

Diego Renner

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 DiegoRenner

</> C++, Python, Matlab

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EXPERIENCE

- **ETH Zürich** Zurich, Switzerland
Teaching Assistant September 2021 - February 2022
 - Teaching Assistant for Lecture "Numerical Methods for Computer Science".**Technologies:** C++
Theory: ODEs, PDEs and numerical algorithms to solve them
- **ETH Zürich** Zurich, Switzerland
Research Assistant September 2020 - June 2021
 - Hired for continued development of BEM code that was implemented in Masters Thesis.**Technologies:** C++, CMake, Git
Theory: BEM, Resonances in Transmission Scattering Problems
- **ETH Zürich** Zurich, Switzerland
Teaching Assistant September 2020 - February 2021
 - Teaching Assistant for Lecture "Numerical Methods".**Technologies:** C++, CMake
Theory: ODEs, PDEs and numerical algorithms to solve them.
- **CSCS Swiss National Supercomputing Center** Lugano, Switzerland
Internship May 2018 - August 2018
 - Writing regression checks for Piz Daint, Cray XC40/XC50 production system.**Technologies:** C, MPI, MySQL, Kibana, Grafana

EDUCATION

- **ETH Zürich** Zurich, Switzerland
M.Sc. Maths September 2021 - December 2023
 - Strengthened analytical abilities in pure maths courses and coding skills in thesis on differentiable haemodynamics solver (Python).
- **ETH Zürich** Zurich, Switzerland
M.Sc. Computational Science and Engineering, Specialization Physics September 2018 - August 2021
 - Degree completed with a thesis on solving the transmission scattering problem using BEM (C++).
- **Universität Basel** Basel, Switzerland
B.Sc. Computational Mathematics September 2014 - Februar 2018
 - Completed extracurricular courses on Computer Architecture, Operating Systems and Quantum Mechanics.
- **Gymnasium Bäumlhof** Basel, Switzerland
Matura, Specialization Biology & Chemistry August 2009 - July 2014

- **Ready, set, go! A short introduction for Student Teaching Assistants** (remote) Zurich
Education Development and Technology, ETH Zurich
April 2020
 - Improving didactic skills
 - Setting goals for upcoming teaching activity
- **Effective High-Performance Computing & Data Analytics with GPU** (remote) Lugano, Switzerland
Summerschool, CSCS-USI
July 2020
 - GPU: architecture & programming (CUDA, OpenACC)
 - JupyterLab
 - Python: Numpy, SciPy, Dask, Numba
 - ML: Rapids
 - Deep Learning: TensorFlow
- **International Consulting Network (ICON)** Shanghai, (remote) Belo Horizonte
Student Consulting Network
March 2017 - Februar 2018
 - Market Research & Trend Analysis
 - Consulting for CREP (Real Estate, China) & Lalubema (Private Security, Brazil)

Following sections items are clickable

PROJECTS & THESIS

- Parallelizing the Barnes-Hut Algorithm with MPI: Parallelized implementation of N-Body solver in C++ using the MPI framework. (Course Work)
- AiiDA Lab implementation of IR spectrum calculations for carbon based nanomaterials: An AiiDa workflow implemented in the Jupyter Notebooks based AiiDa lab interface. (Semester Thesis, Computational Science)
- Near Resonances for Scattering Transmission Problems: A BEM based C++ solver for Scattering Transmission Problems, developed to investigate scatterer-dependent near resonances. (Masters Thesis, Computational Science)
- Detecting Near Resonances in Acoustic Scattering: Continued development of root finding algorithm from the masters thesis using empirical evidence and state of the art computation of singular values. (Paper, currently under peer-review)
- ML based game simulation in a finance setting: Agents trained to trade or hold a stock taking into account real historical data on cash returns. Policies are learned via reinforcement learning. (Course Work)
- On differentiable simulations of haemodynamic systems: A 1D-haemodynamics solver written in Python using JAX. The differentiability of the solver aims to aid in the development of personalised medicine. (Masters Thesis, Maths)