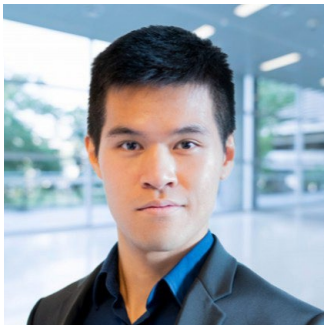

Linh Kastner

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Education

PhD, Robotics, Technische Universität Berlin, Germany, 2018-2022

Master of Science, Electrical Engineering, Technische Universität Berlin, Germany, 2017-2018

Bachelor of Science, Electrical Engineering, Technische Universität Berlin, Germany, 2014-2017

Academic Appointments

Postdoctoral Researcher, National University of Singapore (NUS)
Dec 2023 –Dec 2025

Postdoctoral Researcher, Technical University Berlin
Jan 2023 – Dec 2023

Other Positions Held

Research Assistant, Fraunhofer FOKUS & HHI Berlin
Mar 2018 – Nov 2018
Research Assistant, Corning Research Center Berlin
Mar 2017 – Mar 2018

Awards and Honors

Best Paper Finalist, IROS 2021

RESEARCH

Research Interests

- Embodied AI
- Social robot navigation
- Simulation, benchmarking, world modeling
- Generative AI (diffusion, LLM-based environment generation)

Publications

Conference Proceedings

Arena-Bench 2.0: A Comprehensive Benchmark of Social Navigation Approaches in Collaborative Environments.
L. Kästner, V. Shcherbyna, H. Zeng, E. Wiese, et al.
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Hangzhou, China, 2025.

Arena 5.0: A Photorealistic ROS2 Simulation Framework for Developing and Benchmarking Social Navigation.
L. Kästner, V. Shcherbyna, H. Zeng, M. H. K. Schreeff, H. Soh, et al.
Robotics: Science and Systems (RSS), Los Angeles, USA, 2025.

Arena 4.0: A Comprehensive ROS2 Development and Benchmarking Platform for Human-centric Navigation Using Generative-Model-based Environment Generation.
L. Kästner, V. Shcherbyna, M. H. K. Schreeff, H. Zeng, H. Soh, et al.
IEEE International Conference on Robotics and Automation (ICRA), Atlanta, USA, 2025.

HabitatDyn 2.0: Dataset for Spatial Anticipation and Dynamic Object Localization.
Z. Shen, L. Kästner, Y. Gao, J. Lambrecht.
IEEE International Conference on Robotics and Automation (ICRA), Yokohama, Japan, 2024.

Arena 3.0: Advancing Social Navigation in Collaborative and Highly Dynamic Environments.
L. Kästner, V. Shcherbyna, J. Lambrecht, H. Zeng, M. H. K. Schreeff, H. Soh, et al.
Robotics: Science and Systems (RSS), Delft, Netherlands, 2024.

Arena-Rosnav 2.0: A Development and Benchmarking Platform for Robot Navigation in Highly Dynamic Environments.
L. Kästner, R. Carstens, H. Zeng, V. Shcherbyna, J. Lambrecht, et al.
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Detroit, USA, 2023.

Arena-Web: A Web-based Development Platform for Autonomous Navigation Approaches.
L. Kästner, V. Shcherbyna, T. A. Le, S. Lee, J. Lambrecht, et al.
Robotics: Science and Systems (RSS), Daegu, Korea, 2023.

Arena-Bench: A Benchmarking Suite for Obstacle Avoidance Approaches in Highly Dynamic Environments.
L. Kästner, T. A. Le, J. Lambrecht, et al.
IEEE Robotics and Automation Letters (RA-L) + IROS, Kyoto, Japan, 2022.

All-in-One: A DRL-based Control Switch Combining State-of-the-Art Navigation Planners.
L. Kästner, J. Cox, T. Buiyan, J. Lambrecht.
IEEE International Conference on Robotics and Automation (ICRA), Philadelphia, USA, 2022.

Human-Following and -Guiding in Crowded Environments using Semantic Deep-Reinforcement Learning for Mobile Service Robots.
L. Kästner, T. A. Le, Z. Shen, D. Gawrisch, J. Lambrecht.
IEEE International Conference on Robotics and Automation (ICRA), Philadelphia, USA, 2022.

Arena-Rosnav: Towards Deployment of Deep-Reinforcement-Learning-Based Planning into Conventional

Autonomous Navigation Systems.
L. Kästner, T. Buiyan, L. Jiao, Z. Shen, T. A. Le, J. Lambrecht.
IROS, Prague, Czech Republic, 2021.

Connecting Deep-Reinforcement-Learning-based Obstacle Avoidance with Conventional Global Planners using Waypoint Generators.
L. Kästner, X. Zhao, L. Jiao, Z. Shen, J. Lambrecht.
IROS, Prague, Czech Republic, 2021.

Spatial Imagination With Semantic Cognition for Mobile Robots.
Z. Shen, L. Kästner, J. Lambrecht.
IROS, Prague, Czech Republic, 2021.

A 3D-Deep-Learning-based Augmented Reality Calibration Method for Robotic Environments using Depth Sensor Data.
L. Kästner, V. C. Frasineanu, J. Lambrecht.
IEEE International Conference on Robotics and Automation (ICRA), Paris, France, 2020.

Research Grants

Germany

Siemens Energy Contract Research Grant – Tech Lead
35,000 EUR, 2019
Deep-learning-based anomaly detection for industrial robots in wind turbine inspection.

IC4F Arena 2036 Grant – Tech Lead, BOSCH Demonstrator
80,000 EUR, 2019–2020
Deep-learning-based obstacle tracking for AGVs.

KIEZ AI Grant – Main PI
60,000 EUR, 2023
Generative models for robotic world models.

Singapore

DeGAP Startup Grant – Co-PI, Arena-Gen
50,000 SGD, 2024
Generative models for 3D environment synthesis and data generation for social navigation.

Tier 1 Research Grant – Senior Research Fellow
100,000 SGD, 2025–
Generative models for realistic crowd modeling and simulation.

TEACHING

Teaching Areas

- Machine Learning
- Deep Learning
- Introduction into Robotics

- Autonmous systems
- Deep reinforcement learning
- Simulation, benchmarking, and evaluation for robotics
- Applied machine learning for control and perception

Courses Taught

Technical University Berlin

Industrial Distributed Control Systems (9 CP) – TU Berlin, Germany
Apr 2019 – Present

Research Project Intelligent Robotic Systems (12 CP) – TU Berlin, Germany
Dec 2018 – Present

Autonomous Agents and Machine Learning (9 CP) – TU Berlin, Germany
Apr 2022 – Present

Advanced Robotics (9 CP) – Turkish German University (TAU), Istanbul, Turkey
2023-2025

THESES AND DISSERTATIONS

Theses and Dissertations Supervised

(Selection)

Vlad Catalin Frasineanu
MA Thesis: 3D Localization Methods for Augmented-Reality-based Robotics (2019).

Tuan Anh Le
BA and MA Theses & Projects: DRL-based navigation in highly dynamic environments (2020–2024).

Maximilian Ho Kyuong Schreeff
BA Thesis and Project: Photorealistic training of DRL-based social navigation in Isaac Gym (2021–2023).

Yassin Kaddar
MA Thesis: Video-based AI corridor for model-free detection (joint with BOSCH) (2021).

Elias Treis
BA and MA Theses & Projects: Development of benchmarking frameworks for social navigation (2021–2023).

Volodymyr Shcherbyna
BA, MA, and PhD Theses & Projects: Generative models for gradual environment synthesis (2021–2025).

Magdalena Yordanova
MA Thesis & Project: 2D imagination using semantic cognition for autonomous navigation (2022).

Anh Thu Nguyen
MA Thesis: Data fusion using deep learning for mobile robot localization (joint with ETH Zurich) (2022).

Yifan Hu
MA Thesis: Data generation pipeline for self-supervised learning for industrial robots (2022–2023).

Huajian Zheng
BA Thesis and Project: Optimization of 2D simulators for deep-reinforcement learning training (2023–2025).

EXTERNAL SERVICE – PROFESSIONAL

Associate Editor, IEEE International Conference on Robotics and Automation (ICRA)

Program Committee IEEE International Conference on Robotic Computing (IRC)

Reviewer for Conferences and Journals including IROS, ICRA, RSS, RA-L, IJRR

Main Organizer, Workshop on Social Navigation – ICRA 2025, ICRA 2026

Invited Speaker, Workshop on GenAI for HRI – RSS 2025

Invited Speaker, Miraikan Research Talks – Miraikan 2025

Invited Speaker, BASF Research Talks – BASF 2023