Curriculum Vitae

http://markusknauer.github.io

Personal information

Name:	**Markus W. Knauer**
Birthday:	23.10.1993 in Marktoberdorf
Nationality:	German

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Education

Since 11/2020	Doctoral candidate/**Ph.D.** (Dr. rer. nat.) in **Computer Science**, Major: **Machine Learning**, Artificial Intelligence, TUM School of Computation, Information and Technology (CIT), Technical University of Munich (**TUM**), Germany with Prof. Dr.-Ing. Alin Albu-Schäffer.
10/2018 – 09/2020	**Master** of Science in Computer Science, Kempten University of Applied Sciences. Major: Data Science, Germany. Best in class, GPA 4.0.
02/2018 – 07/2018	**Semester abroad**, Diploma, University of the Sunshine Coast (USC), Australia. Major: Data Science, IT, International Business
10/2014 – 07/2018	**Bachelor** of Science in Information Systems, Kempten University of Applied Sciences, Germany. Best in class, GPA 4.0.

Awards and honours

5x "Deutschlandstipendium" a **Scholarship** for high-performing and socially committed students. Issued by the Federal republic of Germany year by year (2015-2020).

2x Best-in-class award (Bachelor and Master). Issued by Kempten University, 2018 & 2020.

Best-in-class award for **A-level** (issued by Highschool, 2014) and **"Industrial clerk"-apprenticeship** (issued by the German Chamber of Commerce and Industry, 2014).

Student supervision

Technical University of Munich	2 master theses, 1 master semester theses, 2 master students in practical course with DLR
Kempten University	Tutoring about 100 bachelor- and 40 master students

Summer schools

08/2025	OxML Oxford Machine Learning Summer School, University of Oxford, UK.
07/2025	Cambridge **Ellis** Unit Summer School on Probabilistic Machine Learning, University of Cambridge, UK.

Work experiences

since 11/2020	**Research Scientist,** German Aerospace Center (DLR), Institute of Robotics and Mechatronics, Department: Cognitive Robotics, Oberpfaffenhofen, Germany. Topics: **Interactive, Incremental Robot Skill Learning and Adaptation** using Machine Learning and **Foundational** Models. 2023-2025: **PhD Speaker** for the whole Institute.
since 10/2024	**Teaching Assistant** for **Machine Learning in Robotics**, CIT, Technical University of Munich (TUM), Germany.
11/2019 – 08/2020	**Working student**, German Aerospace Center (DLR), Institute of Robotics and Mechatronics, Department: Perception and Cognition, Oberpfaffenhofen. Germany. Topics: Deep Learning, Neural network architectures, Computer vision, Online Learning. Co-Developer of **Blenderproc**
08/2017 – 01/2018	Working Student, Industrie 4.0, Robert Bosch GmbH, Germany.
09/2016 – 02/2017	Working Student, IT-Project Management Endress+Hauser Wetzer GmbH + Co. KG, Nesselwang, Germany.
09/2011 – 09/2014	Industrial clerk: HR, Accounting, Information Systems at Sensor-Technik Wiedemann GmbH, Kaufbeuren, Germany.

Publications

2026 [last stage of review at a journal]: **Knauer, M.,** Bustamente, S., Eiband, T. Albu-Schäffer, A., Stulp, F., Silvério, J. "Combining Foundation Models with Probabilistic Machine Learning and applying it on a real robot (title changed because of double-blind process)"

2025 **Knauer, M.,** Albu-Schäffer, A., Stulp, F., Silvério, J. "Interactive incremental learning of generalizable skills with local trajectory modulation", in *IEEE Robotics and Automation Letters (**RA-L**), vol. 10, no. 4, pp. 3398-3405, April 2025, (also in 2024 **CoRL** Workshops)* https://doi.org/10.1109/LRA.2025.3542209

2025 Bustamante, S., **Knauer, M.,** Thun, J., Schneyer, S., Albu-Schäffer, A., Weber, B., Stulp, F. "Grounding Embodied Question-Answering with State Summaries from Existing Robot Modules" in *2025 IEEE International Conference on Robotics and Automation (**ICRA**), (also in 2024 **RSS** Workshops)* https://doi.org/10.1109/ICRA55743.2025.11127843

2024 Ding, J., Kessler, I., Perzylo, A., **Knauer, M.,** et. 8 al. „Intuitive Instruction of Robot Systems: Semantic Integration of Standardized Skill Interfaces*" in 2024 IEEE International Conference on Industrial Informatics (**INDIN**),* https://doi.org/10.1109/INDIN58382.2024.10774421

2024 Fiorini, E., **Knauer, M.,** Silvério, J. „Human-intention-aware skill modulation using energy tanks for collaborative tasks" *in 2024 Conference on Robot Learning (**CoRL**) Workshops*. https://openreview.net/pdf?id=3CUwlNKW36

2023 Denninger, M., Winkelbauer, D., Sundermeyer, M., Boerdijk, W., **Knauer, M.,** Strobl, K., Humt, M., Triebel, R. „Blenderproc2: A procedural pipeline for photorealistic rendering" *in 2023 Journal of Open Source Software (**JOSS**).* https://joss.theoj.org/papers/10.21105/joss.04901

2022 **Knauer, M.,** Denninger, M., Triebel, R. „Recall: Rehearsal-free continual learning for object classification" *in 2022 IEEE/RSJ International Conference on Intelligent Robots and Systems (**IROS**).* https://doi.org/10.1109/IROS47612.2022.9981968

2022 **Knauer, M.,** Denninger, M., Triebel, R., „HOWS-CL-25: Household Objects Within Simulation Dataset for Continual Learning" *Zenodo.* https://doi.org/10.5281/zenodo.7189434

2020 Denninger, M., Sundermeyer, M., Winkelbauer, D., Olefir, D., Hodan, T., Zidan Y., Elbadrawy, M., **Knauer, M.,** Katam, H., Lodhi, A. "BlenderProc: Reducing the Reality Gap with Photorealistic Rendering*" in 2020 Robotics: Science and Systems (**RSS**) Workshops.* https://elib.dlr.de/139317/

11.02.2026, Markus Knauer