





JONATHAN SCHMIDT

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RESEARCH INTERESTS

Diffusion models for scientific applications (**current direction**), probabilistic inference, state-space models, Gaussian processes, inference in & simulation of dynamical systems, time-series analysis, signal processing

SELECTED SKILLS

- Python, PyTorch, JAX, Numpy
- Julia Programming Language
- git, GitHub, open-source development

EDUCATION

MSC. MACHINE LEARNING

University of Tübingen, Germany
2018 – 2021

TERM ABROAD (MSC.)

National Taiwan University, Taiwan
2019

BSC. COMPUTER SCIENCE

University of Tübingen, Germany
2014 - 2018

PUBLICATIONS

NEURIPS 2023

Jonathan Schmidt, Philipp Hennig, Jörg Nick, Filip Tronarp.
“The Rank-Reduced Kalman Filter: Approximate Dynamical-Low-Rank Filtering In High Dimensions”

ICML 2022

Nicholas Krämer*, Nathanael Bosch*, **Jonathan Schmidt***, Philipp Hennig. *: Equal contribution.
“Probabilistic ODE Solutions in Millions of Dimensions”

AISTATS 2022

Nicholas Krämer, **Jonathan Schmidt**, Philipp Hennig.
“Probabilistic Numerical Method of Lines for Time-Dependent Partial Differential Equations”

NEURIPS 2021

Jonathan Schmidt, Nicholas Krämer, Philipp Hennig.
“A Probabilistic State Space Model for Joint Inference from Differential Equations and Data”

LANGUAGES

- German (native)
- English (C1)
- French (B2)
- Japanese (JLPT N5)

PUBLICATIONS CONT.

PRE-PRINT (UNDER REVIEW)

Jonathan Wenger, Nicholas Krämer, Marvin Pförtner, **Jonathan Schmidt**, Nathanael Bosch, Nina Effenberger, Johannes Zenn, Alexandra Gessner, Toni Karvonen, François-Xavier Briol, Maren Mahsereci, Philipp Hennig.

“ProbNum: Probabilistic Numerics in Python”

PERSONAL INTERESTS

- music (piano, guitar, mixing/mastering)
- bouldering / sport climbing
- camping
- bikepacking

WORK EXPERIENCE

RESEARCH ASSISTANT

University of Tübingen

2020 – 2021

- Open-source development (Python) of ProbNum, a toolbox for methods from probabilistic numerics

RESEARCH ASSISTANT

Max-Planck Institute for Intelligent Systems

2019 – 2020

- PyTorch
- Model-based reinforcement learning

WORKING STUDENT

Daimler AG

2017 – 2019

- PyTorch, TensorFlow
- Computer vision, semantic segmentation, synthetic data generation
- Autonomous driving

TEACHING ASSISTANT

University of Tübingen

2017 – 2018