Janek Haberer

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Summary

PhD student in Computer Science at Kiel University, specializing in the design of efficient deep learning methods in resource-constrained environments. Research areas include Edge AI, dynamic vision transformers, federated learning, and progressive image compression. 3 years of experience with 7 published papers in peer-reviewed conferences and journals: **NeurIPS**, CVPR Workshop, IEEE Access, MobiSys, CoNEXT Workshop, and EWSN Workshop. Enthusiastic about collaborating in teams to design and build cutting-edge machine learning systems for the edge, shaping the technologies of tomorrow.

Education

PhD **Kiel University**, Computer Science — Kiel, Germany — Nov 2021 – present

- Research Areas: Edge AI, Dynamic Vision Transformers, Federated Learning
- Supervisor: Prof. Dr. Olaf Landsiedel (Hamburg University of Technology & Kiel University)

MSc **Kiel University**, Computer Science — Kiel, Germany — Oct 2019 – Oct 2021

- Thesis: "Extending the Expressiveness of Meta-Structures In Heterogeneous Information Networks"
- Supervisors: Prof. Dr. Matthias Renz & Christian Beth
- Overall Grade: 1.5

BSc **Kiel University**, Computer Science — Kiel, Germany — Oct 2016 – Sept 2019

- Thesis: "Clustering and Reprojection for Detecting Pylons in the Context of Autonomous Driving"
- Supervisors: Prof. Dr.-Ing. Reinhard Koch & Lars Schmarje
- Overall Grade: 1.8

Experience

Graduate Researcher & Teaching Assistant, Kiel University — Kiel, Germany — Nov 2021 – present

- Part of the project marispace-x with a focus on efficient deployment of deep learning in distributed resource-constrained environments
- Research in the field of dynamic and efficient vision transformers
- Published 7 papers in peer-reviewed conferences and journals: NeurIPS, CVPR Workshop, IEEE Access, MobiSys, CoNEXT Workshop, and EWSN Workshop
- Teaching labs in the courses ‘TinyML (Edge AI)’ and ‘Computer Networks’
- Supervised 7+ Bachelor and Master theses, with one leading to a publication
- Supervising an M.Sc. project on ‘Networked and Distributed Systems’

Software Engineer, Fischer & Consultants — Kiel, Germany — Mar 2020 – Sept 2021

- Maintained and extended the company’s custom ERP system
- Involved in design and development of production-ready software with direct customer interaction
- Created and maintained CI/CD pipelines in Azure DevOps

Student Teaching Assistant, Kiel University — Kiel, Germany
Oct 2017 – Aug 2019

- Taught labs and graded homework in the courses 'Algorithms and Data Structures', 'Operating Systems and Computer Networks', 'Computer Systems', 'Computer Science for Non-Majors'

Skills

Programming: Python, C#, Java

Machine Learning & Data: PyTorch, TensorFlow, scikit-learn, OpenCV, NumPy, Pandas

Other: Linux, Docker, Git, SLURM, Azure Pipelines (CI/CD), MSSQL, Proxmox

Languages: German (native), English (fluent)

Awards & Scholarships

Best Presentation Award — Dec 2024
Awarded at the EMERGE workshop at EWSN 2024

Deutschlandstipendium — 2018 - 2019 & 2020 - 2021
Scholarship for high-achieving and committed students

Publications

HydraViT: Stacking Heads for a Scalable ViT [Paper]
J. Haberer, A. Hojjat, O. Landsiedel
NeurIPS'24: Advances in Neural Information Processing Systems 37

MCUCoder: Adaptive Bitrate Learned Video Compression for IoT Devices [Paper]
A. Hojjat, ***J. Haberer***, O. Landsiedel
Workshop on Machine Learning and Compression, *NeurIPS'24*

MatchCurv: Communication-Efficient Decentralized Federated Learning in Heterogeneous Environments *(Best Presentation Award)* [Paper]
H.P. Dussa, ***J. Haberer***, O. Landsiedel
1st Workshop on Enabling Machine Learning Operations for next-Gen Embedded Wireless Networked Devices, *EWSN'24*

LimitNet: Progressive, Content-Aware Image Offloading for Extremely Weak Devices & Networks [Paper]
A. Hojjat, ***J. Haberer***, T. Zainab, O. Landsiedel
MobiSys'24: Proceedings of the 22nd Annual International Conference on Mobile Systems, Applications and Services

Machine Learning with Computer Networks: Techniques, Datasets and Models [Paper]
A. Haitham, S. Pochaba, A. Boltres, D. Laniewski, ***J. Haberer***, P. Leonard, R. Poorzare, D. Stolpmann, N. Wehner, A. Redder, E. Samikwa, M. Seufert
IEEE Access 2024

ProgDTD: Progressive Learned Image Compression with Double-tail-drop Training [Paper]
A. Hojjat, ***J. Haberer***, O. Landsiedel
New Trends in Image Restoration and Enhancement Workshop, at *CVPR'23*

Activation Sparsity and Dynamic Pruning for Split Computing in Edge AI [Paper]
J. Haberer, O. Landsiedel
3rd International Workshop on Distributed Machine Learning, at *CoNEXT'22*