AHMED AGHA

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RESEARCH INTERESTS

Robot Learning, Reinforcement Learning, World Models, Active Perception, 3D Vision

EDUCATION

Northeastern University, US **Jan 2025**

PhD Computer Science

Focus: Robot Learning Under Partial Observability, Model-based Reinforcement Learning, World Models

Current grade: 3.9 (US scale)

TU Munich, Germany **Apr 2018 — Dec 2021**

Master of Science in Robotics, Cognition, Intelligence

Thesis Topic: Improved Trust Regions for Adversarial Imitation Learning Algorithms.

Grade: 1.5 (German scale)

Karlsruhe Institute of Technology, Germany **Sept 2014 — Mar 2018**

Bachelor of Science in Mechanical Engineering

Thesis Topic: Trajectory Planning for an Omnidirectional Vehicle to Optimize the Sensor Usage Eciency.

Teaching Assistant – Engineering Mechanics II, Summer 2017

Teaching Assistant – Introduction to Control Theory, Fall 2018

Grade: 2.0 (German scale)

PUBLICATIONS

Accelerating Model-based Reinforcement Learning Using Equivariance

Ahmed Agha, Haojie Huang, Dian Wang, Christopher Amato, Robert Platt

Under Review 2025

Exploring Under Constraints with Model-based Actor Critic and Safety Filters.

Ahmed Agha, Baris Kayalibay, Atanas Mirchev, Patrick van der Smagt, Justin Bayer

CoRL 2024, poster

PRISM: Probabilistic Real-Time Inference in Spatial World Models.

Atanas Mirchev, Baris Kayalibay, **Ahmed Agha**, Patrick van der Smagt, Daniel Cremers, Justin Bayer

CoRL 2022, oral

Filter-Aware Model Predictive Control

Baris Kayalibay, Atanas Mirchev, **Ahmed Agha**, Patrick van der Smagt, Justin Bayer

L4DC 2023, poster

ACADEMIC SERVICES

Reviewer

ICLR'25, IROS'25, RLC'25, AAAI'26, ICLR'26, ICRA'26, AAMAS'26

PROFESSIONAL EXPERIENCE

Research Assistant, Volkswagen Group **Feb 2022 — Dec 2024**

Munich, Germany

Safe Reinforcement Learning. Worked on model-based and safe reinforcement learning.

Intern, Zeiss Group **Mar 2021 — Nov 2021**

Munich, Germany

3D Computer vision. Worked on leveraging deep learning models to create 3D head models from camera images.

Research Intern, Mercedes-Benz Group **Sept 2019 — Mar 2020**

Stuttgart, Germany

3D Computer vision. Developing a concept for a network architecture for domain transfer of 3D LiDAR data. Implemented multiple generative models using TensorFlow. Developing an evaluation metric for domain-adapted data with a focus on downstream perception tasks. Extensive qualitative and quantitative evaluation of the results of the neural networks developed during the internship.

Intern, Siemens Group **Mar 2019 — Jul 2019**

Munich, Germany

Computer Vision: Implementing anomaly detection for parts using deep learning

Bachelor Thesis, FZI Research Center for Information Technology **Oct 2017 — Apr 2018**

Karlsruhe, Germany

Thesis Topic: Adapting Trajectory Planning for Omnidirectional Vehicles to Optimize the Sensor Usage.

Student Research Assistant, Karlsruhe Institute of Technology **Mar 2017 — Sept 2017**

Karlsruhe, Germany

Engineering Mechanics. Modeling balance in electrical motors using engineering mechanics models in Maple and MATLAB.

Intern, Schaeffler Group **Mar 2016 — Mar 2017**

Karlsruhe, Germany

Manufacturing. Performing and documenting process analysis of the heat treatment facility for clutch manufacturing.

LINKS

Linkedin, Google Scholar, Website