Leon Kloker

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EDUCATION

Stanford University	September 2022 – June 2024
M.Sc. in Computational and Mathematical Engineering (current 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*

PROJECTS

Transformers as time-integrators for PDEs   June 2023 – September 2023

Internship @ Ansys. Developed transformers combined with autoencoders to timestep solution snapshots of the 2D Navier-Stokes equation in the turbulent regime. Also explored the intersection of Fourier Neural Operators and Transformers for Neural Operator Learning. *(Tools: PyTorch, Numerics)*

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 – March 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)*

Deep Learning for fidelity estimation of quantum circuits   December 2022 – March 2023

Internship @ Sandia National Laboratories. Investigated different model architectures, such as convolutional networks or graph transformers, in order to predict the fidelity of a given quantum computation circuit. *(Tools: Tensorflow, Quantum Computing)*

Convection in saline groundwater   October 2021 – July 2022

Final thesis. A mathematical model describing evaporation of saline water from a porous medium was developed to investigate the flow stability via a linear stability analysis and verify results with a direct numerical simulation as part of a RA position. *(Tools: Matlab, PDEs)*

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 and Course Assistant: Engineering Mechanics 1-4, Intro to AI, Machine Learning	2018 – 2022
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, applied PDEs, Numerical Linear Algebra, Optimization, Cryptocurrencies*