

Simon Bing

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CURRENT POSITION

2022 – **PhD in Machine Learning**
TU BERLIN / UNIVERSITY OF POTSDAM, GERMANY
UNIVERSITY OF COPENHAGEN, DENMARK
ELLIS PhD Program. Supervisors: Prof. Jakob Runge, Prof. Sebastian Weichwald
Working title: “Causal Representation Learning for Spatiotemporal Data”
Research at the intersection of causal inference and representation learning, e.g., on invariance in representation learning, task-specific dimension reduction and development of reproduction benchmarks on real-world data.

EDUCATION

2019 – 2022 **MSc in Robotics, Systems and Control** — Final grade: 5.66
ETH ZÜRICH, SWITZERLAND
Thesis: “HealthGen: Conditional Generation of Realistic Medical Time Series with Informative Missingness”
Courses on deep learning, probabilistic machine learning, advanced control theory, dynamic programming, game theory and computer vision.

2015 – 2018 **BSc in Mechanical Engineering** — Final grade: 5.63
ETH ZÜRICH, SWITZERLAND
Thesis: “Assessment of the Reliability and Robustness of an Autonomous, Vision Based, Mobile Multi-Robot Platform”
Broad range of courses on analysis, linear algebra, physics, chemistry, thermodynamics, fluid dynamics and materials science. Later focus on robotics and control theory.

2006 – 2014 **German Abitur** — Final grade: 1.2
FRIEDRICH SCHILLER GYMNASIUM, MARBACH AM NECKAR, GERMANY
Advanced courses in maths, German, English, physics and politics.

PROFESSIONAL EXPERIENCE

2022 – **Researcher**
TU BERLIN / UNIVERSITY OF POTSDAM / DLR JENA, GERMANY
Doctoral research in the Causal Inference / Climate Informatics group.

2025 – **Lecturer**
UNIVERSITY OF POTSDAM, GERMANY
Course: “From Machine Learning Theory to Practice on a Physical Testbed”
Conveying the application challenges of machine learning methods under misspecification on the [Causal Chambers](#) platform. Co-conceptualization and -creation of all course materials, lecturing and grading.

2025 **Visiting Researcher** (6 months)
UNIVERSITY OF COPENHAGEN, DENMARK
Academic research visit (ELLIS PhD Program) to work with Prof. Sebastian Weichwald.

- 2021 **Visiting Researcher** (9 months)
 MAX PLANCK INSTITUTE FOR INTELLIGENT SYSTEMS, TÜBINGEN, GERMANY
 Visiting position for master thesis under supervision of Stefan Bauer and Patrick Schwab.
- 2020 – 2021 **Research Assistant** (6 months)
 BIOMEDICAL INFORMATICS LAB, ETH ZÜRICH, SWITZERLAND
 Co-lead project on disentangled representation learning with Vincent Fortuin.
- 2018 – 2019 **Software & Robotics Intern** (6 months)
 ASCENT ROBOTICS INC., TOKYO, JAPAN
 Implemented trajectory generation and low-level controller for autonomous driving in simulation and on full-sized vehicle.
- 2016 – 2020 **Teaching Assistant**
 ETH ZÜRICH, SWITZERLAND
 Prepared and taught exercise classes for > 40 students. Courses: Control Systems, System Modelling, Fluid Dynamics, Thermodynamics, Materials Science and Manufacturing.
- 2016 – 2021 **Organisational Committee Member**
 MECHANICAL AND ELECTRICAL ENGINEERING STUDENT ORGANIZATION, ETH ZÜRICH, SWITZERLAND
 Organised, coordinated and executed social events and activities for students.
- 2020 **Volunteer** (9 months)
 CORONA SCHOOL E.V., GERMANY
 Coordinated public outreach for an initiative to provide free tutoring to school students during the COVID-19 pandemic.
- 2014 – 2015 **Volunteer** (10 months)
 DURBANVILLE CHILDREN'S HOME, CAPE TOWN, SOUTH AFRICA
 Worked as a childcare assistant for children aged 5 months – 18 years old.

AWARDS

- 2025 UAI Top Reviewer Award
- 2023 **Studienstiftung des deutschen Volkes PhD Fellowship**
 German Academic Scholarship Foundation
- 2022 **Elsa-Neumann PhD Fellowship**
 PhD Fellowship of the state of Berlin
- 2016 – 2021 **Studienstiftung des deutschen Volkes**
 Scholarship awarded by the German Academic Scholarship Foundation for the duration of Bachelor's and Master's studies.
- 2014 DPG-Abiturpreis (best achievements in Physics)

PUBLICATIONS

J L Gamella*, **S Bing***, J Runge

“Sanity Checking Causal Representation Learning on a Simple Real-World System”
42nd International Conference on Machine Learning (ICML 2025; Oral)

S Bing, T Hochsprung, J Wahl, U Ninad, J Runge

“Invariance & Causal Representation Learning: Prospects and Limitations”
Transactions on Machine Learning Research (2024)

S Bing, U Ninad, J Wahl, J Runge

“Identifying Linearly-Mixed Causal Representations from Multi-Node Interventions”
3rd Conference on Causal Learning and Reasoning (CLear 2024)

S Bing, A Dittadi, S Bauer, P Schwab

“Conditional Generation of Medical Time Series for Extrapolation to Underrepresented Populations”
PLOS Digital Health 1 (7) (2022)

S Bing, V Fortuin, G Rätsch

“On Disentanglement in Gaussian Process Variational Autoencoders”
Advances in Approximate Bayesian Inference (AABI 2022)

WORKSHOP PAPERS

S Bing*, J Wahl*, J Runge

“Causal Bottleneck Models”
Workshop on Causal Abstractions and Representations (UAI 2025)

(Co-)ADVISING

Lilli Joppien (MSc student @ TU Berlin; 2024)

LANGUAGES

GERMAN Native

ENGLISH Native (lived in the United States for 7 years during childhood)

FRENCH Intermediate (B1/B2)

ITALIAN Beginner (A1)

JAPANESE Beginner (A1)

SKILLS

Python, Numpy, PyTorch, JAX, TensorFlow, Git, L^AT_EX, Matlab/Simulink, ROS