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EDUCATION

TU DARMSTADT

PHD STUDENT & RESEARCH ASST.

Oct 2021 - today | Intelligent Autonomous Systems & hessian.AI
Research on Robot Reinforcement Learning, Superv. Prof. Jan Peters

M.Sc. WIRTSCHAFTSINFORMATIK

Apr 2017 - Jul 2021 | final grade 1.3

B.Sc. WIRTSCHAFTSINFORMATIK

Oct 2013 - Apr 2017 | final grade 2.0

KTH SWEDEN & AALTO

E4T ENTREPRENEURSHIP COURSE

Jul-Sep 2020 | Summer School

FRIEDRICH DESSAUER GYMNASIUM

ABITUR | MATHS & CS

2011-2013 | Frankfurt, DE

MILES MACDONELL COLLEGIATE

HIGHSCHOOL YEAR ABROAD

2010-2011 | Winnipeg, CA

ACHIEVEMENTS

SPOTLIGHT PAPER

2024 ICLR CrossQ [9]
2025 ICRA Safe-VLM Workshop [6]

AI NEWCOMER 2023 SHORTLIST

Gesellschaft für Informatik e.V.

BEST SYSTEM PAPER AWARD

2020 CoRL SMARTS [18]

2ND PLACE E4T OLYMPICS

2020 | E4T Entrepreneurship Course

BEST 3% IN RL LECTURES

2019 | Certified by Prof. Jan Peters
Within top 3% of 188 participants in Prof. Jan Peters' 3 RL research courses and published a book chapter [17].

EXPERIENCE

TU DARMSTADT & HESSIAN.AI | PHD RESEARCHER, ROBOT REINFORCEMENT LEARNING

Oct 2021 - today | Darmstadt, DE

- Research on algorithms for robot reinforcement learning. • Student supervision (*refer to second page for detailed project list*).
- Built up the IAS Compute Cluster at TU Darmstadt and maintenance (>530k € hardware investment, >100 NVIDIA GPUs, >1200 CPUs, >100TB storage, 26 compute nodes, slurm, >100 users).

HUAWEI | RESEARCH INTERN, REINFORCEMENT LEARNING

Nov 2019 - May 2020 | London, UK

- Designed and implemented a novel, safe, model-based RL algorithm with active exploration - SAMBA [16]. Superv. Haitham Bou Ammar. • Implemented Safe-RL features as part of SMARTS [18].

BOSCH CENTER FOR ARTIFICIAL INTELLIGENCE | RESEARCH INTERN, REINFORCEMENT LEARNING

May 2019 - Oct 2019 | Renningen, DE

- Studied the optimization procedure in DD-OPG (arXiv:1905.05710) to improve efficiency and robustness and studied applicability of MCMC.
- Fully refactored DD-OPG TensorFlow research code for open sourcing.

PUBLICATIONS

* joint first author

- [1] N. Bohliger, J. Kinzel, **D. Palenicek**, et al. Gait in Eight: Efficient On-Robot Learning for Omnidirectional Quadruped Locomotion. In *IROS*, 2025.
- [2] O. Celik, Z. Li, D. Blessing, G. Li, **D. Palenicek**, J. Peters, G. Chalvatzaki, and G. Neumann. Diffusion-Based Maximum Entropy RL. In *ICML*, 2025.
- [3] **D. Palenicek** et al. Scaling Off-Policy Reinforcement Learning with Batch and Weight Normalization. In *NeurIPS*, 2025.
- [4] **D. Palenicek** et al. Scaling CrossQ with Weight Normalization. In *RLDM*, 2025.
- [5] **D. Palenicek***, C. F. Scherer*, M. Tölle*, T. Gruner*, T. Schneider*, et al. AllMAN: A German Vision-Language-Action Model. In *GRC*, 2025.
- [6] **D. Palenicek***, M. Toelle*, T. Gruner*, et al. Towards Safe Robot Foundation Models Using Inductive Biases. In *ICRA Safe-VLM Workshop (Spotlight) & GRC*, 2025.
- [7] J. Lenz, I. Pfenning, T. Gruner, **D. Palenicek**, T. Schneider, and J. Peters. Exploring the Role of Vision and Touch in Reinforcement Learning for Dexterous Insertion Tasks. In *RLDM*, 2025.
- [8] T. Vincent, **D. Palenicek**, et al. Iterated Q-Network: Beyond One-Step Bellman Updates in Deep Reinforcement Learning. In *TMLR*, 2025.
- [9] **D. Palenicek***, A. Bhatt*, B. Belousov, M. Argus, A. Amiranashvili, T. Brox, and J. Peters. CrossQ: Batch Normalization in Deep Reinforcement Learning for Greater Sample Efficiency and Simplicity. In *ICLR (Spotlight)*, 2024.
- [10] **D. Palenicek***, T. Gruner*, T. Schneider*, A. Böhm*, J. Lenz*, I. Pfenning*, et al. Learning Tactile Insertion in the Real World. In *ICRA ViTac Workshop & ICRA@40*, 2024.
- [11] J. Lenz, T. Gruner, **D. Palenicek**, T. Schneider, et al. Analysing the Interplay of Vision and Touch for Dexterous Insertion Tasks. In *CoRL 2024 Workshop on Learning Robot Fine and Dexterous Manipulation: Perception and Control*, 2024.
- [12] C. E. Mower, ..., **D. Palenicek**, et al. ROS-LLM: A ROS framework for embodied AI with task feedback and structured reasoning. *arXiv:2406.19741*, 2024.
- [13] **D. Palenicek**, M. Lutter, J. Carvalho, and J. Peters. Diminishing Return of Value Expansion Methods in Model-Based Reinforcement Learning. In *ICLR*, 2023.
- [14] T. Gruner, B. Belousov, F. Muratore, **D. Palenicek**, and J. Peters. Pseudo-Likelihood Inference. In *NeurIPS*, 2023.
- [15] **D. Palenicek** et al. Revisiting Model-based Value Expansion. In *RLDM*, 2022.
- [16] **D. Palenicek***, A. I. Cowen-Rivers*, V. Moens*, et al. SAMBA: Safe Model-Based & Active Reinforcement Learning. *Machine Learning*, 2022.
- [17] **D. Palenicek**. *A Survey on Constraining Policy Updates Using the KL Divergence*. In *Reinforcement Learning Algorithms: Analysis and Applications*. Springer International Publishing, 2021, pages 49–57.
- [18] M. Zhou, ..., **D. Palenicek**, et al. SMARTS: Scalable Multi-Agent Reinforcement Learning Training School for Autonomous Driving. In *CoRL (Best Sys. Paper)*, 2020.

EKTOSYM | CLOUD PROJECTS AND SERVICE DEVELOPMENT

Dec 2018 - Dec 2022 | Frankfurt, DE

- Freelance consulting and development of cloud solutions.
- Google Cloud workshops.

FREELANCING | APP AND SERVICE DEVELOPMENT

Dec 2017 - today | Darmstadt, DE

- Developing the "Mein Baseball Club" App and infrastructure (iOS & Android).
- Games, stats, and more for all German baseball clubs. >1.6k active users.

RESEARCH PROJECTS | AS STUDENT AT TU DARMSTADT

Oct 2020 - Jul 2021 | M.Sc. Thesis @ IAS TU Darmstadt

- Dyna-style model-based RL with value expansion. Superv. Dr. Michael Lutter.

Oct 2018 - Apr 2019 | Quanser RL Agents @ IAS TU Darmstadt

- Implemented and benchmarked PPO, REPS, and ACREPS in PyTorch in simulation on a physical double cartpole and Furuta pendulum. Superv. Prof. Jan Peters.

Oct 2017 - Oct 2018 | Deep RL for StarCraft II @ IAS TU Darmstadt

- Implemented DeepMind's SC2 minigame baselines and our PPO version and open-sourced it.
- Implemented FeUdal Nets for SC2. Superv. Prof. Jan Peters.

INDUSTRY PROJECTS | STUDENT PROJECTS IN INDUSTRY

Industry projects as part of the TU Darmstadt curriculum.

Apr 2020 - Oct 2020 | Capstone Project @ Accenture

- Built an insolvency predictor for German SMEs, using open and self-crawled data
- Lead a team of seven students during the development.

Oct 2017 - Apr 2018 | Deep Motion @ Accenture & Heraeus Medical

- Data Engineering lead for a team of six students.
- Analyzed medical surgery data.
- Built models to predict risk of infection after hip and knee replacement surgeries.
- Built an app showcasing the results.

Oct 2015 - Apr 2016 | MyHydris @ Heraeus Infosystems

- Built a prototype predictive maintenance cloud platform to store and analyze data from steel factories using GCP.
- Presented the results to Heraeus executives.

PROJECT SUPERVISION

M.Sc.	Scaling Off-Policy Reinforcement Learning with Batch and Weight Normalization F. Vogt	<i>ongoing</i>
B.Sc.	Coherent Soft Imitation Learning for Vision-Language to Action Models C. Scherer (supervised with T. Gruner, J. Watson)	<i>ongoing</i>
M.Sc.	Integration of Vision and Tactile Sensing for Robotic Dexterous Insertion Tasks Using Deep Reinforcement Learning J. Lenz (supervised with T. Schneider, T. Gruner)	2025
M.Sc.	Evaluating Open X-Embodiment and Generalization of Octo in Simulation T. Jacobs (supervised with T. Schneider, T. Gruner, M. Tölle)	2025
M.Sc.	On-Robot Deep Reinforcement Learning for Quadruped Locomotion J. Kinzel (supervised with N. Bohlinger)	2025
B.Sc.	Diminishing Return of Value Expansion Methods in Offline Model-Based Reinforcement Learning D. Dennert	2024
B.Sc.	Diminishing Return of Value Expansion Methods in Discrete Model-Based Reinforcement Learning F. Ahmad	2024
Proj.	Finetuning Large Scale Robot Transformer Models C. Scherer (supervised with T. Gruner, M. Tölle)	2024
Proj.	Evaluating Tactile Perception and Reinforcement Learning for Dexterous Insertion Tasks in the Real World A. Böhm, E. Krämer (supervised with T. Schneider, T. Gruner)	2024
Proj.	Evaluating Open X-Embodiment and Reimplementing RT2 D. Dennert D., F. Ahmad, C. Scherer (supervised with T. Schneider, T. Gruner, M. Tölle)	2023
Proj.	Evaluating Open X-Embodiment and Generalization of RT-X Models in Simulation T. Jacobs (supervised with T. Schneider, T. Gruner, M. Tölle)	2023
Proj.	Building a Platform for Tactile Perception and Reinforcement Learning in the Real World A. Böhm, I. Pfenning, J. Lenz (supervised with T. Schneider, T. Gruner)	2023
Proj.	Latent Tactile Representations for Model-based RL E. Krämer (supervised with T. Schneider, T. Gruner)	2023

TALKS & INTERVIEWS

BeNeRL	Sample Efficiency in Deep RL: Quo Vadis?	Sep 2024
ML&AIAcademy	CrossQ: Batch Normalization in Deep Reinforcement Learning for Greater Sample Efficiency & Simplicity	Feb 2024
hessian.AI	AI and its faces, Daniel Palenicek & Theo Gruner, PhD students	Aug 2023
IWIALS	Slurm-tastic Adventures on the IAS Cluster: A Robotist Guide to the IAS Cluster using Slurm and Docker	Aug 2023

ACADEMIC SERVICES

Reviewing

NeurIPS (2023, 2025), ICML (2025), CoRL (2022, 2023, 2025), RLC (2024), IROS (2024), and various workshops at ICRA, RSS, EWRL

Teaching Assistant

Robot Learning Integrated Project 1 & 2 (SS25), Probabilistic Methods in Computer Science (WS24/25), Statistical Machine Learning (SS23, WS23/24), Computational Engineering and Robotics (SS22, WS22/23)

COURSEWORK

Statistical ML (1.3), Robot Learning (1.3), Deep Learning for NLP (1.3), Reinforcement Learning (1.0), Data Science Praktikum (1.3), Robot Learning IP I (1.0) & II (1.0), Data Mining and Machine Learning (1.3)

Grading Scheme: 1.0 (best) - 4.0 (pass)

SKILLS

Jax, PyTorch, TensorFlow, Python, C/C++, Java, SQL, \LaTeX , MongoDB, Git, Agile (Scrum), Google Cloud Platform, Docker, macOS, Linux, Slurm, HPC