Christian Lülf

MSc.

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As a PhD candidate at the University of Münster, I am on track to complete my degree by Summer 2024. With a passion for deep learning and large-scale computing, my research is currently centered on their applications in search engines. Eager to embrace new challenges, I am actively seeking opportunities that will expand my expertise and skill set in these fields.

Education

PhD in Information Systems, *University of Münster* **11/2020 — Present**

- Machine Learning and Data Engineering Group (Advisor: Prof. Fabian Gieseke)
- Thesis: *Advancing Large-Scale Data Retrieval: A Co-Design Approach of Machine Learning and Indexing*

Master of Science in Information Systems, *University of Münster* **04/2018 — 08/2020**

- Thesis: *Categorization of Graph Neural Networks in the Area of Organic Chemistry*
- Grade: 1.8 (best: 1.0, worst: 5.0)

Exchange Semester: Master of Science in Computer Science, *University of Sydney* **08/2019 — 12/2019**

- Courses: Machine Learning, Data Mining, Predictive Analytics, Cyber Security

Bachelor of Science in Information Systems, *University of Applied Sciences Weserbergland* **08/2014 — 07/2017**

- Thesis: *Evaluation of a Continuous Deployment Procedure with Kubernetes in the Data Center of Atruvia AG*
- Grade: 1.3 (best: 1.0, worst: 5.0)

Higher Education Entrance Qualification, *Wilhelm-Hittorf-Gymnasium Münster* **08/2006 — 07/2014**

Work Experience

Linux System Engineer **08/2017 — 10/2020**
Atruvia AG *Münster, Germany*

- System engineer in a data center for more than 1,000 banks in the D-A-CH region
- Involved in projects for establishing a container platform for banking applications

Integrated University Program **08/2014 — 07/2017**
Atruvia AG *Münster, Germany*

- Combined university degree and vocational training at Atruvia AG
- Graduated with highest distinction in both academic and vocational components

Certifications & Awards

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

Selected Publications

Lülf, C., Martins, D., Vaz Salles, M., Zhou, Y., Gieseke, F. *CLIP-Branches: Interactive Fine-Tuning for Text-Image Retrieval.* In Proceedings of the International ACM SIGIR Conference. 07/2024

Lülf, C., Martins, D., Vaz Salles, M., Zhou, Y., Gieseke, F. *Fast Search-By-Classification for Large-Scale Databases Using Index-Aware Decision Trees and Random Forests.* In Proceedings of the VLDB Endowment. 08/2023

Lülf, C., Martins, D., Vaz Salles, M., Zhou, Y., Gieseke, F. *RapidEarth: A Search Engine for Large-Scale Geospatial Imagery. In Proceedings of the ACM SIGSPATIAL.* 08/2023

Martins, D., Lülf, C., Gieseke, F. *End-to-end Neural Network Training for Hyperbox-Based Classification.* In European Symposium on Artificial Neural Networks, ESANN. 06/2023

Skills

Programming	Python, Bash, Java, JavaScript, R, SQL, C, C++
Tools & Software	Linux, Docker, Kubernetes, Numpy/Pandas, PyTorch, Tensorflow, Git, LaTeX, GDAL
Communication	German (native), Englisch (fluent, TOEFL iBT 106 points)

Talks

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, enhancing student and research capabilities.
- Cluster is based on following 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.
- Achievements include supervision of award-winning theses recognized at the institute level.
- Focused on cutting-edge topics such as approximate nearest neighbor search, multi-task transformer learning in Natural Language Processing, and deep learning for tree canopy segmentation.