

Arman Ahmed Khan

Associate Researcher - Robotics, Artificial Intelligence, and Human-Robot Interaction

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PROFILE

Researcher working where human-robot interaction meets deployed systems. I build the interaction layer for mobile robots - speech, gesture, pointing and person-following - and the navigation, control and perception underneath it. Two peer-reviewed publications; every system below was evaluated on real hardware or real data.

PUBLICATIONS

GESTRO: Skeleton-Based Dynamic Gesture Recognition for Robot Teleoperation 2026

Thorsten Hempel, Magnus Jung, Arman Ahmed Khan, Ayoub Al-Hamadi

[Journal of Intelligent & Robotic Systems](#) · Volume 112 · Article 51

Human-Robot Interaction in Indoor Mobile Robotics: Current State, Interaction Modalities, Applications, and Future Challenges 2026

Arman Ahmed Khan, Kerstin Thurow

[Sensors](#) · Volume 26, Issue 6 · Article 1840

EXPERIENCE

Human-Robot Interaction for Laboratory Automation AUG 2025 — NOW

[Associate Researcher - CELISCA — Center for Life Science Automation, University of Rostock](#)

Building the interaction layer for MOLAR, the Mobile Laboratory Robot — an ASTI ProBot L platform serving laboratory stations across a multi-storey building — as part of the ADAM (Autonomous Development of Advanced Materials) project. Verbal and non-verbal interaction in one interface.

Autonomous Cargo Cycle Remote Control JUN — JUL 2025

[Associate Researcher - Otto von Guericke University Magdeburg — AuRaHBW with AuRaSys](#)

Developed a remote control system with an explicit state machine for a human-following autonomous cargo cycle, implemented in ROS 2 and C++.

Autonomous Mobile Robot for Organic Farming JUN 2024 — MAY 2025

[Associate Researcher - Otto von Guericke University Magdeburg with aimess GmbH](#)

Local planner, control design, kinematics, and EKF-based sensor fusion for an agricultural robot automating soil-sample collection, validated in Gazebo and in field trials.

Automotive Vision & Sensor Acquisition NOV 2023 — APR 2024

[Associate Researcher - Technische Hochschule Ingolstadt](#)

Led PSF estimation and deblurring for automotive camera health monitoring, and designed the hardware triggering and time-synchronisation system for the LiDAR, camera, GPS, and radar sensor vehicle.

Dynamic Hand Gesture Recognition for HRI MAR — OCT 2023

[Master thesis student - Otto von Guericke University Magdeburg](#)

Designed and implemented the gesture recognition and face verification system for the TIAGo robot, tested in Gazebo and RViz and then on the physical platform.

Gesture Recognition Application Development SEP 2022 — SEP 2023

[Working student - Otto von Guericke University Magdeburg](#)

Built the real-time gesture recognition application and GUI that the ROS-based TIAGo robot acts on, including dataset creation and feature engineering.

Path Planning & Nonlinear MPC SEP 2021 — JAN 2022

[Research assistant - Otto von Guericke University Magdeburg](#)

ACADO-based path planning and obstacle avoidance in MATLAB, with a nonlinear model-predictive controller running on the Hamster UGV under OptiTrack motion capture.

Metro Data Centre Interconnectivity FEB — MAY 2018

[Intern - NCR Corporation, Mumbai, India](#)

Field work on a metropolitan data-centre interconnect deployment, covering DWDM, FTTH, GPON, OTN, and SDH transport technologies.

Optical Transport Networks

JUN — JUL 2017

Intern - Alcatel-Lucent Enterprise, Gurgaon, India

Hands-on configuration, testing, and optimisation of DWDM-based optical transport equipment.

SELECTED PROJECTS

MOLAR: Multimodal HRI for a Mobile Laboratory Robot - CELISCA, University of Rostock · ADAM project (2025 — present)

GESTRO: Skeleton-Based Gesture Teleoperation - Otto von Guericke University Magdeburg · TIAGo platform (2022 — 2026)

Remote Control for an Autonomous Cargo Cycle - Otto von Guericke University Magdeburg · AuRaHBW with AuRaSys (2025)

Autonomous Robot for Organic Farming - Otto von Guericke University Magdeburg with aimess GmbH (2024 — 2025)

Automotive Camera Health Monitoring - Technische Hochschule Ingolstadt (2023 — 2024)

Hardware Triggering & Multi-Sensor Time Sync - Technische Hochschule Ingolstadt · research sensor vehicle (2023 — 2024)

Nonlinear MPC Path Following on the Hamster UGV - Otto von Guericke University Magdeburg (2021 — 2022)

Safety Analysis & Assessment of Autonomous Vehicles - Otto von Guericke University Magdeburg · scientific project (2022)

Optical Transport Networks & SDN - G D Goenka University · B.Tech final-year project (2018)

EDUCATION

M.Sc. Electrical Engineering and Information Technology

Otto von Guericke University Magdeburg · 2019–2023, degree awarded 2024 · final grade 1.8 (German scale, 1.0 = best)

Thesis: Deep Learning-Based Approach for Gesture-Based Human-Robot Interaction

B.Tech. Electronics and Communication Engineering

G D Goenka University · 2014–2018 · CGPA 9.34/10, equivalent to 1.3 on the German scale (modified Bavarian formula)

Final-year project: technical report on optical transport networks and SDN

Academic Foundation

State estimation, computer vision, machine learning, nonlinear and optimal control, autonomous mobile robots, FPGA and process control

Selected coursework from the official M.Sc. transcript, plus a minor in finance and international management

TECHNICAL SKILLS

Robotics	ROS / ROS 2 Nav2 MoveIt Gazebo RViz TIAGo OptiTrack
AI & Vision	PyTorch TensorFlow / Keras OpenCV MediaPipe LSTM + attention GANs
Control & Estimation	NMPC ACADO Kalman / EKF MATLAB / Simulink Visual SLAM
Engineering	Python C++ Docker Git Linux Blender CARLA
Sensors & Hardware	LiDAR GPS / IMU Radar Arduino Raspberry Pi FPGA / PLC
Interfaces	CAN Ethernet Serial Bluetooth TCP/IP Wi-Fi

RECOGNITION

2023	Excellence scholarship during the master's thesis - Otto von Guericke University Magdeburg
2019	Gopi Ram Goenka Award at convocation - G D Goenka University
2014–18	Dean's list and merit scholarship, four consecutive years - G D Goenka University
2019	Qualified GATE and JEE Main - National engineering entrance examinations, India

CERTIFICATIONS

2025	Developing Secure Software - LinkedIn Learning	2022	Data Science - Sololearn
2023	ROS for Beginners: Basics, Motion, and OpenCV - Udemy	2022	Python Core - Sololearn
2022	ROS 2 for Beginners - Udemy	2022	C++ - Sololearn
2022	ROS for Beginners - Udemy	2022	C Programming Language - Sololearn
2022	Introduction to Self-Driving Cars - University of Toronto / Coursera	2020	Control Design Onramp with Simulink - MathWorks
2022	Machine Learning - Sololearn	2020	MATLAB Onramp - MathWorks

LANGUAGES

English (fluent) | German (intermediate) | Hindi (mother tongue) | Urdu (fluent)

Contact details available on request or through the profiles above.