Konstantin Ditschuneit

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WORK EXPERIENCE

[12/2023 – Current]	Founding deep	learning engineer
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Scenarium AI, Berlin

- Solving repetitive electrical planning tasks using Artificial Intelligence
- Joined as the first employee to build a product from scratch

[06/2021 – 10/2023] Machine learning researcher

Merantix Momentum GmbH, Berlin

- Worked as a Machine Learning Researcher on online model pruning, energy demand forecasting, and interpretable neural networks.
- Built a research-specific tech-stack encompassing multiple Google Cloud projects defined using Terraform, a research-focused remote execution framework in Kubernetes, and a shared code repository designed to foster collaboration across research projects.

[10/2017 - 04/2018] Linear algebra tutor for physics students

Professor Dr. Staudacher, Humboldt-Universität zu Berlin

EDUCATION AND TRAIN- ING	
[2019 – 2022]	Master's degree in computer science
	Karlsruhe Institute of Technology
	Final Grade: 1.4 Deep Learning, Algorithm Engineering, GPU Computing. Thesis: "Adversarial Robustness of Sparse Mixture of Experts for Computer Vision Tasks"
[2016 – 2019]	Bachelor's degree in physics
	Humboldt-Universität zu Berlin
	Final Grade: 1.6 Tutor for Linear Algebra
LANGUAGE SKILLS	Mother tongue(s): German Other language(s): English C2
PUBLICATIONS	Self-Distilled Representation Learning for Time Series
	4th Workshop on Self-Supervised Learning: Theory and Practice, NEURIPS 2023
	We show that Data2Vec is an effective pretraining strategy for time-series representation learning.
	<u>Curve Your Enthusiasm: Concurvity Regularization in Differentiable</u> <u>Generalized Additive Models</u>
	NEURIPS 2023

We demonstrate how concurvity can severely impair the interpretability of GAMs and propose a remedy: a conceptually simple, yet effective regularizer which penalizes pairwise correlations of the non-linearly transformed feature variables.

NAM-CAM: Neural-Additive Models for Semi-Analytic Descriptions of CAM Simulations

FAIM 2023

Using Neural-Additive Models (NAMs), we create a semi-analytic model that improves guided search through the configuration space and reduces convergence time to an optimal parameter set.

Auto-Compressing Subset Pruning for Semantic Image Segmentation

GCPR 2022

ACOSP learns a channel selection mechanism for individual channels of each convolution in the segmentation model based on an effective temperature annealing schedule. We show a crucial interplay between providing a high-capacity model at the beginning of training and the compression pressure forcing the model to compress concepts into retained channels.

Self-Supervised Learning

Blog Post, 2022

SSL methods are used for pretraining models on unlabeled data to significantly reduce the amount of labeled data required for fine-tuning downstream tasks.

PROJECTS

[2019 – 2021] Student group "KITcar": development of an open source simulator

- Developed and open-sourced a ROS-based vehicle <u>simulator</u> to test our vehicles,
- implemented a GAN to render simulated images into seemingly real images
- won the Carolo-Cup competition in 2020 and 2021.

HONOURS AND AWARDS

1. place in the "AI for Energy Demand Forecasting" Kaggle challenge

Kaggle Challenge & Blog Post, 2022

We describe our approach to participate in the Energy Demand Forecasting Kaggle challenge. Through an iterative and fast-paced mindset we were able to quickly understand the problem and apply our data scientist skill set to a new domain and even won the challenge.

Link: https://www.merantix.com/blog/ai-for-energy-demand-forecasting

1. place at Carolo-Master-Cup

Technische Universität Braunschweig, 2020&2021

The Carolo-Cup is an annual competition for university students who develop autonomous model cars. The cars have to complete a course as fast as possible autonomously. As one of the senior KITCar team members, I was fortunate to lead the team to victory in 2020 and 2021.

Link: https://www.tu-braunschweig.de/carolo-cup/