

# KASSAM DAKHLALAH

## Robotics Engineer

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## PROFESSIONAL SUMMARY

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Robotics Engineer with 4+ years building autonomous systems across the full stack, from microcontroller firmware to Vision-Language-Action (VLA) policy deployment. B.Sc. Computer Engineering specializing in Robotics. Hands-on with humanoid, quadruped and service platforms including Unitree G1, Unitree Go2, AgiBot X2 and Pudu fleets. Delivers production robotics software in Robot Operating System 2 (ROS 2), Simultaneous Localization and Mapping (SLAM), computer vision and containerized DevOps pipelines. Based in Dubai, available immediately.

## TECHNICAL SKILLS

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**Robotics:** Robot Operating System 2 (ROS 2), ROS 1, Simultaneous Localization and Mapping (SLAM), Navigation 2 (Nav2), Adaptive Monte Carlo Localization (AMCL), RTAB-Map, FAST-LIO2, Unified Robot Description Format (URDF), Forward and Inverse Kinematics (FK/IK), Pinocchio, Motion Planning (A-star, RRT), PID Control, Whole-Body Control, Locomotion Control, Teleoperation, Motion Retargeting, Manipulation and Grasping, Sensor Fusion, CycloneDDS, Unitree SDK2

**Robot Platforms:** Unitree G1, Unitree R1, Unitree Go2, AgiBot X2, EngineAI T800, UBTECH Cruzr, temi V2/V3, Pudu FlashBot, Pudu CC1, PuppyPi, Inspire RH56DFX dexterous hands, 6-DOF and 4-DOF robotic arms, Automated Guided Vehicles (AGV)

**Simulation:** NVIDIA Isaac Sim, NVIDIA Isaac Lab, Gazebo, RViz, MuJoCo

**AI and Machine Learning:** PyTorch, TensorFlow, OpenCV, YOLO, Vision-Language-Action (VLA) Models, LeRobot, Action Chunking Transformer (ACT), Imitation Learning, Reinforcement Learning, Object Detection and Tracking, TensorRT

**Embedded and Hardware:** Arduino, ESP32, STM32, Embedded C, FreeRTOS, Interrupt Service Routines (ISR), Device Drivers, I2C, SPI, UART, Pulse Width Modulation (PWM), 3D LiDAR, Livox MID-360, Intel RealSense, Inertial Measurement Unit (IMU), MPU6050, ADS1115, PCA9685, PCB Design

**Compute Platforms:** NVIDIA Jetson Orin NX, NVIDIA Jetson Nano, Raspberry Pi 5, Raspberry Pi 4

**Languages and DevOps:** Python, C, C++, Bash, Docker, arm64 Builds, Kubernetes, Git, GitHub Actions, CI/CD, Linux, Ubuntu, systemd

**Spoken Languages:** English (Professional), Arabic (Native)

## PROFESSIONAL EXPERIENCE

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### Robotics and AI Developer - YS Lootah Robotics

Dubai, United Arab Emirates | 01/2026 - Present

- Design, develop and maintain intelligent robotic systems integrating hardware, software and artificial intelligence so robots perceive, decide and act autonomously.
- Deploy and operate humanoid, quadruped and service platforms including Unitree G1, Unitree R1, Unitree Go2, AgiBot X2, EngineAI T800 and UBTECH Cruzr.
- Implement control algorithms, machine learning models and computer vision pipelines in C++, Python and ROS 2.
- Integrate dexterous manipulation hardware including Inspire RH56DFX robotic hands and 6-DOF arms.

### CubeSat Workshop Facilitator - SpacePoint

United Arab Emirates | Freelance | 10/2025 - Present

- Deliver CubeSat and satellite communications workshops; set up SatKit hardware and laboratory tooling for participants.
- Previously Embedded Systems Engineer (Internship, 11/2025 - 01/2026) developing firmware for the satellite programme.

### Robotics Engineer - Silicon Institute

Dubai, United Arab Emirates | Internship | 05/2025 - 09/2025

- Contributed to a fully functional humanoid robot integrating IMU sensors and motor control systems.
- Assembled and evaluated robotic hardware, built prototypes, and analyzed test data to validate control performance.

### DevOps and Embedded Systems Engineer / Researcher - Self-Employed

United Arab Emirates | 01/2022 - 01/2026

- Built intelligent, cyber-secure robotic systems through independent research and development.
- Developed AI-assisted robotic functions: motion planning, signal analysis and real-time decision-making.
- Hardened robotic firmware and networked control; researched cyber-physical systems.
- Prototyped, tested and deployed robotic platforms across simulation and physical hardware.

## DevOps Engineer - BestLadies General Trading LLC

Dubai, United Arab Emirates | Part-time | 01/2023 - 01/2026

- Built automated CI/CD workflows with GitHub Actions and containerized applications with Docker.
- Implemented Prometheus and Grafana dashboards; automated Linux provisioning with Bash and Python.
- Previously Cyber Security Technician (01/2022 - 01/2023): secured network infrastructure at 99.9% availability, automated security checks improving performance by 20%, and reduced risk by 15%.

## EDUCATION

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### B.Sc. Computer Engineering - Ajman University

Ajman, United Arab Emirates | 09/2021 - 09/2025

- Specialization: Robotics, Cybersecurity and Software Development.
- Vice President, Computer Engineering Club: led 10+ members delivering workshops and events engaging 200+ students.

## ROBOTICS PROJECTS

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### Autonomous Navigation Framework

ROS 2, SLAM, LiDAR, GPS | 2024 - 2025

Autonomous ground-robot stack using SLAM and obstacle detection to navigate dynamic environments, with GPS geofencing for long-range missions.

### ChessRoboX - Vision-Guided Manipulation

Robotic Arm, Computer Vision, Embedded | 2024

Electromechanical system that recognizes chessboard state, plans moves and manipulates pieces with an embedded robotic arm driven by a computer-vision pipeline.

### IMU Sensor Suite and Telemetry Server

ESP32, MPU6050, Python, Flask | 2025

13 orientation sketches from single-axis basics through Madgwick filtering, plus a Python UDP listener; fixed stale-delta-time orientation corruption after blocking calls. Companion server streams live orientation to a three.js 3D browser view.

[github.com/kassam-99/IMU-Sensor](https://github.com/kassam-99/IMU-Sensor)

### PCA9685 Servo Control Firmware

Arduino, ESP32, I2C, PWM | 2025

Restructured 19 Arduino sketches into per-sketch modules and hardened PCA9685 servo firmware; clamped an unsafe pulse range from 2930 to 2400 microseconds across all 12 driver sketches and fixed a stop-all defect, input validation and I2C flooding.

[github.com/kassam-99/Servo-Motors](https://github.com/kassam-99/Servo-Motors)

### DroneX - Airborne Data Acquisition Platform

UAV, Embedded Systems, Geolocation | 2024

UAV platform configured for signal collection, geolocation tagging and airborne data acquisition for research and analysis.

### FaceID Biometric Entry System

OpenCV, Facial Recognition, Embedded | 2024

Facial-recognition authentication module for robots and secure entry points, performing real-time detection and identity verification.

## CERTIFICATIONS

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52 professional certifications. Selected: IBM Machine Learning with Python (2025); L&T EduTech Fundamentals of Robotics and Industrial Automation (2025); EC-Council Cybersecurity for Robotics and Autonomous Systems (2024); Google Cybersecurity Professional Certificate (2024); IBM Docker, Kubernetes and OpenShift (2023); Cisco CCNP ENCOR 350-401 (2023); Udacity Full Stack Development (2021).