Peter Sorrenson

Location: Heidelberg, Germany
Phone: +49 176 29366768
Email: peter.sorrenson@gmail.com
LinkedIn: peter-sorrenson-0a4906346
Github: psorrenson
Website: psorrenson.github.io
Google Scholar: 894uGm4AAAAJ

Key Skills:
- Python, C/C++
- PyTorch
- Generative models
- Git
- English (native), German (B2)

Professional Summary

Post-doctoral ML Researcher (Generative Models) seeking industry impact.
5 first-author publications (ICML, ICLR, NeurIPS, AISTATS) and 470 citations.

Work Experience

01/2025 - 06/2025

Heidelberg University, Germany – *Postdoctoral Researcher*

- Supervised 3 Masters students; one paper accepted at ICML 2025.

Education

09/2020 - 01/2025

Heidelberg University, Germany – *PhD in Physics (Machine Learning Focus)*

- Thesis: *Free-Form Flows: Generative Models for Scientific Applications* (magna cum laude)
- Focused on the design and application of generative models for science.
- 7 published papers, 3 as first author (at ICLR, NeurIPS, and AISTATS).

04/2017 - 07/2020

Heidelberg University, Germany – *Master's in Physics*

- Thesis: *Nonlinear Independent Component Analysis and Invertible Neural Networks* (1.0)
- Research presented as a spotlight talk (top 15%) at ICLR 2020.

02/2013 - 02/2016

University of Auckland, New Zealand – *Bachelor's in Physics and Mathematics*

- Awarded "Best in Class" in five courses.

Research Experience

Free-Form Flows

- Designed a novel generative model for scientific data, especially on manifolds.
- Outcome: Three publications at top conferences (ICLR, NeurIPS, AISTATS).

JetCLR: Contrastive Learning for Particle Jets

- Applied contrastive learning techniques to data from the Large Hadron Collider.
- Outcome: Published in SciPost Physics.

General Incompressible-flow Networks (GIN)

- Designed a specialized normalizing flow for disentanglement.
- Outcome: Published at ICLR 2020 (spotlight presentation).

Technical Skills

- Programming Languages: Python, C/C++.
- Machine Learning Frameworks: PyTorch, TensorFlow.
- Tools and Libraries: NumPy, SciPy, Scikit-learn, Matplotlib, Pandas.
- Specialized Knowledge: Generative models, normalizing flows, contrastive learning, representation learning, Riemannian geometry.
- Mathematics & Statistics: Linear algebra, probability, optimization, differential geometry.
- Other Tools: Git, Jupyter Notebooks, LaTeX.
- Languages: English (native speaker); German (B2).

First-Author Publications

Further publications can be found on Google Scholar page:
https://scholar.google.com/citations?user=894uGm4AAAAJ

- *Learning Distances from Data with Normalizing Flows and Score Matching*, **ICML 2025**.
- *Free-Form Flows: Make Any Architecture a Normalizing Flow*, **AISTATS 2024**.
- *Lifting Architectural Constraints of Injective Flows*, **ICLR 2024**.
- *Learning Distributions on Manifolds with Free-Form Flows*, **NeurIPS 2024**.
- *Disentanglement by nonlinear ICA with general incompressible-flow networks (GIN)*, **ICLR 2020**.

Total citations: 470.