

MUHAMMAD HAZIM MUHAMMAD KHAIRI SHAM

Machine Learning Engineer or Data Analyst (or equivalent)

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SUMMARY

Software engineer specialising in machine learning and computer vision, with 4+ years shipping 13+ products to production across mobile, web, and AI systems. Completed the **IBM Machine Learning Professional Certificate**, now building ML projects on **AWS (S3, Glue, SageMaker)** with the AWS Certified Machine Learning Engineer Associate certification in progress. Most recently **Technical Lead at Horizon Integrated**, where I built **SportSphere's** computer vision pipeline for sports analytics, using homography-based court mapping and player tracking. **Top 10 hackathon finalist** in AI & Data Science, with a **4,000+ follower** TikTok developer community.

KEY ACHIEVEMENT

- **Content Creator.** Built a developer community of 4,000+ TikTok followers around programming tutorials.
- **AI & Data Science Finalist.** Top 10 hackathon finalist, plus finalist at WINSTEM (Bandung) and ISPARK (Beijing).
- **International Hackathons.** Placed Silver at IIDEX UiTM and Bronze at ISPARK Beijing across 5+ international hackathons.

WORKING EXPERIENCE

Horizon Integrated (Early-Stage Startup), Malaysia **FEB2026-JUL2026**

Technical Lead

- Built SportSphere's computer vision pipeline for sports video analysis end to end, alongside leading the product's technical build on Google Cloud (Next.js, Firebase, Cloud Functions).
- Trained custom object detection models and built homography-based court/pitch mapping for automated player and ball tracking from camera footage.

Prosignal Consortium Sdn. Bhd. Malaysia **2026-JUL2026**

Intern

- Own the Swift-to-Flutter bridge for the native CarPlay navigation experience of TuJu, a Malaysian navigation app, currently in development.

Own Business Remote **MAY2021-PRESENT**

Freelance Full Stack Developer

- Shipped 13+ products to production since 2022, including ML systems for facial expression recognition and PCB defect detection (YOLO v11) and an AR Fitting Room platform (3rd place, national FYP competition).
- Built NadiAir, a Gold + Bronze medal-winning water-quality system combining Random Forest detection with Genetic Algorithm route optimisation.
- Built an end-to-end demand forecasting pipeline on AWS: PySpark feature engineering (lag, rolling averages, calendar features) in AWS Glue ETL, Parquet datasets on S3, and a gradient boosting model in SageMaker Studio validated with a time-based split.

Ratawanz Resources & Partnership Business Terengganu, Malaysia **MAC2023-OCT2023**

Web Developer

- Built two Shopify e-commerce stores with payment integration, tripling client sales through SEO and checkout optimisation.

APMLMS Dungun, Malaysia **SEP2022-FEB2023**

Intern Full Stack Developer

- Implemented Google Maps integration, OTP verification, and payment gateway integration.

EDUCATION

BSc Computer Science (Hons.), Universiti Teknologi MARA (UiTM), Kuala Terengganu **MAC2023-JUL2026**

Diploma in Computer Science, Universiti Teknologi MARA (UiTM), Kuala Terengganu **OCT2020-FEB2023**

CERTIFICATION

IBM Machine Learning Professional Certificate, Coursera

6-course program covering supervised and unsupervised learning, deep learning and reinforcement learning, completed with a capstone project. [Verify credential](#)

AWS Certified Machine Learning Engineer - Associate, Amazon Web Services (in progress)

HIGHLIGHTED PROJECT

- **UAV Digital Forensic (PhD Research).** Forensic pipeline fusing an LSTM telemetry-tamper classifier with a CNN visual-evidence model, reaching **96.2% tamper-detection accuracy**, +18.9pts over the best single-modality baseline, explained via SHAP/LIME.
- **PropIntel MY (Property Price Prediction).** Deployed KL property price predictor with SHAP explanations in Ringgit: cleaned 53k iProperty listings, LightGBM reaching **0.88 test R2** with MLflow experiment tracking, served via FastAPI and Streamlit, containerised with Docker, CI on GitHub Actions.
- **Demand Forecasting (AWS ML Pipeline).** End-to-end sales forecasting system: PySpark feature engineering in AWS Glue, Parquet on S3, and a gradient boosting model trained in SageMaker Studio, evaluated with a time-based split and permutation importance.
- **SportSphere (Sports Analytics Computer Vision).** Video analysis pipeline using homography-based court/pitch mapping and trained detection models for automated player and ball tracking, on Next.js, Firebase, Vertex AI.
- **Agents (Multi-Framework AI Agent Systems).** Autonomous agents unified across **six frameworks** (OpenAI SDK, CrewAI, LangGraph, AutoGen) for research, trading, and workflow orchestration.
- **Suite Games 2026 (Automated Payment Reconciliation).** Jersey ordering platform with AI-assisted DuitNow QR receipt verification, removing manual reconciliation from the payment workflow.
- **TuJu CarPlay (Native Navigation Experience).** Native CarPlay experience for TuJu, a Malaysian navigation app, with turn-by-turn routing and Siri-driven hazard reporting, bridging Swift's CarPlay framework to the Flutter navigation engine.
- **epochlab (Practical Machine Learning Education).** Malaysia-first SaaS teaching machine learning the practical way, with a matched learning path and an in-browser code playground.
- **PCB Defect Detection (Manufacturing QA).** AI-powered PCB defect detection system using YOLO v11, deployed for computer repair industry clients.
- **SafeHarvest (Agricultural AI).** KitaHack 2025 project offering real-time weather monitoring, crop recommendations, and farm performance analytics for smallholders, built on Flutter, Firebase, and Gemini.
- **MSNT Fitness (Athlete Monitoring).** Fitness-testing dashboard for the Terengganu State Sports Council, with composite scoring and per-athlete progress reports.
- **Sign Games (Malaysian Sign Language Learning).** Learn Malaysian Sign Language (BIM) through play, with real-time hand-sign recognition via MediaPipe landmarks.
- **Bone Age Prediction (Final Year Project).** Hybrid deep learning pipeline estimating skeletal bone age from pediatric X-rays, combining ResNet-50 features with a Gradient Boosting and SVM classifier.

SKILLS

Programming: Next.js, Flutter, TypeScript, Laravel, Swift/CarPlay

AI/ML: PyTorch, TensorFlow, Keras, scikit-learn, LightGBM, SHAP, pandas, NumPy, PySpark, Jupyter, AWS SageMaker, AWS Glue, YOLO v11, BERT, ResNet-50, Vertex AI, Gemini

MLOps: MLflow, Docker, FastAPI, Streamlit, GitHub Actions (CI/CD), model serving, model deployment, experiment tracking

Computer Vision: MediaPipe, OpenCV, Flask, homography-based mapping

Automation & Tools: n8n, CrewAI, LangGraph, AutoGen, MCP, Google Maps API, Shopify

Backend & Cloud: Firebase, Supabase, MySQL, GCP

Languages: Malay (Native), English (Fluent)