Thomas Hinano Keller

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Education Summary

- **Master of Science - Computational Science, Concentration in Data Science** Aug 2022-Dec 2023
  San Diego State University, SDSU California, USA
- **Bachelor of Science - Electrical Engineering and Information Technology** Feb 2017-Sep 2021
  University of Applied Sciences and Arts Northwestern Switzerland, FHNW Brugg, Switzerland

Skills Summary

- **Programming Languages:** Python, C, SQL, Fortran, Assembly, MATLAB, HTML, CSS, Bash, VHDL
- **Frameworks:** Pandas, NumPy, Matplotlib, Scikit-learn, TensorFlow, Keras, Django, Tkinter, Pthread
- **Tools:** Git, SQLite, OpenMP, MPI, CUDA, UPC++, PBS/Torque, Latex, KiCad

Work Experience

- **Data Scientist - Medical Imaging AI Researcher**
  SDSU Medical Imaging AI Lab, San Diego Jan 2024-present
  - Conducted research and implemented a 3D algorithm for COPD characterization, integrating techniques involving GAN and U-Net architectures, leading to improved predictive accuracy in air-trapping and emphysema detection.
  - Leveraged Python, Keras, and TensorFlow to research and address imbalanced datasets, enhancing model performance and achieving a 15% increase in predictive accuracy through boosting and multi-loss function integration.

- **Graduate Assistant - High Performance Computational Lab**
  Computational Science Research Center CSRC, San Diego Nov 2022-Dec 2023
  - Set up, support, and integrate a high-performance computer cluster, ensuring seamless performance and unwavering reliability. Over 30 scientists utilized the cluster to conduct research and advanced analytics.
  - Enhanced cluster environment functionality on Linux, Windows, and macOS by developing and delivering customized training sessions; increased user productivity and efficiency by 40% through consulting, support, and troubleshooting.

- **Software Engineer Intern**
  IT'IS Foundation, Zürich Mar 2022-Aug 2022
  - Software development of a Python-driven solution for efficient calibration certificate creation, integrating data parsing, LaTeX templates, and automation; resulted in a 25% decrease in time and certificate failure rates.
  - Developed software to automate measurement and testing processes, focusing on return loss measurements using a vector network analyzer. Created a user-friendly Tkinter interface for seamless operation, reducing testing time by 30%.

- **Founder, CEO**
  Artigall GmbH, Zürich Jun 2019-Aug 2022
  - Managed the entire lifecycle of a web application, overseeing development, architecture, implementation, and design; developed a strategy that engaged 30 artists, resulting in a 50% improvement in artwork visibility and user engagement.
  - Led a cross-functional team of five members in product, engineering, sales, and support, coordinating with six business partners, and executed project management that culminated in the successful launch of an e-commerce platform.

Academic Projects

- **Medical Chatbot LLM:** Engineered a large language model specifically for a medical chatbot using transformer architectures, enhancing the accuracy of medical information across 1,000+ conditions, symptoms, treatments, and medications through extensive data scraping, preprocessing, and fine-tuning (2024).
- **Parallel Learning with Deep Neural Network:** Designed a deep neural network from scratch, parallelizing learning with OpenMP, CUDA, and PBS/Torque; reached 98% classification accuracy and increased computational speed by 41% (2023).
- **Housing Price prediction:** Analyzed a machine learning solution using K-means clustering, Random Forest regression, and regression models to predict housing prices. Improved accuracy by 20% through feature engineering and optimization (2021).
- **Speaker recognition:** Led a research project on speaker recognition with the 'King Speaker Corpus" dataset; applied framing and feature extraction, optimized model parameters, and achieved a notable error rate reduction to 4.8% (2023).
- **Bitcoin Price prediction:** Implemented a predictive model utilizing LSTM neural networks to forecast Bitcoin prices. Collected and preprocessed over 10,000 historical data points, successfully applying the model for accurate time series analysis (2022).
- **Personal Blog:** Created a feature-rich personal blog built with Python and Django, including an SQL powered commenting system; deployed on AWS EC2, highlighting advanced cloud and server management capabilities (2023).

Publications

- **Patent pending:** Circuit for reducing the power consumption of an idling battery charger.
- T. Keller. "*Mimetic Differences for the Perona-Malik Equation*." Poster presented at the CSRC Conference on Computational Science, San Diego, April 2023.
- T. Keller. "*Mimetic Differences for the Perona-Malik Equation" CSRC*, 07/2023, CSRCR2023-06.