

Dr.-Ing. BABU AJISH

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Robotics expert with over **17 years** of research and development experience, specializing in **intelligent control** systems. **Leads a research team** and multiple high-value **projects** in **robotics and AI**, with a focus on hybrid locomotion and autonomous operations.

WORK EXPERIENCE

- **German Research center for Artificial Intelligence (DFKI), Robotics Innovation Center (RIC) Bremen, Germany**
 - TEAM LEAD | TERRESTRIAL ROBOTICS (Feb. 2023 – Present)**
 - Lead the terrestrial robotics team, managing up to **16 members** including senior researchers and engineers.
 - Responsible for **project acquisition**, securing funding for German national, EU-Horizon, and industrial projects.
 - Spokesperson for the Robotics Institute Germany (RIG) technical cluster on deformable object manipulation.
 - PROJECT LEAD (May 2015 – Jan 2023)**
 - Manage R&D projects in **diverse fields**: underwater ([PRIMA](#)), electromobility ([BEAR](#)), recycling ([SmartRecycling-UP](#)), and decommissioning ([ROBDEKON](#), [ROBDEKON2](#)).
 - RESEARCHER (Dec. 2008 – April 2015)**
 - Develop advanced intelligent control systems for **robot locomotion** ([Asguard V3](#), [SherpaTT](#) and [ARTER](#))
 - Execute **multidisciplinary** projects for space ([iMoby](#), [TransGo](#), [TransTerrA](#)), mobility ([CERMcity](#), [DaBrEM](#)), and decontamination applications.

EDUCATION

- DOCTOR OF ENGINEERING (Dr.-Ing.) | University of Bremen (Feb. 2018 – Aug. 2025)**
 - Doctorate at the Department of Mathematics and Computer Science (FB3)
 - Topic: **Control of Robots with Hybrid Locomotion Capabilities**. Grade: **Magna cum laude**
- MASTER OF SCIENCE (M.Sc.) | Hamburg University of Technology (Oct. 2004 – Sep. 2008)**
 - Major: **Mechatronics** with the specialization robotics and control. Grade: **Good (1.8)**
- BACHELOR OF ENGINEERING (B.E.) | Kongu Engineering College, India (Sep. 1999 – June 2003)**
 - Major: **Mechatronics**. Grade: **First class with honors (86.75%)**

TECHNICAL SKILLS

Languages	C++, Python, Ruby
Middleware	ROS, ROS2, ROCK (Orocos)
Simulations/CAD	Gazebo, PyBullet, Mars , Isaac Sim, SolidWorks (Basic)
AI and RL	PyTorch, Stable Baselines3
DevOps & OS	Git, Docker, Linux (Ubuntu)

LANGUAGES

- English: C2 | German: B2 | Malayalam: Native | Tamil: Conversational.

SELECTED PUBLICATIONS

1. Babu, A., & Kirchner, F. (2025). **Stepping Locomotion for a Walking Excavator Robot using Hierarchical Reinforcement Learning and Action Masking**. *2025 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 4917–4923. <https://doi.org/10.1109/IROS60139.2025.11247348>
2. Babu, A., Willenbrock, P., Tiemann, J., Bernhard, F., & Kuehn, D. (2024). **ARTER: a walking excavator robot**. In S. Kumar, A. Mueller, & F. Kirchner (Eds.), *Biologically Inspired Series-Parallel Hybrid Robots* (1. Auflage, Vol. 514, pp. 235–261). Elsevier Science.
3. Babu, A., Danter, L. C., Willenbrock, P., Natarajan, S., Kuehn, D., & Kirchner, F. (2022). **ARTER: a walking excavator robot for autonomous and remote operations**. *At - Automatisierungstechnik*, 70(10), 876–887. <https://doi.org/10.1515/auto-2022-0056>
4. Babu, A., & Kirchner, F. (2021). **Terrain Adaption Controller for a Walking Excavator Robot using Deep Reinforcement Learning**. *2021 20th International Conference on Advanced Robotics (ICAR)*. *International Conference On Advanced Robotics (ICAR-2021)*, December 7-10, Ljubljana, Slovenia, 64–70. <https://doi.org/10.1109/ICAR53236.2021.9659399>
5. Babu, A., Yurtdas, K. Y., Koch, C. E. S., & Yüksel, M. (2019, May). **Trajectory Following using Nonlinear Model Predictive Control and 3D Point-Cloud-based Localization for Autonomous Driving**. *2019 European Conference on Mobile Robots (ECMR)*. *European Conference on Mobile Robots (ECMR-2019)*, September 4-6, Prague, Czech Republic.

Bremen, 01.01.2026



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