

Rohit Menon

Robotics Researcher | Perception, Reasoning and Manipulation

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[Website](#) | [Google Scholar \(242 citations; h-index: 9; i10-index: 9\)](#) | [GitHub](#) | [LinkedIn](#)



Profile

- Robotics researcher in **deep learning, scene graphs, active perception and mobile manipulation**
- Former **Neura Robotics founding engineer and AI group leader**; built MAiRA's perception-manipulation and hard real-time control systems

Professional Experience

Research Associate (Wissenschaftlicher Mitarbeiter)

Feb. 2022–Present

Humanoid Robots Lab, University of Bonn, Germany

- Implemented active perception, scene reasoning and whole-body control for omnidirectional mobile manipulation across **PhenoRob, Lamarr and AID4Crops**; authored six first- or equal-first-author papers
- Mentoring three junior PhD students and managing three student assistants; supervised five MSc theses, yielding **three papers and two thesis awards**; maintaining the **HRL Bonn GitHub organization**
- Managing procurement and integration of robotics hardware exceeding **EUR 100,000**; contributed to the **EUR 400,000 Agriloop proposal**
- Presented robotics through a **WDR Bonn interview, ICRA@40** and **public demonstrations** in Bonn

PhenoRob

- Designed greenhouse-tested NBV planning from Intel RealSense L515 point clouds (**NBV-SC**) and collision-aware multi-arm manipulation (**HortiBot; Dawn-IK**)
- Implemented uncertainty-aware depth and semantic mapping, evaluated on NYUv2 and zero-shot ScanNet (**EvidMTL/EvidKimera**)

Lamarr

- Created open-vocabulary object search using LLM priors, scene geometry and probabilistic scene graphs (**O-STaR**)
- Developing hierarchical reinforcement learning on scene-graph representations for apartment exploration (**HSGC-Explore**, ongoing)

AID4Crops

- Designed graph reasoning for plant-part relations and directional occlusions; first author, IROS 2026 (**SG-DOR**)

Founding Engineer / Group Leader, AI for Manipulation

Nov. 2019–Jan. 2022

Neura Robotics GmbH, Metzingen, Germany

- **Built MAiRA's perception-manipulation architecture** as the first AI engineer, integrating C++/ROS drivers, vision and robot interfaces
- Deployed online AI and ROS applications on mobile GPUs using Docker and Linux system services, integrated with MAiRA's GUI front end
- Re-engineered Xenomai/Orocos RTT control tasks over SOEM EtherCAT, improving **joint-tracking accuracy by 10×**
- Produced investor-facing robot demonstrations for the company's **2020 pre-Series-A fundraising effort**
- Implemented vision-based pick-and-place with **voice control** and built a **robot tic-tac-toe** demonstration
- Built RGB, depth and radar fusion for real-time **human detection and collision avoidance**
- Was promoted to lead **AI for Manipulation** with hiring responsibility; presented MAiRA at **GITEX 2021 (media)**

Researcher, Robot Manipulation and Control

July 2015–Oct. 2019

DFKI Robotics Innovation Centre, Bremen, Germany

- Implemented and deployed **task and motion planning, control, teleoperation and manipulation software** for high-DoF, mobile and humanoid robots
- Built tactile/reactive grasping and supervised an MSc thesis on multimodal slip detection using tactile, force-torque and camera data
- Led **iLEVATOR**, managed approximately **EUR 100,000**, and deployed monocular CAD-template picking and autonomous factory bin handling
- Delivered **NeTTUN** manipulator control and teleoperation plus **Hybr-iT/TransFit** mobile manipulation, unknown-object picking and RH5 arm planning

MSc Thesis Student, Shared Autonomy

June 2014–Feb. 2015

DLR Institute of Robotics and Mechatronics, Oberpfaffenhofen, Germany

- Designed **adaptive shared autonomy** using automatic grasp selection and virtual fixtures while preserving approach control
- Validated the method in **full-dynamics simulation, a user study and on the real robot**; published at ICRA 2016

Engineering and Commissioning / Senior Executive

Sept. 2008–Sept. 2012

Siemens Ltd, Thane, India

- Implemented **drive controls and PLC/HMI software**; commissioned machinery and was **promoted to Senior Executive within two years**
- Supported the sales team in winning multiple automation projects totaling more than **EUR 1 million**

Education

PhD in Computer Science

Feb. 2022–Mar. 2027 (Expected)

University of Bonn, Germany | Advisor: [Prof. Dr. Maren Bennewitz](#)

MSc in Automation and Robotics

Oct. 2012–Mar. 2015

TU Dortmund University, Germany | Grade: 1.2; top 5% of cohort

MSc project: Evolved echo-state-network controllers for mobile-robot navigation using neuroevolution

Bachelor's in Electrical Engineering

Aug. 2004–June 2008

SPCE, University of Mumbai, India | Grade: 76%; silver medal

Skills

AI/ML: Deep learning; graph neural networks; uncertainty estimation; shape completion; reinforcement learning; hierarchical policies; neuroevolution

Perception and reasoning: Scene graphs; active perception; multimodal fusion; 3D semantic mapping; open-vocabulary mobile manipulation

Programming and deployment: C++, Python, MATLAB, PyTorch, PyTorch Geometric; Docker; ML training on HPC

Robotics and simulation: ROS, ROS 2, Isaac Sim, Gazebo, Blender; mobile manipulation; multi-arm systems; whole-body control; shared autonomy

Real-time control and libraries: Xenomai, Orocos RTT, SOEM EtherCAT, OpenCV, PCL, Eigen, NLOpt

Languages: English C2 (TOEFL: 116/120), German B2, Hindi, Malayalam

Selected Awards

Best Poster Award, IROS 2025 Workshop on Perception and Planning for Mobile Manipulation in Changing Environments.

Scholarships: Deutschlandstipendium (2013), Ratan Tata scholarship (2006, 2007).

Industry award: Siemens Excellence in Commissioning trophy (2011).

Selected Publications

1. **Rohit Menon***, Niklas Mueller-Goldingen*, Sicong Pan, Gokul Krishna Chenchani, Maren Bennewitz. “[SG-DOR](#): Learning Scene Graphs with Direction-Conditioned Occlusion Reasoning for Pepper Plants.” *IROS*, 2026
2. **Rohit Menon**, Yasmin Schmiede, Gokul Krishna Chenchani, Hermann Blum, Maren Bennewitz. “[O-STaR](#): Effective Object Search through Spatio-Temporal Reasoning on Dynamic Scene Graphs.” *GRC*, 2026; *ICRA*, 2027, under review
3. **Rohit Menon**, Nils Dengler, Sicong Pan, Gokul Krishna Chenchani, Maren Bennewitz. “[EvidMTL](#): Evidential Multi-Task Learning for Uncertainty-Aware Semantic Surface Mapping.” *IROS*, 2025
4. Christian Lenz*, **Rohit Menon***, Michael Schreiber, Melvin Paul Jacob, Sven Behnke, Maren Bennewitz. “[HortiBot](#): An Adaptive Multi-Arm System for Robotic Horticulture of Sweet Peppers.” *IROS*, 2024
5. Salih Marangoz*, **Rohit Menon***, Nils Dengler, Maren Bennewitz. “[DawnIK](#): Decentralized Collision-Aware Inverse Kinematics for Multi-Arm Systems.” *Humanoids*, 2023
6. **Rohit Menon**, Tobias Zaenker, Nils Dengler, Maren Bennewitz. “[NBV-SC](#): Shape-Completion-Based Next-Best-View Planning for Fruit Mapping.” *IROS*, 2023
7. Jörn Vogel, Katharina Hertkorn, **Rohit U. Menon**, Máximo A. Roa. “[Flexible, Semi-Autonomous Grasping for Assistive Robotics](#).” *ICRA*, 2016

*Equal contribution.