

# Daniel Gedon

Tübingen, October 2024

## Personal data

---

Current position: Postdoctoral Fellow  
University address: Eberhard Karls Universität Tübingen  
Machine Learning in Science  
Maria-von-Linden-Straße 6, 72076 Tübingen, Germany

E-Mail: daniel.gedon@uni-tuebingen.de  
Website: dgedon.github.io  
GitHub: github.com/dgedon  
Twitter / X: @danigedon  
LinkedIn: linkedin.com/in/dgedon/

Birth: 11.05.1994 in Feuchtwangen, Germany  
Citizenship: German

## Degrees

---

<b>Ph.D., Machine Learning</b> Uppsala University, Sweden. Advisor: Thomas Schön	08/2019 - 08/2024
<b>M.Sc., System and Control</b> TU Delft, the Netherlands. Advisor: Michel Verhaegen	09/2017 - 07/2019
<b>B.Eng., Aerospace Engineering</b> Baden-Württemberg Corporate State University, Germany. Advisor: Thomas Ott Cooperation with Airbus Defence & Space, Friedrichshafen (Germany).	09/2012 - 09/2015

## Postdoctoral Training

---

<b>Postdoctoral Fellow</b> Tübingen University, Germany. Advisor: Jakob Macke	09/2024 - expected 09/2027
---	----------------------------

## 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*

## Awarded grants

---

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

---

Philipp von Bachmann, MSc student project Spring 2022  
Theogene Habineza, MSc thesis project Spring 2022

## Longer scientific visits

---

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

## Teaching

---

**Lecturer** 09/2023 - Present  
**Uppsala University, Sweden**

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

**Teaching Assistant** 10/2018 - Present  
**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]

## Industrial positions

---

**Satellite Attitude and Orbit Control System Analyst** 10/2015 - 09/2016  
Airbus Defence and Space, Friedrichshafen, Germany

## Personal experience

---

**Solo Travel** 10/2016 - 04/2017  
Long distance hike alone in Patagonia [Greater Patagonian Trail].  
Backpacking, discovering the unknown, stretching own boundaries.  
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

---

\* equal contribution.

### Peer-reviewed publications

- P1. Gianluigi Pillonetto, Aleksandr Aravkin, **DG**, Lennart Ljung, Antônio H. Ribeiro, Thomas B. Schön, **Deep networks for system identification: a Survey**, *Automatica*, 2025. [DOT] [arXiv]
- P2. **DG**, Antônio H. Ribeiro, Thomas B. Schön, **No Double Descent in Principal Component Regression: A High-Dimensional Analysis**, *ICML*, 2024. [OpenReview] [ICML] [code]
- P3. **DG**, Amirhesam Abedsoltan, Thomas B. Schön, Mikhail Belkin, **Uncertainty Estimation with Recursive Feature Machines**, *UAI*, 2024. [OpenReview] [code]
- P4. Philipp Von Bachmann, **DG**, Fredrik K. Gustafsson, Antônio H. Ribeiro, Erik Lampa, Stefan Gustafsson, Johan Sundström, Thomas B. Schön, **Evaluating regression and probabilistic methods for ECG-based electrolyte prediction**, *Scientific Reports* 14, 15273, 2024. [DOI] [arXiv] [code] [models]
- P5. **DG**, Amirhesam Abedsoltan, Thomas B. Schön, Mikhail Belkin, **On Feature Learning of Recursive Feature Machines and Automatic Relevance Determination**, *UniReps: the First*

*Workshop on Unifying Representations in Neural Models* Workshop at NeurIPS, 2023. [NeurIPS23] [OpenReview]

- P6. Theogene Habineza, Antônio H. Ribeiro, **DG**, Joachim A. Behar, Antonio Luiz P. Ribeiro, Thomas B. Schön, **End-to-end Risk Prediction of Atrial Fibrillation from the 12-Lead ECG by Deep Neural Networks**, *Journal of Electrocardiology*, 2023. [DOI] [arXiv] [code] [models]
- P7. Carl Jidling, **DG**, 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, **Screening for Chagas disease from the electrocardiogram using a deep neural network**, *PLOS Neglected Tropical Diseases*, 2023. [DOI] [medRxiv] [code] [models]
- P8. **DG**, Antônio H. Ribeiro, Niklas Wahlström, Thomas B. Schön, **Invertible Kernel PCA with Random Fourier Features**, *IEEE Signal Processing Letters*, 2023. [DOI] [arXiv] [code]
- P9. Stefan Gustafsson\*, **DG**\*, Erik Lampa, Antônio H. Ribeiro, Martin J. Holzmann, Thomas B. Schön, Johan Sundström, **Development and validation of deep learning ECG-based prediction of myocardial infarction in emergency department patients**, *Scientific Reports* 12, 19615, 2022. [DOI]
- P10. **DG**\*, Stefan Gustafsson\*, Erik Lampa, Antônio H. Ribeiro, Martin J. Holzmann, Thomas B. Schön, Johan Sundström, **ResNet-based ECG Diagnosis of Myocardial Infarction in the Emergency Department**, *Machine learning from ground truth: New medical imaging datasets for unsolved medical problems* Workshop at NeurIPS, 2021, Online. (Spotlight talk) [Paper] [Slides]
- P11. **DG**, Antônio H. Ribeiro, Niklas Wahlström, Thomas B. Schön, **First Steps Towards Self-Supervised Pretraining of the 12-Lead ECG**, *Computing in Cardiology (CinC)*, 2021, online. [DOI] [Slides] [Video]
- P12. **DG**, Niklas Wahlström, Thomas B. Schön, Lennart Ljung, **Deep State Space Models for Non-linear System Identification**, *Proceedings of the 19th IFAC Symposium on System Identification (SYSID)*, 2021, online. [DOI] [arXiv] [Code] [Slides]
- P13. Antônio H. Ribeiro, **DG**, Daniel Martins Teixeira, Manoel H. Ribeiro, Antonio L. Pinho Ribeiro, Thomas B. Schön, Wagner Meira Jr., **Automatic 12-lead ECG classification using a convolutional network ensemble**, *Computing in Cardiology (CinC)*, 2020, Online. [DOI] [Code] [Slides]
- P14. **DG**, Pieter Piscaer, Kim Batselier, Carlas Smith and Michel Verhaegen, **Tensor Network Kalman Filter for LTI Systems**, *27th European Signal Processing Conference (EUSIPCO)*, A Coruña, Spain, 2019. [DOI] [Code] [Slides]
- P15. **DG**, **Tensor Network Kalman Filter for Large-Scale MIMO Systems: With Application to Adaptive Optics**, *Master Thesis*, TU Delft, The Netherlands, 2019. [Thesis] [Slides]
- P16. Thomas Ott, Marc Hirth, Massimo Casasco, Simon Görries, **DG**, Alison Ponche, **PointingSat – High Precision Pointing Error Analysis with ESA PEET v1.0**, *10th International ESA Conference on Guidance, Navigation & Control Systems*, Salzburg, Austria, 2017. [Paper]