MANUEL ALEXANDER HIRZEL

I am an enthusiastic problem solver with a holistic and process-oriented view of technical problems. I'm passionate about aligning engineering efforts with business objectives and I enjoy enabling people and teams to achieve their goals. My academic background in mathematics and my proven track record in developing shippable ML software allow me to successfully navigate the AI/ML industry.

Vist **hirzel.technology** | on request | IcebergLettuce

Kubernetes | MLOps | Platform Engineering | Machine Learning | Peopleware | Agile | Software Engineering | Python | .NET Core | Cross-Functional Work | Streamlining Processes

PROFESSIONAL EXPERIENCE

ai4medicine | Health Tech

Technical Advisor — **October 2020 - January 2022**

- Moderated and created workshops to inspire an ML **platform strategy** in health tech involving one of my own developed strategy tools [ML Quadrant, Stakeholder Analysis]
- Coached ML engineer to implement a co-developed career growth plan that includes basic ML system design and how to manage stakeholder expectations.
- Supported the founder in the development of internal structures and processes

Charité Lab for Artificial Intelligence in Medicine

Student Researcher — **September 2020 - April 2021**

- Conducted master thesis in synthesizing and anonymizing neuroimaging data with mathematical privacy guarantees to protect patients' rights
  [PyTorch, Tensorflow, Deep Learning, GAN]
- Intensive use of the high-performance computing infrastructure of the Charité to train Generative Adversarial Networks with modified optimization algorithms
  [Slurm, Python]

Convex Energy | Power Trading

Data Science Platform Engineer — **September 2019 - October 2020**

- Conceptualized and supervised the redesign of a mission-critical data ingestion system to digest up to **5k time series** from **14 different sources** by teaming up with three engineers
  [SQL, .NET Core 3.1, SignalR, Redis, Docker, Kubernetes, Grafana, Elasticsearch]
- Allied stakeholders and orchestrated the build of an internal Kubernetes based **ML platform** for algorithmic trading to achieve a competitive advantage on the Markets
  - Reduced the deployment time from days to minutes
  - Guaranteed **100%** tracking of ML models and their performance; provided by the platform's observability strategy
  - **90%** automatization of the **MLOps** workflow
    [Python, Redis, SQL, RabbitMQ, Git, .NET Core, Kubernetes, CI&CD]
- Partnered with CTO in hiring new talents and creating a smooth onboarding experience
- Supervised several ML projects of data scientists and quantitative analysts to ensure the practicality of trading algorithms; provided guidance to help them achieve their goals

Software Engineer March 2018 - August 2019

- Architected and implemented a bare-metal **Kubernetes** infrastructure to move to a cloud-native architecture [Kubernetes, CI &CD, Docker, Networking, Ingress, Load Balancing]
- Created and deployed an automatic scheduling system to report trading activities towards the transmission system operators by using **secure communication gateways** [SQL, .NET Core Public Key Infrastructure]
- Identified performance bottlenecks by profiling the infrastructure with test services and the observability stack [.NET Core, Grafana]

Data Scientist May 2017 - February 2018

- Delivered **machine learning models** (Random Forests, Hidden Markov, DL & NNs) to forecast Day-Ahead-Auctions on Energy Markets [Python, Tensorflow, Scikit-Learn]
- Collaborated in **cross-functional** teams of Data Scientists, Quantitative Analysts & Power Traders to identify market inefficiencies mathematically
- Initiated to define software engineering standards to improve the model development process; significant improvement of deployment rate and reliability of ML models [Git, inhouse CLI, Templates]

Lindt & Spruengli | Chocolate Manufacturing

Automation Engineer August 2011 - September 2012

- Prototyped a novel approach to remove leftover **chocolate** from molds after the casting process; awarded a **bonus** by the VP of Engineering for the **innovative contribution** [PLC Programming]

Automation Engineer (Vocational Training) August 2007 - July 2011

- Troubleshooted the electrical control systems of industrial machinery

EDUCATION

Technical University Berlin - Institute of Mathematics

M.Sc. Scientific Computing September 2016 - October 2021

- (in review) Thesis: Synthetic TOF-MRA image-label pairs with differential privacy guarantees using generative adversarial networks [PyTorch, Tensorflow, DP, GAN]

University of Applied Sciences Zurich

B.Sc. Engineering and Management October 2013 - August 2016

- Thesis: Variational Bayesian Hidden Markov Models [C++]

PUBLICATIONS

- (in review)"Towards sharing brain images: Differentially private TOF-MRA images with segmentation labels using generative adversarial networks", **Frontiers in AI**, 2022

COURSES & TRAINING

KV Business School Zurich

Product Management May 2012 - December 2012

SIDE PROJECTS & GIGS

Verlag der Tagesspiegel

Corona Dashboard & Germany's Super Election 2021 Corona Wave 1 - 4 & September 2021

- Supported the Tagesspiegel Innovation Lab Team in processing real-time data from multiple sources to create interactive maps; Corona Dashboard, Election [Python]