

Muhammad Arya Hanif

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SUMMARY

Motivated, detail-oriented engineer with a strong passion for learning, experimenting, and solving complex problems. I enjoy building practical solutions from scratch, exploring new technologies, and improving systems with structured, data-driven thinking. Experienced on using python for particle simulations for nuclear health application and ML pipeline for video based fish identification application. I have been daily driving unix based operating system for four years. I am proficient with advanced Git workflows including interactive rebasing, custom patch creation and clean version control.

PROJECT EXPERIENCE

Sealens

Bali, Indonesia

AI Engineer

Jul 2025 - Present

- Held an **in depth research** regarding possible solution concept that could help coral restoration communities.
- Conduct **technical feasibilities** and CI for iOS development.
- Designed and implemented a comprehensive **end-to-end ML pipeline** covering dataset creation, video preprocessing, object detection, deep feature extraction, clustering, classification, re-identification, quantitative evaluation, and deployment-ready inference flows.
- Built a modular and scalable **MLOps framework** leveraging **DVC** to version-control **60k+ images, raw videos, cleaned datasets, model checkpoints, embeddings, and experiment artifacts**, ensuring full reproducibility across the machine learning lifecycle.
- Developed and benchmarked multiple **object detection and classification models**—including YOLOv11/v12, ResNet, Vision Transformers, Siamese networks, and custom CNN architectures—to support experimentation and continuous model improvement.
- Created an automated **cluster analysis system** using **DBSCAN, KMeans, and PCA** to cluster the cropped images.

Monte Carlo Particle Transportation Simulation

Bandung, Indonesia

Project Owner

Jun 2023 - Jul 2024

- Developed radiation dose distribution heatmap visualizations to correct misunderstandings in radiotherapy shielding design.
- Compared radiation dose between simulation, analytic calculation and real measurement of bunker in Hasan Sadikin Public Hospital.

WORK EXPERIENCE

Dr. Hasan Sadikin Public Hospital

Bandung, Indonesia

Medical Physics Intern

Dec 2022 - Feb 2023

- Executed supervised **patient-specific treatment planning** on linear accelerator and teletherapy.
- Performed **patient specific treatment planning** and **Quality Assurance & Quality Control** for radiodiagnostic, radiotherapy and nuclear medicine departments.

Electronics and Instrumentation Lab

Yogyakarta, Indonesia

Teaching & Lab Assistant

Jan 2021 - Jun 2021

- **Initiated curriculum update** for lab learning modules and pre-/post-test assessments for post covid classes.
- Monitored assessments and grading procedures for **100+ students** across department.
- Assisted students with instrumentation tools, sensors, measurement devices, and troubleshooting during practical sessions.

EDUCATION

Universitas Gadjah Mada

Nuclear Engineering

Yogyakarta, Indonesia

Graduation Date: Jul 2025

Apple Developer Academy @Binus Bali

iOS Developer

Bali, Indonesia

Graduation Date: Dec 2025

SKILLS

Programming: Python, Swift, SwiftUI, Git, Shell Script

DataScience: PyTorch, OpenCV, NumPy, Pandas, Scikit-Learn, SciPy

Ops: Linux, Docker, Railway, Flask, npm, ngrok