Marcel Wagenländer

London, United Kingdom

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Personal Profile

AI systems researcher building the infrastructure behind large-scale machine learning. First-authored papers at SOSP on distributed training and dynamic parallelism, and contributed to open-source ML systems (KungFu, Tenplex). Recent experience at Meta analyzing diffusion model performance. Strong in Python, Go, and PyTorch. Looking to bring research into production.

Industry Experience

Meta Platforms, Inc. **Menlo Park, United States**
Research Scientist (Intern) Jun 2025–Sep 2025
- Performance analysis of block diffusion models
- Prototyping a block diffusion LLM engine

Capgemini Deutschland GmbH **Munich, Germany**
Software Engineer (Working Student) Mar 2018–Jun 2019
- Curated and presented start-ups for the Applied Innovation Exchange
- Developed a demo assembly line with IoT, robot arm and computer vision
- Designed the backend for a workshop event app

Interactive Wear AG **Starnberg, Germany**
Software Engineer (Working Student) Oct 2017–Dec 2017
- Created an iOS app to communicate and control a smart textile

Academic Experience

Imperial College London **London, United Kingdom**
Research Assistant Oct 2019 – Mar 2020
- Adapted the synchronisation strategy for distributed deep learning systems
- Wrote and presented a workshop paper at HotCloud
- Contributed to the open-source project KungFu

Education

Imperial College London **London, United Kingdom**
PhD candidate in Computing Jul 2021 – Present
- Part of the Large-scale Data & Systems Group and supervised by Peter Pietzuch
- Enabling dynamic resource changes for distributed DL training
- Optimising resource allocation and scheduling for LLM workflows

Technical University of Munich **Munich, Germany**
Master of Science in Informatics Apr 2018 – Jun 2021
- Graduated with 1.7
- Thesis on Memory Management for Graph Neural Networks on GPUs. Offloading data from the GPU memory to train GNNs with huge graphs
- Implemented autonomous parking for two scenarios in a team of six. Utilised ROS, LIDAR and SLAM to plan trajectories

Deakin University **Melbourne, Australia**
Study Abroad in Computer Science Feb 2017 – Jun 2017
- Explored capabilities of the Nao robot and executed autonomous parcel delivery
- Refined verbal and written communication skills in English

Technical University of Munich **Munich, Germany**
Bachelor of Science in Informatics Oct 2014 – Mar 2018
- Graduated with 2.2
- Thesis on Classification of goalkeeper movements. Using an inertial measurement unit to predict exercises with an 80 % accuracy
- Developed and presented a smart textile system for testing and data gathering in-field for T-Systems in a team of nine

Publications

[1] L. Mai, G. Li, M. Wagenländer, K. Fertakis, A.-O. Brabete, and P. Pietzuch, "KungFu: Making Training in Distributed Machine Learning Adaptive," in *14th USENIX Symposium on Operating Systems Design and Implementation (OSDI 20)*, USENIX Association, Nov. 2020, pp. 937–954. [Online]. Available: https://www.usenix.org/conference/osdi20/presentation/mai

[2] M. Wagenländer, L. Mai, G. Li, and P. Pietzuch, "Spotnik: Designing Distributed Machine Learning for Transient Cloud Resources," in *12th USENIX Workshop on Hot Topics in Cloud Computing (HotCloud 20)*, USENIX Association, July 2020. [Online]. Available: https://www.usenix.org/conference/hotcloud20/presentation/wagenl%C3%A4nder

[3] M. Wagenländer, G. Li, B. Zhao, L. Mai, and P. Pietzuch, "Tenplex: Dynamic Parallelism for Deep Learning using Parallelizable Tensor Collections," in *Proceedings of the ACM SIGOPS 30th Symposium on Operating Systems Principles*, in SOSP '24. Austin, TX, USA: Association for Computing Machinery, 2024, pp. 195–210. doi: 10.1145/3694715.3695975.

[4] S. W. Ober, A. Artemev, M. Wagenländer, R. Grobins, and M. van der Wilk, "Recommendations for Baselines and Benchmarking Approximate Gaussian Processes." [Online]. Available: https://arxiv.org/abs/2402.09849

Open-source Projects

Tenplex GitHub: github.com/kungfu-team/tenplex

KungFu GitHub: github.com/lsds/kungfu

Skills

- **Languages**: German (Native), English (Proficient), Spanish (Basic), Chinese (Basic)
- **Research Interests**: Distributed Systems, Machine Learning, Dynamic Systems, Artificial General Intelligence, Generative AI
- **Software & Tools**: PyTorch, JAX, NumPy, Matplotlib, Pandas, Docker, Kubernetes, Git, Latex
- **Programming Languages**: Python (Advanced), Go (Advanced), Bash (Intermediate), Rust (Basic), C/C++ (Basic), Swift (Basic)
- **Interests**: Running, Reading, Music, Travelling, Skiing, Sailing

*This document was last updated on 2026-01-12 using ~~LaTeX~~ Typst.