Leon Kloker

Institute for Computational and Mathematical Engineering ◇ Stanford University
leonkl@stanford.edu ◇ +1(650) 441-4923 ◇ https://leonkloker.github.io ◇ https://github.com/leonkloker

EDUCATION

Stanford University September 2022 – June 2024
M.Sc. in Computational and Mathematical Engineering. GPA 3.9/4.0 *Stanford, CA*

University of Stuttgart October 2017 – August 2021
B.Sc. in Simulation Technology. GPA 1.3 (inverted 4.0 scale, top of the class) *Stuttgart, Germany*

INTERNSHIPS

Scientific ML research intern @ Ansys June 2023 – September 2023
Developed transformer models in order to time integrate solution snapshots of the 2D incompressible Navier-Stokes equation in the turbulent regime as a benchmark. Also explored the intersection of Fourier Neural Operators and Transformers for Neural Operator Learning. *(Tools: PyTorch, PDEs)*

ML research intern @ **Sandia National Laboratories** December 2022 – March 2023
Investigated the performance of different model architectures, such as convolutional networks or graph transformers for predicting the probability of a successful trial for of a given single-outcome quantum computation circuit. *(Tools: PyTorch Geometric, Quantum Computing)*

RESEARCH PROJECTS

LLM-powered intelligent search December 2023 – now
Start-up project. Developing a chatbot tailored towards buy-side solar M&A analysts that allows to talk to a data-room via natural language. Responsibilities range from web deployment to coding a RAG-powered search engine providing citations for sources with LlamaIndex. *(Tools: LLM, Python, RAG)*

CUDA parallel computing April 2023 – June 2023
Course project. A feedforward neural network was implemented from scratch in C++. Forward and backward pass were written as GPU kernels using CUDA with custom optimized kernels for several functions such as general matrix-matrix multiplication or softmax. The model was further parallelized by using MPI for data distribution. *(Tools: CUDA, MPI, C++, Nvidia Nsights)*

Computer Vision for precision oncology December 2022 – June 2023
Integrative Imaging and Molecular Diagnostics lab @ Stanford Medicine. Built ML algorithms for automated cell segmentation and classification in digitalized cancer tissue samples to discover biomarkers that can predict response to Immunotherapy. *(Tools: PyTorch, Statistics)*

PUBLICATIONS

Solution approaches for evaporation-driven density instabilities in a slab of saturated porous media
with Carina Bringedal. Physics of Fluids (Vol.34, Issue 9, 2022)

AWARDS AND FELLOWSHIPS

Scholarship of the German Academic Exchange Service (DAAD) 2022 – 2024
Simulation Technology valedictorian award 2021
Ferry Porsche Abitur Prize 2017
DPG Abitur Prize 2017

ADDITIONAL WORK

One Semester of M.Sc. Simulation Technology at University of Stuttgart 2021 – 2022
Teaching Assistant: Engineering Mechanics 1-4, Machine Learning, Linear Algebra for Computing 2018 – 2023
Tennis and fitness coach at Tennis Club Grötzingen and Bernhausen 2018 – 2022

SKILLS

Language: Fluent in German and English, proficient in French
Technical: Python, C++, CUDA, MATLAB, Julia, Java, Git, Bash Script, Latex

INTERESTS & RECENT CLASSES

Mathematical and probabilistic modeling and problem solving
Using Machine Learning to investigate and solve impactful real-world problems
Recent classes: *Advanced Software Engineering, Parallel Computing, LeanLaunchpad, Stochastic Methods, Deep Meta Learning, Machine Learning, Apps with LLMs, Machine Learning Systems, applied PDEs*