

LARA BRUDERMÜLLER

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EDUCATION

University of Oxford, Oxford Robotics Institute 2021 – 2024 (expected)

Doctor of Philosophy (Robotics, Artificial Intelligence, Machine Learning, Optimization)

Advised by Prof. Nick Hawes, Goal-Oriented Long-Lived Systems (GOALS) Group

Thesis: “Towards Safe and Efficient Physical Human-Robot Interaction”

Technical University Munich & 2018-2020

Ecole Polytechnique Fédérale de Lausanne

Master of Science in Robotics, Cognition, Intelligence

Master Thesis: “People Detection in Close-Proximity for Robot Navigation in Crowds based on 3D LiDAR Data”,

advised by Prof. Aude Billard, Learning Algorithms & Systems Lab (LASA)

Technical University Munich 2015-2018

Bachelor of Science in Management & Technology

Specialization in Electrical Engineering and Information Technology

Bachelor Thesis: “Development of a Pipeline for Object Surface Classification Using Multimodal Feature”, advised by Prof. Eckehard Steinbach, Chair of Media Technology.

PROFESSIONAL EXPERIENCE

Robot Learning & Interaction Group, Idiap Research Institute Mar. 2021 – Jul. 2021

Research Scientist Intern

Martigny, Switzerland

Worked in the “Memory of Motion” project within the H2020 program. Goal: real-time computation of complex movements for robots in multi-contact scenarios in unstructured environments. Supervised by Dr. Sylvain Calinon.

Magazino GmbH Sept. 2017 – Jul. 2019

Software Engineer

Munich, Germany

Worked on the team for „Software Architecture Data“ besides studies. Responsibilities included the design and implementation of a new library allowing to efficiently query 3D and semantic representations of the logistic environment the robots operate in, database optimization and modelling as well as simulation and data analytics.

PUBLICATIONS

VP-STO: Via-point-based Stochastic Trajectory Optimization for Reactive Robot Behavior.

arXiv preprint arXiv:2210.04067, 2022

J. Jankowski*, **L. Brudermüller***, N. Hawes, S. Calinon (* authors contributed equally)

Trajectory Prediction with Compressed 3D Environment Representation using Tensor Train Decomposition.

International Conference on Advanced Robotics (ICAR), 2021

L. Brudermüller, T. Lembono, S. Shetty, S. Calinon

Haptic material analysis and classification inspired by human exploratory procedures.

IEEE Transactions on Haptics, 2019

M. Strese, **L. Brudermüller**, J. Kirsch, E. Steinbach

SKILLS

Areas of expertise: Task and Motion Planning, Control, Markov Decision Processes

Programming languages: Python, C++, C, Matlab

Other computer skills: PyTorch, Tensorflow, NumPy, Git, Linux, ROS, L^AT_EX

Languages: German (Native), English (Fluent), French (Fluent)