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# M.Sc. Christian Reiser

Machine Learning Engineer and Architect

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## TECHNICAL EXPERIENCE

### Generative AI and Cloud Engineering

*e-dialog*

- Leading Generative AI
- Fine-tuned and deployed the **multimodal text-to-image diffusion model** Imagen.
- Utilized **image-to-text** models BLIP2 for image captioning.
- **Prompt-engineered**, integrated and deployed the **text-to-text LLM** into production systems that generate newsletters, product descriptions, and search-engine-optimized texts.
- Built and deployed a **ChatBot** to chat with 80k documents via **OpenAI APIs**, **embeddings**, **LangChain**, and **Vector Databases**.
- **Fine-tuned** 340B parameter models (PaLM text-bison-001) via **TPUs** in GCP.
- Architected and engineered with **GCP** as a Google Cloud Partner: **Vertex AI**, **Gen App Builder** (LLM for enterprise search and ChatBots)
- From idea to ROI: Business requirements, technical requirements, technical feasibility, architecture, project plan, development.

**Data Scientist, NOV 2022 – Present**

*Vienna, Austria*

### Anomaly Detection for Smart Factories

*Phinc GmbH*

- Developed real-time anomaly detection **auto-encoders**, saving approximately €40,000 per detection, increasing productivity, and reducing downtime.
- Utilized **Linux**, **Pycharm**, Python, **Jupyter notebooks**, **pandas**, **NumPy**, **Docker**, **Scikit-Learn**, multiprocessing, and pickle for efficient data processing and analysis.

**Applied Data Scientist, APR 2022 - NOV 2022**

*Stuttgart, Germany*

### Development of a Scientific Data-Driven Healthcare App

*InsightMe*

- Led a team development of InsightMe, an innovative healthcare app leveraging AI/ML algorithms for **causal discovery and inference** from high-dimensional **time-series** data, accounting for contemporaneous links and latent confounders.
- **Data collection** via **crawlers**, **APIs**, BigQuery data transfers.
- **(ML)DevOps**: Deploy and maintain Cloud Infrastructure using Git, IaC with **Terraform**, Vertex AI Pipelines. **CI/CD** with Cloud Build.
- Employed **NLP**, **GPT-3**, Bayesian inference, ML Cloud **Architecture** and **Solution Design**, **GCP** tools (Firestore, Pub/Sub, Cloud Storage, BigQuery (**SQL**), Cloud Run, Cloud Functions, IAM, Logging, Monitoring, Alerting), front-end development (Flutter).

**Owner and Leader, MAI 2019 – APR 2022**

*Stuttgart, Germany*

### Autonomous Flight of Helicopters

*Volocopter GmbH*

- Developed a vision-based **object detection** system, achieving superior accuracy in identifying birds and enhancing the safety of autonomous helicopter flights.
- Applied **deep learning** techniques in **simulation**, employing **GANs** with **PyTorch** for domain **fine tuning**.
- **Agile** development with Scrum.

**Machine Learning Engineer, APR 2018 – APR 2019**

*Bruchsal, Germany*

### Autonomous Driving

*Udacity / Mercedes-Benz*

- Engaged in a hands-on course to develop an autonomous vehicle, programming a car to navigate a test area successfully ([GitHub repository](#)).
- Collaborated with a team of five, utilizing **Python**, **C++**, **TensorFlow**, **OpenCV**, **AWS**, and the Robotic Operating System (ROS).

**Machine Learning, JAN 2017 – MAR 2018**

*Stuttgart, Germany / California, United States*

## PUBLICATIONS

- Predicting and Visualizing Daily Mood of People Using Tracking Data ([Link to Paper](#))
- Observational Causal Discovery with Latent Confounders ([Link to Paper](#))
- Observational and Interventional Causal Learning for Regret-Minimizing Control ([Link to research report](#))

## EDUCATION AND CERTIFICATES

- B.Sc. Aerospace Engineering, University of Stuttgart
- **M.Sc. Simulation Technology** (Elite Program and part of the Cluster of Excellence), University of Stuttgart
- Self-driving Cars Engineer Nanodegree, Udacity
- Google Cloud Certified Associate **Cloud Engineer**
- Google Cloud Certified Professional **Data Engineer**
- Google Cloud Certified Professional **Cloud Architect**
- 12 online courses about **generative AI** including Responsible AI, LLM, attention mechanism, transformer, BERT, image generation, encoder-decoder architecture