

KAUSTUBH GADDAM

**Global Enterprise AI ML ROBOTICS Architect | Senior Techno-Managerial Leader |
Industrial revolution consultant**

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Ready for International MNC Engagements & Global Mobility

VISIONARY EXECUTIVE SUMMARY

Results-driven Senior Techno-Managerial Leader and Industrial Visionary with a proven track record of architecting, programming, and deploying enterprise-scale robotic systems and AI-driven automated production lines for Tier-1 global MNCs. Expertly bridging cross-border mechanical design, intelligent control, and corporate business strategy. Positioned at the vanguard of industrial evolution, I am dedicated to driving organizations beyond Industry 4.0/5.0 and pioneering the next 20 years of hyper-automation—orchestrating AGI-driven sentient factories, quantum-optimized digital twins, and human-machine symbiosis to sustain unmatched global market leadership and ROI.

VISION 2045: PIONEERING THE NEXT 20 YEARS OF AUTOMATION

- **AGI-Driven Sentient Factories:** Architecting next-generation autonomous manufacturing ecosystems where Artificial General Intelligence (AGI) enables self-healing, self-optimizing, and zero-downtime production lines without human intervention.
- **Quantum-Optimized Digital Twins:** Preparing industrial infrastructures for the integration of quantum computing to run real-time, global supply chain simulations and hyper-complex robotic kinematic path planning.
- **Swarm Robotics & Space 4.0 Automation:** Designing decentralized, multi-agent swarm robotic frameworks capable of scaling for extreme environments, including deep-ocean mining and off-world/interplanetary manufacturing infrastructures.
- **Advanced Human-Machine Symbiosis:** Transitioning from traditional Cobots to adaptive, biomechanically-aware robotic cells driven by advanced Edge AI and foundational Brain-Computer Interface (BCI) capabilities for seamless, thought-assisted industrial assembly.

EXECUTIVE LEADERSHIP & GLOBAL MNC COMPETENCIES

- Enterprise Digital Transformation | Global CapEx & P&L Management | Cross-Border Team Leadership
- International Safety (CE, UL, ISO) | Strategic Vendor & OEM Partnerships | R&D & Tech Incubation Strategy

- Supply Chain & SAP ERP Integration | Lean Six Sigma & Agile Scaling | AI/ML & Industry 5.0 Roadmapping

CORE CAPABILITIES & VALUE PROPOSITION

- **End-to-End Turnkey Automation Projects:** Provides strategic leadership for the execution of multi-million dollar industrial robotics and factory automation CapEx projects for Nifty 50 and global clients. Ensures strict compliance with ISO 13849, IEC 62061, CE, OSHA, and UL standards.
- **Strategic Consulting & Digital Transformation:** Spearheads smart factory ecosystems by integrating shop-floor IoT sensors, SCADA, and robotics into centralized Cyber-Physical Digital Twin platforms. Drives operations integration with enterprise SAP ERP systems and applies Lean Six Sigma principles to optimize complex supply chains and material flow.
- **Advanced Technical Training & Center of Excellence (CoE) Leadership:** Highly qualified to lead and design training modules in Industrial Robot Programming across major global platforms, including ABB, FANUC, KUKA, Yaskawa, and Delta. Expertise extends to next-generation technologies required for global upskilling, including ROS/ROS2, Machine Vision (Cognex, Keyence), and Edge AI implementation.
- **International Franchise & Strategic Partnership Integration:** Manages strategic OEM negotiations and global vendor management for high-value technology procurement (ABB, FANUC, KUKA, Siemens, Cognex), creating robust technological backbones for franchise operations. Capable of standardizing automation frameworks to ensure consistent, scalable deployment across international franchise nodes and joint ventures.

DETAILED PROFESSIONAL EXPERIENCE

PROJECT TECHNO-MANAGERIAL LEAD – ROBOTICS & AUTOMATION KAUSTYA ROBOTICS LIMITED | PUNE, INDIA | APR 2023 – PRESENT

Strategic & Managerial Execution:

- Spearheading operations and quality compliance for an ISO 9001:2015 certified company, directing cross-border engineering teams to deliver complete turnkey solutions from conception to FAT/SAT commissioning.
- Managing multi-million-dollar CapEx budgets, driving resource allocation, P&L tracking, comprehensive risk mitigation, and global stakeholder reporting.
- Spearheading strategic OEM negotiations and global vendor management for high-value technology procurement (ABB, FANUC, KUKA, Siemens, Cognex).
- Overseeing global FAT/SAT protocols and executing complex technology transfers, ensuring smooth handover and integration with enterprise SAP ERP systems.

TURNKEY SOLUTIONS & CORE EXECUTIONS:

- Directing automation solutions spanning Robot Spot/MIG/TIG/Laser/Plasma welding, material handling, CNC machine tending, and AI-vision systems.
- Driving broader Industrial Automation portfolios, successfully executing PLC SCADA projects, IoT/Industry 4.0 integration, and Manufacturing Execution Systems (MES).
- Managed high-speed palletizing and packaging automation projects using multi-axis robotic systems and machine vision technology.

PROGRAMMING, MAINTENANCE & TECHNICAL SUPPORT:

- Leading advanced multi-brand robot programming initiatives across Fanuc, ABB, Kuka, and Kawasaki/Yaskawa platforms, alongside complex Siemens and Allen-Bradley PLC programming.
- Managing comprehensive maintenance services and Annual Maintenance Contracts (AMC), encompassing breakdown support, robot overhauling/reconditioning, onsite maintenance, health checkups, and battery replacement/calibration/mastering.

INDUSTRY 4.0, ROBOTICS, AUTOMATION PROJECTS

- Tata Motors (AI-Driven Robotic Welding & EV Assembly Line): Techno-Managerial Lead for the end-to-end deployment of KUKA and ABB 6-axis robots for EV chassis welding. Integrated Digital Twin technology for virtual commissioning and applied Edge AI for real-time weld-defect inspection, reducing cycle time by 18%.
- Mahindra & Mahindra (Smart Factory IIoT & Predictive Maintenance Overhaul): Spearheaded an Industry 4.0 transformation for SUV assembly lines. Migrated legacy SCADA to Ignition, integrating OPC-UA/MQTT protocols. Deployed machine learning predictive maintenance algorithms for robotic spindle health, cutting unplanned downtime by 25%.
- Maruti Suzuki (Vision-Guided AMR Fleet Integration for High-Speed Logistics): Managed the deployment of an autonomous mobile robot (AMR) fleet utilizing ROS2 and advanced SLAM navigation. Integrated 3D Cognex vision systems for dynamic material handling and synchronized fleet routing with plant SAP ERP systems.
- Bajaj Auto (Industry 5.0 Human-Robot Collaborative Assembly Cells): Commissioned force-compliant Universal Robots (UR10e) cobots for precision 2-wheeler engine assembly. Engineered real-time safety monitoring (ISO 13849) and integrated AI-assisted anomaly detection to enable safe, high-speed human-robot collaboration (HRC).
- Hero MotoCorp (Cyber-Physical Digital Twin & SCM Integration): Developed a comprehensive smart factory ecosystem integrating shop-floor IoT sensors, SCADA, and robotics into a centralized digital twin platform. Integrated operations with SAP ERP and applied Lean Six Sigma principles to optimize supply chain and material flow.

SPECIALIZED AI & ROBOTICS SUB-PROJECTS

- **Autonomous Inspection Robot for High-Voltage Substations:** Designed and developed an autonomous mobile inspection robot with thermal imaging and LiDAR. Implemented SLAM navigation and ML-based anomaly detection.
- **AI-Based Vision-Guided Robotic Bin Picking System:** Developed a 3D vision (Cognex/Keyence) and deep learning-based object recognition pipeline for ABB/FANUC robots. Implemented point cloud processing (PCL) for precision gripping.
- **End-to-End Conveyor SCADA Overhaul:** Led migration of legacy systems to Allen-Bradley Studio 5000. Integrated OPC-UA/MQTT cloud communication for real-time KPI dashboards.

TECHNOLOGICAL ARSENAL

- **Future-Ready Technologies:** AGI Automation Orchestration, Quantum Algorithm integration concepts, Swarm Robotics, Interplanetary Manufacturing frameworks, Edge Generative AI.
- **AI, Robotics & Automation:** Industrial Robot Programming (ABB, FANUC, KUKA, Yaskawa, Delta), AI/ML Integration, 6-Axis/SCARA/Cobots/AMRs, Simulation (RobotStudio, RoboDK, ROBOGUIDE), ROS/ROS2, Kinematics, Motion Planning.
- **PLC, SCADA & Industrial Control Systems:** Siemens TIA Portal, Beckhoff TwinCAT 3, Allen-Bradley Studio 5000, SCADA (Ignition, WinCC), Safety Systems (ISO 13849, SIL & PL).
- **Machine Vision & AI Integration:** Cognex VisionPro, Keyence CV-X/XG, 2D/3D Vision-Guided Robotics, OpenCV, PCL, AI-Based Defect Detection.
- **Programming & Software Development:** Python, C++, MATLAB/Simulink, C#, JavaScript, API Integration, MQTT, Docker, Git, CI/CD Pipelines.
- **Industry 4.0 / 5.0 / 6.0 Technologies:** Smart Factory, IIoT, Edge AI, Generative AI, Cyber-Physical Systems, Predictive Maintenance, Cloud Platforms (Azure IoT, AWS IoT), OT Cybersecurity.

EDUCATION

- **Diploma in Artificial Intelligence and Machine Learning Engineering** | Maharashtra State Board of Technical Education | 88 %
- **Secondary School Certificate (SSC) – 10th Standard** | Maharashtra State Board of Secondary and Higher Secondary Education | 92.60%

GLOBAL ACCREDITATIONS & PROFESSIONAL CERTIFICATIONS

- Certified Functional Safety Engineer (CFSE)
- ROS / ROS2 Developer Nanodegree
- Siemens TIA Portal Advanced – S7-1500 PLC Programming
- ABB Robot Programming – Advanced RAPID
- FANUC Certified Robot Programming & Handling Tool Operation
- KUKA Industrial Robot Programming & System Integration
- Yaskawa Motoman Advanced Robot Programming Certification
- Universal Robots Certified Core & Advanced Training
- Beckhoff TwinCAT 3 Motion Control & Industrial Automation Certification
- Allen-Bradley ControlLogix & Studio 5000 Programming
- Certified OPC-UA Industrial Communication Professional
- Industrial IoT (IIoT) & Smart Manufacturing Professional Certification
- Microsoft Azure IoT Engineer Associate
- AWS Certified Machine Learning & IoT Specialty
- NVIDIA Deep Learning & Edge AI for Robotics
- Cognex VisionPro & Advanced Machine Vision Certification
- Keyence Vision Systems & Industrial Sensor Integration Training
- Certified Digital Twin & Smart Factory Integration Specialist
- Industrial Cybersecurity for OT & SCADA Systems
- AI & Machine Learning for Advanced Manufacturing
- Data Science & Predictive Maintenance for Industry 4.0
- Certified MES & Smart Factory Systems Professional
- Lean Six Sigma Green Belt – Manufacturing & Process Optimization
- Certified Automation Professional (CAP)
- Industrial Digital Transformation & Smart Manufacturing Leadership Program
- Generative AI & Autonomous AI Agents for Manufacturing Systems
- Edge Computing & 5G Smart Factory Integration Certification
- Advanced Robotics Simulation & Digital Commissioning Certification