

Jan Pauls

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jan-pauls



EDUCATION

PhD Candidate in Computer Science *University of Münster*

01/2023 — present

- Developing deep learning models for large-scale satellite imagery analysis
- Creating worldwide forest canopy height maps from satellite data
- Applying time-series computer vision techniques for temporal analysis of satellite imagery

Master of Science in Information Systems, *University of Münster*

10/2020 — 09/2023

- Majors: Data Analytics, Marketing, Business Intelligence
- Thesis: Generating High-Resolution Height Maps using Deep Learning
- Grade: 1.6

Bachelor of Science in Information Systems, *University of Münster*

10/2017 — 09/2020

- Majors: Algorithms and Data Structures, Computer Structures and Operating Systems, Database Management Systems
- Thesis: Comparison of Machine Learning Algorithms for Assessing Infrastructure Quality after Natural Disasters using Satellite Images
- Grade: 2.3

PUBLICATIONS

PEER-REVIEWED CONFERENCE & JOURNAL PAPERS

- [8] **Pixel-Level Transformers in Remote Sensing: A Canopy Height Case Study**
Ligensa, **Pauls**, Schrödter, ..., Gieseke
Int. Conf. on Advances in Geographic Information Systems (SIGSPATIAL) 2026
- [7] **Canopy Tree Height Estimation using Quantile Regression: Modeling and Evaluating Uncertainty in Remote Sensing**
Schrödter, **Pauls**, Gieseke
Conf. on Artificial Intelligence and Statistics (AISTATS) 2026
- [6] **Integrating Global Canopy Height Models with Satellite Data for Improved Forest Inventory in Ukraine**
Lukeš, Myroniuk, Shamrai, ..., **Pauls**
Agricultural and Forest Meteorology 2025
- [5] **Retrieving Yearly Forest Growth from Satellite Data: A Deep Learning Based Approach**
Schwartz, Ciais, Sean, ..., **Pauls**, ...
Remote Sensing of Environment 2025
- [4] **Capturing Temporal Dynamics in Large-Scale Canopy Tree Height Estimation**
Pauls, Turan, Zimmer, ..., Gieseke
Int. Conf. on Machine Learning (ICML) 2025
- [3] **Estimating Canopy Height at Scale**
Pauls, Zimmer, Kelly, ..., Gieseke
Int. Conf. on Machine Learning (ICML) 2024

PREPRINTS & UNDER REVIEW

- [2] **ECHOSAT: Estimating Canopy Height Over Space and Time**
Pauls, Schrödter, Ligensa, ..., Gieseke
arXiv preprint 2026
- [1] **Brick Kilns Across India: A Temporal Analysis of Brick Kiln Distribution and Technology Types**
Arora, Goldmann, Oehmcke, **Pauls**, ..., Ciais
SSRN preprint 2026

PRESENTATIONS

Advancing Climate Strategies: High-Resolution Canopy Height Estimation from Space <i>ERCIS Lunchtime Seminar, University of Münster</i>	01/2025
Advancing Climate Strategies: High-Resolution Canopy Height Estimation from Space <i>IOL Research Seminar, Zuse Institute Berlin</i>	03/2025
ECHOSAT: Estimating Canopy Height over Space and Time <i>Ellis Unconference AI for Earth and Climate, Eurips Copenhagen</i>	12/2025
ECHOSAT: Estimating Canopy Height over Space and Time <i>Eurips Workshop AI for Climate and Conservation, Eurips Copenhagen</i>	12/2025

TEACHING EXPERIENCE

Mining Massive Datasets	2023-2026
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- Role: Teaching Assistant / Tutor
- Responsible for tutoring and grading exercises on Spark and Hadoop

Seminar: Advanced Topics in Machine Learning	2024-2026
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- Role: Seminar Leader, Seminar Assistant
- Responsible for selecting seminar thesis topics and grading seminar papers

Project Seminar: SkyWatch: Managing digital ecosystems	2023
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- Role: Thematic Seminar Assistant
- Responsible for guiding students through the project seminar and providing feedback on their work

Project Seminar: GeoAI Platforms	2026
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- Role: Thematic Seminar Assistant
- Responsible for setting the project goals and evaluating the students' work

ACADEMIC SERVICE

Conference Reviewer

• International Conference on Learning Representations (ICLR)	2026
• Annual Conference on Artificial Intelligence and Statistics (AISTATS)	2026
• International Conference on Machine Learning (ICML)	2026
• Conference on Neural Information Processing Systems (NeurIPS)	2026

Thesis Supervision

• Compression of Time-Series Remote Sensing Data (<i>Bachelor</i>)	2026
• Developing a machine learning model for remote sensing building damage detection in Ukraine (<i>Master</i>)	2026
• Efficient Vision Attention Mechanisms for Dense Prediction (<i>Master</i>)	2026
• Comparing Super-Resolution Approaches for Multi-Temporal Sentinel-2 Imagery (<i>Master</i>)	2025
• Evaluating the Impact of Geocoordinate Integration on Canopy Height Estimation Accuracy (<i>Bachelor</i>)	2025
• Advancements in Remote Sensing: Developing an Updated Forest Mask through Deep Learning (<i>Bachelor</i>)	2025
• High-Resolution Tree Height Detection with Sentinel-2 Temporal Data for NRW (<i>Bachelor</i>)	2024
• Advanced Automated Recognition: A Comparative Study of Deep Learning Architectures for Transparent Object Segmentation (<i>Bachelor</i>)	2024
• High-Resolution Mapping of Tree Height in German Forests: Determining Tree Heights with PlanetScope Satellite Images and GEDI Measurements (<i>Master</i>)	2024
• From Coarse to Fine: Deep Learning Methods for Super-Resolution of Satellite Images (<i>Master</i>)	2023