Benjamin Alt

Innovator and Leader in Robot Intelligence Research

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Experience

AICOR Solutions
Bremen, Germany

Co-Founder and Chief Scientific Officer *Apr 2025 - Present*

- Co-develop architecture for safe, traceable, auditable cognitive architectures for robot AI systems
- Project coordinator for RA-FETCH (EU): Safe robots in hospitals

AICOR Institute for Artificial Intelligence, University of Bremen
Bremen, Germany

Technical Director *Apr 2025 - Apr 2026*

- Directed development of open-source AI infrastructure for safe, interpretable robot systems
- PI on 2 funded research projects on hybrid AI methods for safe embodied intelligence
- Managed technology transfer through spin-off and industrial partnerships
- Acquired third-party funding for research and technology transfer (300k€)

ArtiMinds Robotics
Karlsruhe, Germany

Senior Team Lead Research *Oct 2024 - Mar 2025*

- Set and owned the research agenda for machine learning and AI across 8 concurrent projects
- Managed a team of 7 ML researchers: direction-setting, task allocation, hiring, and performance evaluation
- Led 8 publicly funded research projects (>1.6M €), coordinating deliverables with government agencies and industry partners
- Established research partnerships with >20 academic institutions and >15 industry partners

Senior Research Scientist *Jan 2023 - Sep 2024*

- Designed and evaluated neurosymbolic (interpretable) AI methods for robot programming, including LLM fine-tuning and knowledge-driven program synthesis (8 papers)
- Acquired and led 5 publicly funded research projects (>1.4M €)
- Mentored 14 graduate and undergraduate students

Research Scientist *Oct 2019 - Dec 2022*

- Designed, implemented and patented a neurosymbolic (interpretable) AI system for robot programming (1 patent, 5 papers)
- Acquired and led 6 publicly funded research projects (>1.5M €)
- Mentored 16 graduate and undergraduate students

Education

University of Bremen
Bremen, Germany

Ph.D. Computer Science *magna cum laude* *2020 - 2025*

- Dissertation: *Neurosymbolic Robot Programming - A Framework for AI-Enabled Programming of Robot Manipulation Tasks*
- Advisor: Prof. Michael Beetz, AICOR Institute for Artificial Intelligence

Karlsruhe Institute of Technology
Karlsruhe, Germany

M.Sc. Computer Science *with distinction* *2017 – 2019*

- Thesis: *Automatic Parameterization of Robot Programs via Learning of Neural Program Representations*
- Merit scholarship of the German Acad. Scholarship Foundation (Studienstiftung des deutschen Volkes)

B.Sc. Computer Science *2015 – 2017*

- Thesis: *Machine Learning for Pose Optimization: An Integrated Framework for the Development and Monitoring of Adaptive Robot Programs*

Institut d'Études Politiques de Paris
Reims, France

B.A. Political Science *summa cum laude* *2012 – 2015*

Selected Publications

- B. Alt, C. Kienle, D. Katic, R. Jäkel, and M. Beetz, “Shadow Program Inversion with Differentiable Planning: A Framework for Unified Robot Program Parameter and Trajectory Optimization”, in *2025 IEEE International Conference on Robotics and Automation (ICRA)*, IEEE, 2025. DOI: 10.48550/arXiv.2409.08678
- B. Alt et al., “Domain-Specific Fine-Tuning of Large Language Models for Interactive Robot Programming”, in *European Robotics Forum 2024*, C. Secchi and L. Marconi, Eds., vol. 32, Springer Nature Switzerland, 2024, pp. 274–279. DOI: 10.1007/978-3-031-76424-0_49
- B. Alt et al., “RoboGrind: Intuitive and Interactive Surface Treatment with Industrial Robots”, in *2024 IEEE International Conference on Robotics and Automation (ICRA)*, IEEE, 2024, pp. 1–8. DOI: 10.1109/ICRA57147.2024.10611143
- B. Alt, F. K. Kenfack, A. Haidu, D. Katic, R. Jäkel, and M. Beetz, “Knowledge-Driven Robot Program Synthesis from Human VR Demonstrations”, in *Proceedings of the 20th International Conference on Principles of Knowledge Representation and Reasoning*, IJCAI, 2023, pp. 34–43. DOI: 10.24963/kr.2023/4
- B. Alt, D. Katic, R. Jäkel, A. K. Bozcuoglu, and M. Beetz, “Robot Program Parameter Inference via Differentiable Shadow Program Inversion”, in *2021 IEEE International Conference on Robotics and Automation (ICRA)*, IEEE, 2021, pp. 4672–4678. DOI: 10.1109/ICRA48506.2021.9561206

Full list of publications: benjaminalt.github.io/publications

Skills

Research management	Grant acquisition (>5M€), research agenda ownership, stakeholder communication (government, industry, academia), technology transfer, strategic planning
Leadership	Team leadership (up to 7 direct reports), mentoring, talent acquisition
Machine learning	Deep learning, imitation learning, LLM fine-tuning, differentiable programming, model-based optimization, neurosymbolic learning, interpretable AI
Robotics	Task and motion planning, 3D visual perception, robot programming, human-robot interaction
Programming languages	Python (10 years professional experience), C++ (3 years)
Development tools	Claude Code/Cowork, Git/GitHub, DVC, Jira
Frameworks	PyTorch, NumPy, Open3D, MoveIt, ROS2

Karlsruhe, October 4, 2026

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