Ahmad Hassan

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EDUCATION

Northeastern University Boston, MA
Master of Science in Robotics | Fulbright Scholar | CGPA: 4.00/4.00 Sep 2025 – Apr 2027
Coursework: Robot Mechanics and Control, Mobile Robotics, Reinforcement Learning and Sequential Decision Making, Control Systems Engineering

Ghulam Ishaq Khan Institute of Engineering Sciences and Technology Pakistan
Bachelor of Science in Mechanical Engineering | CGPA: 3.79/4.00 Aug 2019 – Jun 2023
Honors: Ghulam Ishaq Khan Gold Medal, Faculty Gold Medal

TECHNICAL SKILLS

Programming: Python, C, C++, MATLAB, JavaScript, HTML, CSS, SQL
AI/ML: PyTorch, TensorFlow, TFLite, Neural Networks, Machine Learning, Deep Learning, Deep Reinforcement Learning, LLMs, RAG, LangChain, Multi-Agent Systems, Fine-Tuning, Transfer Learning, Quantization, NLP, Speech Processing, Computer Vision, OpenCV, Transformers, Data Pipelines
Robotics: SLAM, Motion Planning, Trajectory Generation, State Estimation, Kalman Filters, Kinematics, Dynamics, Feedback Control, Embedded Systems, Sensors, Simulation Environments, Autonomous Systems
Tools: SolidWorks, AWS, Git, Linux, Docker, MongoDB, Object-Oriented Software Design

PROFESSIONAL EXPERIENCE

Smart Forum Pakistan
Project Manager, AI Division Jan 2025 – Aug 2025
- Led agile cross-functional team of 12 (Frontend, Backend, AI, UI/UX, QA, DevOps) including 5 remote members to deliver, deploy, and launch Clear Minds—Pakistan's first AI-powered drug prevention app—on Google Play Store on schedule
- Owned end-to-end product delivery and system integration: dual RAG chatbots with NLP, media hub, admin dashboard, and lesson tracking system; achieved local press coverage and iOS expansion requests post-launch
- Established company's first PM framework, improving cross-team alignment and creating reusable technical and process documentation standards
- Managed stakeholder communication, made data-driven decisions on scope changes, and defended project scope against change requests, preventing estimated 6+ months of timeline slippage

AI Engineer Feb 2024 – Dec 2024
- Awarded Bravo Award (Q4 2024) for outstanding performance
- Architected multi-agent news automation system using CrewAI and Ollama, streamlining end-to-end article generation from research to publish-ready drafts
- Built AI newscaster pipeline with voice cloning and lip-synced video generation; fine-tuned TTS models, troubleshot performance bottlenecks, and optimized frame caching to reduce inference time by 70%
- Engineered personalized news summarization backend application with data pipelines in Python and Flask with MongoDB, cutting user news consumption time by 75%
- Deployed RAG chatbot using LangChain, Llama, and FAISS to automate 85% of routine call center inquiries

Atlas Honda LTD Pakistan
Mechanical Engineering Intern Jul 2022 – Aug 2022
- Devised AI-based OCR system to automate engine number verification against barcodes, saving 1.75M PKR and increasing productivity by 4%
- Designed jig for number punching machine to improve stability; implemented Kaizen methodology for continuous improvement

PROJECTS

DG-SLAM: Dynamic Gaussian Splatting SLAM Evaluation Nov 2025 – Dec 2025
Reproduced NeurIPS 2024 Visual SLAM paper; achieved 1.23 cm trajectory error with YOLOv8 segmentation, outperforming reported 1.6 cm by 23%. *Python, PyTorch, CUDA, YOLOv8*

UR5e Collaborative Robot Kinematics Nov 2025 – Dec 2025
Implemented forward kinematics, trajectory generation, numerical Jacobian, and Newton's method inverse kinematics solver for 6-DOF arm; tracked 400-waypoint trajectory with sub-mm precision. *MATLAB*

Underactuated Robotic Finger Mechanism Sep 2025 – Oct 2025
Designed single-actuator grasping mechanism with cascading four-bar linkages; derived analytical forward kinematics for closed-loop system and validated with 3D-printed prototype. *SolidWorks, MATLAB*

Voice-Controlled Assistive Robotic Arm for Visually Impaired Sep 2022 – May 2023
Developed assistive system enabling visually impaired users to grasp objects via voice commands; trained custom object detection model using transfer learning on SSD MobileNet V2 achieving 83.2% mAP, converted model to TFLite for edge deployment, implemented contour-based rotation angle extraction for gripper alignment, and integrated with 6-DOF Niryo One arm for autonomous pick-and-place. *Python, TensorFlow, TFLite, OpenCV*