: NVIDIA Jetson, Raspberry Pi, TensorRT, DeepStream, ONNX, 3D Depth Camera
Frameworks: FastAPI, Django, Flask, Pandas, Matplotlib, Seaborn, scikit-learn, BeautifulSoup, Scrapy
Databases & Tools: Git, AWS, Docker, Linux, Jupyter Notebook, Anaconda, Selenium, PostgreSQL, MongoDB
AI-Assisted Development: Claude Code, GitHub Copilot

CERTIFICATIONS

Claude Code 101 (Anthropic)	2026
Getting Started with AI on Jetson Nano (NVIDIA)	2024
Building Applications Using Amazon Bedrock (LinkedIn Learning)	2024
Python for Data Science and Machine Learning Bootcamp (Udemy)	2022
Modern Web Scraping with Python using Scrapy Splash Selenium (Udemy)	2021