



# Tim Weiland

Curriculum Vitae

✉ hello@timwei.land

## EDUCATION

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### B.Sc. Computer Science

2017-2021

*Karlsruhe Institute of Technology*

Minor in Mathematics. Thesis: *Gradient-based meta-learning for fast adaptation of sequence-to-sequence networks to error corrections in Automatic Speech Recognition.*

### M.Sc. Machine Learning

2021-2023

*University of Tübingen*

Research Project: *Scaling GP-based PDE solvers.*

Thesis: *A Non-local Information Operator for Probabilistic PDE Solvers.*

## WORK EXPERIENCE

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### Software Engineer

2017

*Vision & Robotics GmbH, Koblenz*

Three months of full-time work. Designed an algorithm for segmentation of shelves in retail stores from point cloud data.

### Teaching Assistant

2018-2019

*Basic Notions of Computer Science*

Taught students about various CS topics (logic, proofs, algorithms, data structures, ...) and corrected exercise sheets.

### Software Engineer

2019-2021

*Karlsruhe Information Technology Solutions – kites GmbH*

Working student. Company was later acquired by Zoom.

Major projects include (i) the development of a real-time collaborative editor to correct ASR transcripts, (ii) re-implementing a server that distributes ASR and MT data within one month of full-time work in C++.

### Freelancing

2020-2021

*Badisches Landesmuseum, Deutsches Meeresmuseum*

Adapted a web app for the Badisches Landesmuseum and extended it with a CMS for the Deutsches Meeresmuseum.

### Research Assistant

2023

*Methods of Machine Learning Group (led by Philipp Hennig)*

Wrote GPU-optimized and modularized code for advanced algorithms for probabilistic PDE solvers. Achieved speedups of several orders of magnitude.

## VOLUNTEER EXPERIENCE

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### Organizer

2018-2022

*Hack & Söhne*

Organization of tech talks, workshops and hackathons (including Germany's biggest student-organized hackathon).

## SELECTED PROJECTS

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### Intelligua

2018-2019

A smartphone app that lets users learn new languages by consuming interesting content in that language which is tailored towards their skill level.

### AI Exhibition Object

2022-2023

Museum object to demystify machine learning by letting visitors construct their own decision trees to predict rents in Tübingen. Exhibited at the Stadtmuseum Tübingen 11/02/23 - 21/01/24.

### Probabilistic PDE solvers

2022-today

*Large-scale Gaussian process inference on PDEs*

PDE solving can be formulated as a Bayesian inference problem. This allows us to encode prior knowledge and integrate problem uncertainty into the posterior distribution of the solution. Since 2022, I have been working on scaling this idea to larger, more interesting problems. In the process, I developed various new algorithmic techniques and optimizations, advancing the state-of-the-art in probabilistic PDE solvers further towards the application to complex real-world problems.

## SKILLS

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### Languages

German (native), English (fluent), French (good), Spanish (basic knowledge), Japanese (basic knowledge)

### Programming languages

Python > C++, Java, JavaScript > C#, C, Haskell, Prolog, Julia, R

### Technologies

Numpy, Jax, Matplotlib, Scikit-learn, PyTorch, Pandas, Linux

## AWARDS AND SCHOLARSHIPS

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### Dr. Hans Riegel subject award

2016

*First prize in Physics for a research paper titled "Theoretical Prediction and Experimental Verification of Gravitational Waves"*

### Finalist, 34th German National Computer Science Contest

2016

### Participant in the selection procedure for the IOI 2017

2017

*Selection procedure of the German team for the International Olympiad in Informatics*

### Deutschlandstipendium

2023



Tim Weiland

28th October 2023