

MARCO HEYDEN

Enabling Data-Driven Decisions in Dynamic Environments

<https://www.linkedin.com/in/marco-heyden/> [heymarco.github.io](https://github.com/heymarco) [Mannheim, Germany](#)



SUMMARY

I am an enthusiastic researcher and PhD student in Machine Learning and Data Mining at the Karlsruhe Institute of Technology. My goal is to enable data-driven decision-making through insightful analysis, clear communication, and effective collaboration.

KEY ACHIEVEMENTS



Top-Tier Research Publications

Research publications in top-tier ML and data mining venues, including KDD, ECML-PKDD, and Springer DAMI with A* and A ratings.



Successful Collaborations

International collaborations with other scientists, resulting in 11 joint research articles over 5 years in diverse ML and data mining fields.



Mentoring and Teaching

In-depth mentoring of 8 students during their bachelor's and master's theses, supporting their academic success and personal growth; responsibility for the Data Science 1 exercise and the SQL assignment at KIT.



Software Development

Responsibility for the Stocard Apple Watch app and the Otego iOS and microcontroller software; contributed to commercial and open-source projects, including as core maintainer of [CopyMoa](#), an efficient library for ML on data streams.

EXPERIENCE

Academic Visitor

Victoria University of Wellington

01/2024 - 03/2024 [Wellington, New Zealand](#)

- Development of a label-efficient incremental decision tree algorithm for data streams
- The algorithm improves the worst-case accuracy of existing algorithms by up to 50 %
- Publication of the resulting paper "Leveraging Plasticity in Incremental Decision Trees" at ECML/PKDD 2024

Researcher & PhD Candidate in ML and Data Mining

Karlsruhe Institute of Technology (Institute for Program Structures and Data Organization)

10/2021 - 04/2025 [Karlsruhe, Germany](#)

- Development, implementation, and validation of algorithms for decision-making under uncertainty in data streams
- First-author publications at top-tier venues, authored 9 papers in 3 years
- Presented research and conducted tutorials at leading machine learning and data mining conferences
- Teaching activities, including the 'Data Science 1' exercise and the SQL assignment at KIT

Researcher & PhD Candidate in Fog and Edge Computing

FZI Research Center for Information Technology (Information Process Engineering)

01/2020 - 09/2021 [Karlsruhe, Germany](#)

- Development of algorithms for outlier and change detection in distributed data using Federated Learning
- Research paper "Tandem Outlier Detectors for Decentralized Data" published at SSDBM '22

Research Assistant in Human-Robot Interaction

Karlsruhe Institute of Technology (Institute for Intelligent Process Automation and Robotics)

03/2019 - 10/2019 [Karlsruhe, Germany](#)

- Development of augmented-reality applications for safe human-robot interaction in Unity and C#

Working Student in Embedded Devices Development

otego

01/2018 - 12/2018 [Karlsruhe, Germany](#)

- Implementation of low-power microcontroller software for heat-powered embedded devices in C++
- Responsibility for designing and implementing Otego's iOS app in Swift

Working Student - Internet of Things

SAP

04/2017 - 12/2017 [Walldorf, Germany](#)

- Development of digital twins for the internet of things

EXPERIENCE

Internship and Working Student in Software Development

Stocard

📅 04/2016 - 03/2017 📍 Mannheim, Germany

- iOS app development in Swift and Objective-C
 - Redesign of the Stocard app
 - Responsible for designing and implementing Stocard's Apple Watch app
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Research Assistant in Robotics

FZI Research Center for Information Technology (Living Lab Service Robotics)

📅 10/2015 - 03/2016 📍 Karlsruhe, Germany

- Development of control software for autonomous robots in C++
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EDUCATION

M.Sc. Computer Science

Karlsruhe Institute of Technology

📅 10/2017 - 11/2019 📍 Karlsruhe, Germany

- Focusing on machine learning and data analysis
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B.Sc. Mechatronics and Information Technology

Karlsruhe Institute of Technology

📅 10/2013 - 10/2017 📍 Karlsruhe, Germany

- Interdisciplinary knowledge in computer science, electrical engineering, and mechanical engineering
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High-School Diploma

Werner Heisenberg Gymnasium

📅 01/2012 - 12/2012 📍 Weinheim, Germany

LANGUAGES

German

Native

English

Proficient

French

Intermediate

SKILLS

Fields of Expertise

Machine Learning, Data Science, Data Engineering, Statistics, Data Visualization

Programming

Python, Java, Scala, R, Swift, Objective-C, SQL

Frameworks

Pandas, Numpy, Scipy, Pytorch, Git & CI/CD, Docker, Apache Kafka

Soft Skills

Collaboration & Mentoring, Communication, Creativity, Analytical Mindset, Dedication, Scrum & Agile Software Development

FIND ME ONLINE



GitHub

<https://github.com/heymarco>



Personal Website

<https://heymarco.github.io>



Google Scholar

<https://scholar.google.de/citations?user=VJeY0WcAAAAJ>

PASSIONS

Sports (Cycling, Gym, Soccer, Golf)

Friends & Family

Traveling & Photography