Resume

Personal Details

Name	Gabriel Dax
Email	gabriel.dax@tum.de
Telephone Number	████████████
Webpage	https://g4br1el.github.io/
Location	Munich, Germany
Languages	German (native language, C2), English (fluent, C1)

Work Experience

10/2020 – Now

Technical University of Munich, Munich, Germany
Research Assistant
Research on compression of individual aspects in deep learning and architecture as well as teaching at the Professorship for Big Geospatial Data Management (Prof. Martin Werner).

12/2019 – 09/2020

Bundeswehr University Munich, Munich, Germany
Research Assistant
Research on compression-based methods in spatial machine learning, as well as teaching at the Professorship of Geoinformatics (Prof. Martin Werner).

02/2019 – 07/2019

German Aerospace Center, Munich, Germany
Student Research Assistant
Master thesis on parameter- and feature-free change detection of satellite images using compression-based methods in data mining (Prof. Mihai Datcu).

02/2017 – 07/2017

Fraunhofer Institute for Integrated Circuits, Erlangen, Germany
Internship, Student Research Assistant
Bachelor thesis to improve the performance of a distributed system for creating cinema movies by designing a mechanism for identifying bottlenecks

07/2016 – 08/2016

GMS Hutter GmbH & Co KG, Salzburg, Austria
Internship
Developed a new internal webpage for employees to replace the existing one.

Education

12/2019 – Now

Technical University of Munich, Munich, Germany
Doctor (Dr. rer. nat), TUM School of Engineering and Design
Research on algorithmic information-theoretic aspects in deep learning under the supervision of Prof. Martin Werner. *Anticipated graduation date: 06/23*

09/2017 – 11/2019

FH Salzburg, Salzburg, Austria
Master (M.Sc.), Information Technology and Systems Management
T-Shaped computer engineering program with a focus on adaptive software systems as well as data science and analytics.

09/2014 – 09/2017

FH Salzburg, Salzburg, Austria
Bachelor (B.Sc.), Information Technology and Systems Management
T-Shaped computer engineering program with a focus on media informatics

Skills

Hard	Python (permanent use), C/C++ (permanent use), MATLAB (Regular use)
Soft	Teaching (seminars, tutorials, and substitute of the professor at lectures)

Munich, July 24, 2022

Selected Projects and Functions

Geospatial Data *C++ and Python*	This project focuses on embedding local geometry sketches into the probabilistic data structure Bloom filters and classifying them using machine learning. The embedding of the features of a single trajectory into a Bloom filter opens the possibility the combine filters with logical operations. This technique can be used as a compressor at the normalized compression distance to approximate the Kolmogorov complexity (Published at IEEE MDM 2021).
FPGA *Python*	Project to apply and benchmark deep learning models on FPGAs in the field of remote sensing using TensorFlow and VitisAI. This project is funded by the European Space Agency (ESA) and is a collaboration between the Technical University of Munich, Airbus, and OroraTech (Published i.a. MLBench, CompSpace, OBDP).
Gender Equality	Function as deputy gender equality officer at the TUM School of Engineering and Design.

Selected Publications

Conference	[1] G. Dax, M. Laass and M. Werner, "Genetic Algorithm for Improved Transfer Learning Through Bagging Color-Adjusted Models," *2021 IEEE International Geoscience and Remote Sensing Symposium IGARSS*, 2021, pp. 2612-2615, doi: 10.1109/IGARSS47720.2021.9554380.
	[2] G. Dax and M. Werner, "Trajectory Similarity using Compression," *2021 22nd IEEE International Conference on Mobile Data Management (MDM)*, 2021, pp. 169-174, doi: 10.1109/MDM52706.2021.00035y.
Book Chapter	[3] C. O. Dumitru, G. Schwarz, G. Dax, V. Andrei, D. Ao, and M. Datcu, "Active and Machine Learning for Earth Observation Image Analysis with Traditional and Innovative Approaches," *Principles of Data Science Transactions on Computational Science and Computational Intelligence*, pp. 207–231, 2020.

Selected Awards

Merit Scholarships	For the first and second semesters in the Bachelor's program, as well as for the third and fourth semester in the Master's program Information Technology and Systems Management, I received a merit scholarship from the Federal Ministry of Science, Research and Economics (AT).
Science Award	Award of the master thesis with the science prize of AK Salzburg.

Interests and Leisure Activities

Sport	Hiking and skiing in the Eastern Alps.
Free Time	Cooking, especially from the Asian kitchen.
Interests	Exploring places and cultures, I have never been to.

Munich, July 24, 2022