

Christian Lülß

MSc.

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As a PhD candidate at the University of Münster, I will complete my degree by Summer 2024. My passion for machine learning and large-scale computing drives my research, which is focused on their applications in search engines. I am eager to embrace new challenges and seek opportunities to expand my expertise in these fields.

EDUCATION

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| PhD in Information Systems , <i>University of Münster</i> | 11/2020 — Present |
| <ul style="list-style-type: none">Research Group: Machine Learning and Data Engineering lab (Advisor: Prof. Fabian Gieseke)Thesis: <i>Advancing Large-Scale Data Retrieval: A Co-Design Approach of Machine Learning and Indexing</i> | |
| MLSS^N Summer School , <i>Jagiellonian University Kraków</i> | 06/2022 — 07/2022 |
| <ul style="list-style-type: none">Engaged in talks and workshops by renowned researchers on current machine learning topics | |
| Master of Science in Information Systems , <i>University of Münster</i> | 04/2018 — 08/2020 |
| <ul style="list-style-type: none">Thesis: <i>Categorization of Graph Neural Networks in the Area of Organic Chemistry</i>Grade: 1.9 (best: 1.0, worst: 5.0) | |
| Exchange Semester: Master of Science in Computer Science , <i>University of Sydney</i> | 08/2019 — 12/2019 |
| <ul style="list-style-type: none">Courses: Machine Learning, Data Mining, Predictive Analytics, Cyber Security | |
| Bachelor of Science in Information Systems , <i>University of Applied Sciences Weserbergland</i> | 08/2014 — 07/2017 |
| <ul style="list-style-type: none">Thesis: <i>Evaluation of a Continuous Deployment Procedure with Kubernetes in the Data Center of Atruvia AG</i>Grade: 1.3 (best: 1.0, worst: 5.0) | |
| Higher Education Entrance Qualification , <i>Wilhelm-Hittorf-Gymnasium Münster</i> | 08/2006 — 07/2014 |

WORK EXPERIENCE

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| Research Assistant <i>University of Münster</i> | 11/2020 — Present <i>Münster, Germany</i> |
| <ul style="list-style-type: none">Conducted extensive research resulting into multiple publications.Delivered lectures and supervised bachelor/master theses. | |
| Linux System Engineer <i>Atruvia AG</i> | 08/2017 — 10/2020 <i>Münster, Germany</i> |
| <ul style="list-style-type: none">Managed systems in a data center serving over 1,000 banks in the D-A-CH region.Led projects to establish a container platform for banking applications. | |
| Integrated University Program <i>Atruvia AG</i> | 08/2014 — 07/2017 <i>Münster, Germany</i> |
| <ul style="list-style-type: none">Completed a combined university degree and vocational training at Atruvia AG.Graduated with highest distinction in both academic and vocational components. | |

SELECTED PUBLICATIONS

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| Lülß, C., Martins, D., Vaz Salles, M., Zhou, Y., Gieseke, F. <i>CLIP-Branched: Interactive Fine-Tuning for Text-Image Retrieval</i> . In Proceedings of the International ACM SIGIR Conference. | 07/2024 |
| Lülß, C., Martins, D., Vaz Salles, M., Zhou, Y., Gieseke, F. <i>Fast Search-By-Classification for Large-Scale Databases Using Index-Aware Decision Trees and Random Forests</i> . In Proceedings of the VLDB Endowment. | 08/2023 |
| Lülß, C., Martins, D., Vaz Salles, M., Zhou, Y., Gieseke, F. <i>RapidEarth: A Search Engine for Large-Scale Geospatial Imagery</i> . In Proceedings of the ACM SIGSPATIAL. | 08/2023 |
| Martins, D., Lülß, C., Gieseke, F. <i>End-to-end Neural Network Training for Hyperbox-Based Classification</i> . In European Symposium on Artificial Neural Networks, ESANN. | 06/2023 |

SKILLS

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| Programming | Python, Bash, Java, JavaScript, R, SQL, C, C++ |
| Tools & Software | Linux, Docker, Kubernetes, Numpy/Pandas, PyTorch, Tensorflow, Git, L ^A T _E X, GDAL |
| Communication | German (native), English (fluent) |

CERTIFICATIONS & AWARDS

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| Best Demo Award at ACM SIGSPATIAL 2023 | 11/2023 |
| Scholarship PROMOS of the German Academic Exchange Service | 07/2019 |
| Top 10% of the of the graduating class at University of Applied Sciences Weserbergland | 07/2017 |
| Scholarship Deutschlandstipendium (Maximum funding rate: 1.45 % of all students) | 09/2016 |
| Certified Computer Science Expert by the Chamber of Industry and Commerce (with honors) | 06/2016 |

TALKS

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| ACM SIGSPATIAL'23 International Conference on Advances in Geographic Information Systems, Hamburg | 11/2023 |
| ERCIS Lunchtime Seminar , Münster | 10/2023 |
| VLDB'23 International Conference on Very Large Data Bases, Vancouver | 08/2023 |
| TDWI Roundtable , Münster | 05/2023 |
| MLSS^N Summer School , Kraków | 06/2022 |

TEACHING EXPERIENCE & UNIVERSITY SERVICES

Teaching Assistant

- Facilitated tutorials and lectures, along with grading assignments, for courses within our research group.
- Courses: Data Analytics, Management Information Systems & Data Warehousing, Data Integration

Administrator of Cloud Infrastructure

- Led the deployment and management of an advanced cloud infrastructure with GPU support for research purposes.
- Technologies: Kubernetes, Docker, CephFS, PyTorch.

Thesis Supervisor

- Successfully guided over ten bachelor's and master's theses, contributing to significant academic advancements in our research group.
- Topic Overview: Approximate nearest neighbor search, multi-task transformer learning in NLP, deep learning for tree canopy segmentation