

Maximilian Beck

Curriculum Vitae

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I am a third year PhD student at Johannes Kepler University in Linz advised by Sepp Hochreiter. I work on efficient RNN-inspired Large Language Models with sub-quadratic complexity.

Work

- 7/2021 **ELLIS PhD Student**, Johannes Kepler University, Linz, Institute for Machine Learning.
 - today Building efficient Large Language Models.
Previously worked on Few-Shot Learning, Meta-Learning and Domain Adaptation.
Advisor: Prof. Dr. Sepp Hochreiter
- 10/2020 **Master Thesis Student & Research Assistant**, FZI Research Center for Information Technology,
 - 6/2021 Karlsruhe, Department Mobile Perception Systems (MPS).
Master Thesis in cooperation with Institute of Measurement and Control System, KIT:
Motion Planning for Automated Vehicles in Uncertain Environments.
Advisors: Prof. Dr.-Ing. Christoph Stiller, M.Sc. Ömer Sahin Tas
- 11/2019 **Student Research Assistant**, FZI Research Center for Information Technology, Karlsruhe,
 - 7/2020 Department Mobile Perception Systems (MPS).
Software development for computational geometry applications in C++ and Python.
Developed a package for visibility calculations with CGAL for a driving simulator.
- 1/2017 **Student Research Assistant**, Karlsruhe Institute of Technology - KIT,
 - 8/2018 wbk - Institute of Production Science,
Department Machines, Equipment and Process Automation (MAP).
Various projects in the field of automation technology and robotics.

Education

- 7/2021 **PhD**, Artificial Intelligence, Johannes Kepler University Linz.
 - today
- 10/2017 **Master of Science**, Mechatronics and Information Technology,
 - 4/2021 Karlsruhe Institute of Technology - KIT, Grade: 1.4.
Field of Specialization: Control Technology in Mechatronics
Important Courses: Modern Control Concepts, Nonlinear Model Predictive Control, Optimization of Dynamic Systems, Automated Visual Inspection and Image Processing, Information Fusion, Cognitive Systems
- 8/2018 **Study Abroad USA**, Computer Engineering, San José State University, GPA: 3.8.
 - 5/2019 2 Semesters. Important Courses: Embedded Control System Design, Real-Time Embedded System Co-Design, Operating Systems, Advanced C++ Programming
- 2014 – 2017 **Bachelor of Science**, Mechatronics and Information Technology,
 - Karlsruhe Institute of Technology - KIT, Grade: 1.5.
Bachelor Thesis: Machine Control and Industry 4.0 Functions for a Machining Center of Type DMC 60H

Publications

Benedikt Alkin, **Maximilian Beck**, Korbinian Pöppel, Sepp Hochreiter, and Johannes Brandstetter. Vision-Istm: xlstm as generic vision backbone, 2024.

Maximilian Beck*, Korbinian Pöppel*, Markus Spanring, Andreas Auer, Oleksandra Prudnikova, Michael Kopp, Günter Klambauer, Johannes Brandstetter, and Sepp Hochreiter. xlstm: Extended long short-term memory. In *Arxiv*, 2024.

Marius-Constantin Dinu, Markus Holzleitner, **Maximilian Beck**, Hoan Duc Nguyen, Andrea Huber, Hamid Eghbal-zadeh, Bernhard A. Moser, Sergei Pereverzyev, Sepp Hochreiter, and Werner Zellinger. Addressing parameter choice issues in unsupervised domain adaptation by aggregation. In *The International Conference on Learning Representations*, 2023.

Martin Gauch, **Maximilian Beck**, Thomas Adler, Dmytro Kotsur, Stefan Fiel, Hamid Eghbal-zadeh, Johannes Brandstetter, Johannes Kofler, Markus Holzleitner, Werner Zellinger, Daniel Klotz, Sepp Hochreiter, and Sebastian Lehner. Few-shot learning by dimensionality reduction in gradient space. In *The Conference on Lifelong Learning Agents*, 2022.