Robin M. Schmidt

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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, LaTeX.

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 22nd, 2021*
KTH Royal Institute of Technology: *Stockholm, Sweden*   *September 25th, 2020*
IBM Extreme Blue Conference: *Cluj-Napoca, Romania*   *September 3rd, 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.