Daniel Gedon, PhD

Tübingen, September 2025

Personal data

Current position:	Postdoctoral Fellow		
University address:	Eberhard Karls Universität Tübingen, Machine Learning in Science, Maria-von-Linden-Straße 1, 72076 Tübingen, Germany		
Citizenship:	German		
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Professional experience

Postdoctoral Fellow, Tübingen University, Germany 09/2024 - now
Advisor: Jakob Macke
Satellite Attitude Control System Analyst, Airbus Defence & Space, Germany 10/2015 - 09/2016

Degrees

Ph.D. in Machine Learning, Uppsala University, Sweden 08/2019 - 08/2024
Advisor: Thomas Schön
M.Sc. in System and Control, TU Delft, Netherlands 09/2017 - 07/2019
Advisor: Michel Verhaegen
B.Eng. in Aerospace Engineering, DHBW, Germany 09/2012 - 09/2015
Advisor: Thomas Ott

Academic Service

Peer Reviewing
Conferences: NeurIPS (2023, 2024, 2025), ICLR (2024, 2025), AISTATS (2023, 2024), UAI (2025), IFAC WC (2023), CDC (2023), ECC (2023), MIR (2024), IEEE CCTA (2023)
Journals: IEEE CSS (2025), IEEE TC-SMC (2023), IEEE TIM (2023), IEEE Access (2023), Automatica (2023), BMJ (2022)

Organization
SBI hackathon, Tübingen, Germany 03/2025

Awarded grants

Knut and Alice Wallenberg Foundation (WASP). Spring 2024
2-year postdoctoral scholarship at the Institute of Science and Technology Austria.
Declined in favor of another postdoctoral position.

Knut and Alice Wallenberg Foundation (WASP). Spring 2023
For a three-month research visit to Mikhail Belkin's lab at UCSD.

Supervision

Stefan Wahl, PhD student	2025 - now
Philipp von Bachmann, MSc student project	Spring 2022
Theogene Habineza, MSc thesis project	Spring 2022

Invited talks

1. ERNSI Workshop, Stockholm. September 2023
   Deep Networks for System Identification: A Survey
2. Belkin Lab Group Meeting, San Diego. March 2023
   No double descent in PCA: Training and pre-training in high dimensions
3. SciLifeLab DDLS annual conference, Stockholm. November 2022
   Panel discussion: *Training in Data Driven Life Science*
4. Joint DSBS / FMS Meeting, Malmö. November 2022
   Deep Learning-based ECG Reading in the Emergency Department - Diagnosis of Myocardial Infarctions
5. NeurIPS Workshop Machine learning from ground truth: New medical imaging datasets for unsolved medical problems, online. December 2021
   ResNet-based ECG Diagnosis of Myocardial Infarction in the Emergency Department
6. Computing in Cardiology (CinC), online. September 2021
   First Steps Towards Self-Supervised Pretraining of the 12-Lead ECG
7. 19th IFAC Symposium on System Identification (SYSID), online. July 2021
   Deep State Space Models for Nonlinear System Identification
8. 27th European Signal Processing Conference (EUSIPCO), A Coruña. September 2019
   Tensor Network Kalman Filter for LTI Systems

Longer scientific visits

Visiting Ph.D. Student with UC San Diego (3 months). Host: Mikhail Belkin. Spring 2023

Teaching

Teacher 09/2024- Present

Tübingen University, Germany

Seminar: Machine Learning Methods for Scientific Discovery, MSc level	Spring 2025
Teamproject: Benchmarking for misspecified SBI, BSc level	Spring 2025

Lecturer 09/2023 - 08/2024

Uppsala University, Sweden

Advanced Probabilistic Machine Learning, 1RT705/1RT003, MSc level [Syllabus]	Fall 2023

Teaching Assistant 10/2018 - 08/2024

Uppsala University, Sweden

Statistical Machine Learning, 1RT700, MSc level [Syllabus]	Fall 2023
Advanced Probabilistic Machine Learning, 1RT705/1RT003, MSc level [Syllabus]	Fall 2023
Empirical Modelling & System Identification, 1RT890/1RT885, MSc level [Syllabus]	Fall 2023

Artificial Intelligence and Machine Learning, WASP Graduate School, PhD level — Spring 2023
Statistical Machine Learning, 1RT700, MSc level [Syllabus] — Fall 2022
Advanced Probabilistic Machine Learning, 1RT705/1RT003, MSc level [Syllabus] — Fall 2022
Artificial Intelligence and Machine Learning, WASP Graduate School, PhD level [Syllabus] — Spring 2022
Statistical Machine Learning, 1RT700, MSc level [Syllabus] — Spring 2022
Statistical Machine Learning, 1RT700, MSc level [Syllabus] — Fall 2021
Automatic Control II, 1RT495, MSc level [Syllabus] — Fall 2021
Introduction to Computer Controlled Systems, 1RT485, BSc level [Syllabus] — Spring 2021
System Identification, 1RT885, MSc level [Syllabus] — Spring 2020
Introduction to Computer Controlled Systems, 1RT485, BSc level [Syllabus] — Spring 2020

TU Delft, The Netherlands

Filtering and Identification, SC42025, MSc level [Syllabus] — Fall 2018

Pedagogical education

Academic teacher training course, Uppsala University, 7.5 credits, 2022, [Syllabus]

Other experience

Solo Travel — 10/2016 - 04/2017

Long distance hike alone in Patagonia [Greater Patagonian Trail].
Language school: Spanish (Sucre, Bolivia).

Voluntary Work — 04/2017 - 08/2017

Ansbach, Germany.
Work with primary school children, elderly, and refugees.

Languages

German (mother tongue)
English (fluent)
Swedish (intermediate knowledge)
Spanish (beginner)

Publications

Pre-prints and submitted manuscripts

M1. **A deep learning ECG model for localization of occlusion myocardial infarction**
Stefan Gustafsson, Antônio H. Ribeiro, **Daniel Gedon**, Petrus E.O.G.B. Abreu, Nicolas Pielawski, Gabriela M.M. Paixão, Antonio Luiz P. Ribeiro, Daniel Lindholm, Thomas B. Schön, Johan Sundström
medRxiv, submitted to Nature Communications, 2025 [medRxiv]

Peer-reviewed publications

P1. **Effortless, Simulation-Efficient Bayesian Inference using Tabular Foundation Models**
Julius Vetter, Manuel Gloeckler, **Daniel Gedon***, Jakob H. Macke*
NeurIPS, 2025 [arXiv]

P2. **Deep networks for system identification: a Survey**
Gianluigi Pillonetto, Aleksandr Aravkin, **Daniel Gedon**, Lennart Ljung, Antônio H. Ribeiro, Thomas B. Schön
Automatica, 2025 [DOI] [arXiv]

P3. **No Double Descent in Principal Component Regression: A High-Dimensional Analysis**
Daniel Gedon, Antônio H. Ribeiro, Thomas B. Schön
ICML, 2024 [OpenReview] [ICML] [code]

P4. **Uncertainty Estimation with Recursive Feature Machines**
Daniel Gedon, Amirhesam Abedsoltan, Thomas B. Schön, Mikhail Belkin
UAI, 2024 [OpenReview] [code]

P5. **Evaluating regression and probabilistic methods for ECG-based electrolyte prediction**
Philipp Von Bachmann, **Daniel Gedon**, Fredrik K. Gustafsson, Antônio H. Ribeiro, Erik Lampa, Stefan Gustafsson, Johan Sundström, Thomas B. Schön
Scientific Reports 14, 15273, 2024 [DOI] [arXiv] [code] [models]

P6. **End-to-end Risk Prediction of Atrial Fibrillation from the 12-Lead ECG by Deep Neural Networks**
Theogene Habineza, Antônio H. Ribeiro, **Daniel Gedon**, Joachim A. Behar, Antonio Luiz P. Ribeiro, Thomas B. Schön
Journal of Electrocardiology, 2023 [DOI] [arXiv] [code] [models]

P7. **Screening for Chagas disease from the electrocardiogram using a deep neural network**
Carl Jidling, **Daniel Gedon**, Thomas B. Schön, Claudia Di Lorenzo Oliveira, Clareci Silva Cardoso, Ariela Mota Ferreira, Luana Giatti, Sandhi Maria Barreto, Ester C. Sabino, Antonio L. P. Ribeiro, Antônio H. Ribeiro
PLOS Neglected Tropical Diseases, 2023 [DOI] [medRxiv] [code] [models]

P8. **Invertible Kernel PCA with Random Fourier Features**
Daniel Gedon, Antônio H. Ribeiro, Niklas Wahlström, Thomas B. Schön
IEEE Signal Processing Letters, 2023 [DOI] [arXiv] [code]

P9. **Development and validation of deep learning ECG-based prediction of myocardial infarction in emergency department patients**
Daniel Gedon*, Stefan Gustafsson*, Erik Lampa, Antônio H. Ribeiro, Martin J. Holzmann, Thomas B. Schön, Johan Sundström
Scientific Reports 12, 19615, 2022 [DOI]

P10. **First Steps Towards Self-Supervised Pretraining of the 12-Lead ECG**
Daniel Gedon, Antônio H. Ribeiro, Niklas Wahlström, Thomas B. Schön
Computing in Cardiology (CinC), 2021, online [DOI] [Slides] [Video]

P11. **Deep State Space Models for Nonlinear System Identification**
Daniel Gedon, Niklas Wahlström, Thomas B. Schön, Lennart Ljung
Proceedings of the 19th IFAC Symposium on System Identification (SYSID), 2021, online [DOI] [arXiv] [Code] [Slides]

P12. **Automatic 12-lead ECG classification using a convolutional network ensemble**
Antônio H. Ribeiro, **Daniel Gedon**, Daniel Martins Teixeira, Manoel H. Ribeiro, Antonio L. Pinho Ribeiro, Thomas B. Schön, Wagner Meira Jr.
Computing in Cardiology (CinC), 2020, online [DOI] [Code] [Slides]

P13. **Tensor Network Kalman Filter for LTI Systems**
Daniel Gedon, Pieter Piscaer, Kim Batselier, Carlas Smith, Michel Verhaegen
27th European Signal Processing Conference (EUSIPCO), A Coruña, Spain, 2019 [DOI] [Code] [Slides]

P14. **PointingSat – High Precision Pointing Error Analysis with ESA PEET v1.0**
Thomas Ott, Marc Hirth, Massimo Casasco, Simon Görries, **Daniel Gedon**, Alison Ponche
10th International ESA Conference on Guidance, Navigation & Control Systems, Salzburg, Austria, 2017 [Paper]

Theses

T1. **On Deep Learning for Low-Dimensional Representations**
Daniel Gedon
PhD thesis, Acta Universitatis Upsaliensis, Uppsala, Sweden, 2024. [Thesis] [Slides]

T2. **Tensor Network Kalman Filter for Large-Scale MIMO Systems: With Application to Adaptive Optics**
Daniel Gedon
Master thesis, TU Delft, The Netherlands, 2019. [Thesis] [Slides]