






# Robin M. Schmidt

robin.schmidt.97@web.de   
linkedin.com/schmidt-robin   
robinschmidt.netlify.com   
github.com/SirRob1997   
Robin M. Schmidt 

## EXPERIENCE

---

### Apple

AI Resident

Jul 2021 – Present

Aachen, Germany

- First cohort of Apple AI Residents and member of the Machine Translation team.

### Max Planck Society (MPI-IS & MPI-INF)

Machine Learning Researcher

Oct 2019 – Mar 2021

Tübingen, Germany

- Developed multiple explainability-aided Domain Generalization methods for image classification that led to state-of-the-art advancements on various generalization datasets.
- Published analysis of 15 stochastic non-convex optimization methods on 8 problems using 4 different learning rate schedules resulting in 50,000 individual training runs at ICML 2021.
- Advanced development of “DeepOBS” by fixing and developing key features that included batch comparison scripts, analysis code, and multiple framework endpoints.
- ➡ Publications featured twice in Andrew Ng’s machine learning newsletter “The Batch”.

### IBM

Software Engineer Intern (Backend)

Aug 2019 – Nov 2019

Böblingen, Germany

- Managed intern team and conceptualized more effective instance-level master data graph representations that opened up new use-case sectors for Internet of Things requirements.
- Developed a prototype with React.js, a Python RESTful API, and Cassandra & JanusGraph databases which allowed users to connect and visualize sensor data in real-time.
- ➡ Presented the results to the team’s global head and wrote requested summary detailing value proposition and implementation details for senior leadership and offering management.

### Eisenmann SE

Software Engineer (Backend)

Oct 2015 – Oct 2018

Böblingen, Germany

- Improved the configurable data analysis pipeline for the Manufacturing Execution System “E-MES” by implementing better reporting-frameworks for convenient customer usage.
- Analyzed customer requirements and implemented better key performance indicator (KPI) reporting solutions via JasperReports for improved performance insights.
- Conceptualized and implemented an uncertainty-based single product tracking system that offered improved insights for a press-hardening production line with limited sensor data.
- ➡ Took the initiative to solve under-specified sensor data collection problems on-premise in the USA, which was essential for the team to successfully complete the project on time.

## EDUCATION

---

### University of Tübingen, Germany

Master of Science (M. Sc.) in Computer Science

Oct 2018 – Mar 2021

GPA: 1.4/1.0 (German)

### Cooperative State University Stuttgart, Germany

Bachelor of Science (B. Sc.) in Computer Science

Oct 2015 – Oct 2018

GPA: 2.0/1.0 (German)

## SKILLS

---

**Concepts:** Machine Learning, Deep Learning, Optimization, Domain Generalization.

**Programming:** Python, Java, JavaScript, Matlab, R, C++, Prolog.

**Frameworks & Tools:** PyTorch, TensorFlow, NumPy, Flask, Django, Pandas, Docker, Git, Linux, SQL, Gremlin, Matplotlib, HTML, CSS, Jira, Confluence, L<sup>A</sup>T<sub>E</sub>X.

**Databases:** MySQL, Oracle, JanusGraph, Cassandra, MongoDB, VoltDB, NuoDB, CockroachDB.


**Languages:** German (*native*), English (*near native*), Japanese (*beginner*).

## SELECTED OPEN-SOURCE PROJECTS & CONTRIBUTIONS

---

**DeepOBS:** Optimization Benchmarking Suite – Contributed baselines, scripts and improved software quality.

**DomainBed:** Domain Generalization Benchmarking Suite – Contributed algorithms and other features.

**Recommender Systems** : Analyzed *recourse* and *availability* under model uncertainty and discrepancy.

**App2Night:** Cross-platform mobile app to create, attend, and rate user-generated events in real time.

**SiteScrawler:** Web-App to provide users via email and online with relevant news articles based on their interests.

## INVITED TALKS

---

**International Conference on Machine Learning ‘21:** *Virtual Only, Spotlight*

*July 22<sup>nd</sup>, 2021*

**KTH Royal Institute of Technology:** *Stockholm, Sweden*

*September 25<sup>th</sup>, 2020*

**IBM Extreme Blue Conference:** *Cluj-Napoca, Romania*

*September 3<sup>rd</sup>, 2019*

## PEER-REVIEWED PUBLICATIONS

---

[SSH21] **Robin M. Schmidt**, Frank Schneider, and Philipp Hennig. “Descending through a Crowded Valley – Benchmarking Deep Learning Optimizers”. In: *International Conference on Machine Learning, ICML*. (acceptance rate: 21.4%). 2021.

## THESES

---

[Sch21] **Robin M. Schmidt**. *Explainability-aided Domain Generalization for Image Classification*. M. Sc. Thesis. 2021. arXiv: 2104.01742 [cs.LG].

[Sch18a] **Robin M. Schmidt**. *Conception and Implementation of a Single Product Tracking System within a press hardening production line*. B. Sc. Thesis. (subject to an NDA). 2018.

## PREPRINTS & TECHNICAL REPORTS

---

[SH20] **Robin M. Schmidt** and Moritz Hahn. *Collaborative Filtering under Model Uncertainty*. 2020. arXiv: 2008.10117 [cs.LG].

[Sch19] **Robin M. Schmidt**. *Recurrent Neural Networks (RNNs): A gentle Introduction and Overview*. 2019. arXiv: 1912.05911 [cs.LG].

[Sch18b] **Robin M. Schmidt**. *Improvements for the configurable Data Analysis Pipeline within a Manufacturing Execution System*. (subject to an NDA). 2018.

[Sch18c] **Robin M. Schmidt**. *New SQL Databases: An empirical evaluation of Open Source NewSQL databases regarding modern application scenarios*. (title translated from german). 2018.

[Sch17] **Robin M. Schmidt**. *Calculation and Evaluation of Key Performance Indicators for production within a Manufacturing Execution System*. (subject to an NDA). 2017.

## OTHER INTERESTS & ACTIVITIES

---

**Street Photography:** Samples of my side work – Selling metal, paper, or canvas prints of my street photography.

**Google Hash Code 2021:** Organized a virtual hub and placed in the Top-15% of participating teams worldwide.