Imahn Shekhzadeh

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Education

Oct 2023 – Present — **Graduate Researcher & CS PhD Candidate**, University of Geneva.

Oct 2020 – Sep 2022 — **M.Sc. Physics**, University of Hamburg. GPA: 1.13.

2017 – 2021 — **B.Sc. Physics**, University of Hamburg. GPA: 1.49.

2009 – 2017 — **A-studies**, Margaretha-Rothe-Gymnasium, Hamburg. GPA: 1.00.

Honors and Scholarships

2017 – Present — Member of the Hamburg Mathematical Society (German *Mathematische Gesellschaft in Hamburg*).

2017 – Sep 2022 — Scholarship by the German Academic Scholarship Foundation (German *Studienstiftung des deutschen Volkes*) for my B.Sc. & M.Sc. in Physics.

Publications

NeurIPS 2023 — *Calibrating Neural Simulation-Based Inference with Differentiable Coverage Probability.* Maciej Falkiewicz*, Naoya Takeishi*, **Imahn Shekhzadeh***, Antoine Wehenkel, Arnaud Delaunoy, Gilles Louppe, Alexandros Kalousis.

Journal of Instrumentation 2023 — *L2LFlows: generating high-fidelity 3D calorimeter images.* Sascha Diefenbacher, Engin Eren, Frank Gaede, Gregor Kasieczka, Claudius Krause*, **Imahn Shekhzadeh***, David Shih.

NeurIPS 2023 ML4Science Workshop — *Advancing Generative Modelling of Calorimeter Showers on Three Frontiers.* Erik Buhmann, Sascha Diefenbacher, Engin Eren, Frank Gaede, Gregor Kasieczka, William Korcari, Anatolii Korol, Claudius Krause, Katja Krüger, Peter McKeown, **Imahn Shekhzadeh**, David Shih.

(* equal contribution)

Work Experience

Oct 2022 – Present
Teaching Assistant, University of Applied Sciences Western Switzerland.
Courses: *Machine Learning* (Fall 2022 & 2023), *Statistics for Machine Learning* (Spring 2023)

Spring – Summer 2018
Light & Schools, Universität Hamburg
(Co-)Supervision of school classes for teaching particular physics or computing applications, such as diffraction of light, app development, etc.

2013 – 2017
Margaretha-Rothe-Gymnasium, Hamburg
Tutoring of students in Mathematics, Physics and Latin.

Skills

Programming languages
Proficient in: Python (PyTorch, TensorFlow, NumPy, matplotlib, scikit-learn, etc.)
Familiar with: Java
Basics: C/C++

Software
Linux, Slurm, HTCondor, LaTeX, Microsoft Office (all very good),
git (experienced)

Languages
German (native), English (fluent), Farsi/Dari (fluent), Latin (Latinum)

Further Projects

Nov 22 – Present
MIGRATE (A Multidisciplinary and InteGRated Approach for geoThermal Exploration), *collaborators*: Alexandros Kalousis, Riccardo Lanari, Matteo Lupi, Konstantinos Michailos, Juan Luis Porras Loría, Domenico Montanari, Samuele Papeschi, Gurjeet Singh. In an interdisciplinary project, we are studying the automatization of the workflow of ambient noise tomography (ANT) data. This is relevant, since ANT is used for the exploration of geothermal energy, which is a resource potentially available anywhere and at any time. The current ANT workflow, however, heavily relies on simplified assumptions, and the amount of data poses a computational strain, which is where ML methods can help.

ML Lecture Project Apr – Jul 21
Music Genre Recognition, *supervised by*: Prof. Christina Brandt. In the Master lecture "Machine Learning", I worked with two other students on music genre recognition, i.e. the classification of a music genre from raw audio data. We used both convolutional and recurrent neural networks and preprocessed the audio files into Mel spectograms, which are visual representations of sound. Code: https://gitlab.com/Imahn/music-genre-recognition.

Carouge, December 07 2022