Lukas Einramhof

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🐙 [LukasEin](https://github.com/LukasEin)
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Interested and experienced in:
Computational Physics
Theoretical Physics
Scientific Programming
Numerical Linear Algebra
Machine Learning
Neural Networks

Voluntary Research Experience

Institute of Science and Technology Austria, Klosterneuburg – *Scientific Intern*

MAR 2023 - PRESENT

Scientific internship under the supervision of Prof. Bingqing Cheng

- *Goal:* Building a machine learning framework for modeling the free energy of materials
- *Methods:* Gaussian Process Regression, Molecular Dynamics, Density Functional Theory
- *Technologies:* Python, Jax – Differentiable programming

Publication: Gaussian Process regression for thermodynamic integration. Einramhof L., Cheng B., 2023 (in preparation)

Conference: CECAM Workshop – New Frontiers for Simulating Nonequilibrium Many Body Systems in Physics and Chemistry: An Interdisciplinary Response

Technical University of Vienna, Vienna – *Project Intern*

JAN 2023 - FEB 2023

Conducting a project under the supervision of Prof. Jan Kunes

- *Goal:* A study of the DC optical conductivity in ferromagnetic $SrCoO_3$
- *Methods:* Density Functional Theory
- *Technologies:* Wien2K, Python

Education

Master in Technical Physics – *Dipl.Ing. (equivalent to M.Sc.)*

Main degree – *Technical University of Vienna, Vienna*

SEP 2020 - OCT 2022

Graduated with distinction: average total grade = 1.3 (1=best to 5=fail)

Thesis: [Group equivariant neural networks for a scalar field theory](#)

- *Code:* https://github.com/LukasEin/scalar_ml_reflection
- *Technologies*: Python, Pytorch, Optuna

Focus: theoretical and mathematical physics, numerical computation, and machine learning

Additional Coursework – University of Vienna, Vienna

SEP 2019 - SEP 2020

Focus: mathematics of general relativity, dynamical systems, and probability theory

Bachelor in Technical Physics, Technical University of Vienna, Vienna – *B.Sc.*

AUG 2016 - AUG 2019

Graduated with distinction: average total grade = 1.7 (1=best to 5=fail)

Bachelor in Computer Science, Technical University of Vienna, Vienna – *B.Sc.*

SEP 2015 - AUG 2016

Switched degree program to Technical Physics

Publications & Conferences

Gaussian process regression for thermodynamic integration

Einramhof L., Cheng B., 2023 (in preparation)

Sorbonne Université Campus Pierre et Marie Curie, Paris

JUN 2023

CECAM Workshop – New Frontiers for Simulating Nonequilibrium Many Body Systems in Physics and Chemistry: An Interdisciplinary Response

Skills & Languages

Programming languages

Python, C/C++, Fortran, MATLAB

Other

Jax – Differentiable Programming, Git, Pytorch, LaTeX

Languages

German (mother tongue), English (C1)