

EDUCATION

- Oct. 2021 - Apr. 2023 **Master of Science – Computational Physics**, Heidelberg University
with focus on applied machine learning and computer science
Master thesis: *“Tackling Challenges and Enhancing Disease Diagnosis in Medical Imaging with Deep Metric Learning”* in cooperation with LMU Munich supervised by Prof. Dr. Björn Ommer.
Final grade: 1.3 (* grade scale explanations see below)
- Oct. 2017 - Sep. 2021 **Bachelor of Science – Physics**, Heidelberg University
Semester abroad: Portland State University (Sep. 2019 - Apr. 2020, US)
Bachelor thesis: *“Conditional Similarity Learning for Multilabel Classification of Medical Images”* supervised by Prof. Dr. Björn Ommer.
Final grade: 1.8
- Sep. 2009 - Jul. 2017 Wilhelmi-Gymnasium Sinsheim (High school)
Final grade: 1.3

WORKING EXPERIENCE

- May 2023 - Present **Data Scientist, Roche, Basel**
within the Data, Analytics, and Imaging Group, in the Digital Pathology Product Team.
- Currently working on developing innovative image-based healthcare solutions in digital pathology.
 - Utilizing deep learning and self-supervised methods to create cutting-edge solutions for medical image analysis and various downstream tasks in digital pathology (first results published on [arXiv](#)).
 - Bringing knowledge in healthcare, product development, deep learning and bio-medical image analysis to the role.
- Sep. 2021 – May 2023 **Research assistant, Group of Prof. Dr. Ommer, Heidelberg University / LMU Munich**
- Successfully managed and executed independent projects in the field of computer vision and representation learning; utilizing Python, TensorFlow, and Jax to develop new approaches based on recent research.
 - Applied supervised, unsupervised and semi-supervised methods to medical imaging datasets.
 - Improved lung diseases classification performance by 11% based on ROC AUC score over baseline by using different metric learning techniques in combination.
 - Publication of results in a research paper.
- Jan. 2019 - Apr. 2023 **Teaching assistant, Physics Department, Heidelberg University**
- Prepared and performed lab experiments as a supervisor.
 - Corrected lab reports and provide help as needed.
 - Effectively communicated with groups of various backgrounds: physicists, chemists, medics.
- Sep. 2019 - Mar. 2020 **Intramurals Sports Official, Portland State University**
- Officiated soccer and basketball games as a referee and taught young referees the law of the game.
 - Organized game days together with colleagues.
 - Worked as a team on and off the field.

PROJECTS (3+ YEARS OF EXPERIENCE IN MACHINE LEARNING)

Additional details can be found on mafi2.github.io

Main interests: data science (imaging, biology, physics), machine learning, 2D and 3D computer vision, explainable AI, NLP, deep metric and representation learning and their interdisciplinary applications especially in a bio-medical setting

Detail about my current work, master thesis, bachelor thesis, hackathon challenge, and other university projects can be found on mafi2.github.io/projects.

PAPERS

Bredell, G., Fischer, M., Szostak, P., Abbasi-Sureshjani, S., & Gomariz, A. (2023). **Aggregation Model Hyperparameters Matter in Digital Pathology**. arXiv preprint arXiv:2311.17804. [arXiv](#)
Workshop-Paper on enhancing chest X-ray disease diagnosis, 1st author, to be submitted

EXTRACURRICULARS

Oct. 2021	Participated at Q-Summit Hackathon by IBM on the topic of bias free AI winning 2 nd place (see projects below)
Since 2017	Member of the German Physics Society (DPG)
Since 2014	Soccer Referee
Since 2013	Member of the Big Band of Sinsheim (trumpet)

SKILLS

Programming Languages	Python, R, C++
Frameworks/Libraries	PyTorch, Lightning, TensorFlow, Jax, NumPy, OpenCV
Miscellaneous	Git, Latex
Languages	German (mother tongue), English (fluent - spent 8 months in the US), French (intermediate), Chinese (fundamentals)