Robin M. Schmidt

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Robin M. Schmidt ꝸ

EXPERIENCE

Apple

Jul 2021 – Present
Aachen, Germany
⌈Python⌉

AI/ML Resident

- Member of the Machine Translation team that is responsible for translations across the Apple ecosystem (~<NUM> words/day) including the "Translate" app, Safari, and Siri translations.
- Improved the translation accuracy of the serving models by developing and implementing novel architectures including <UNDISCLOSED> and <UNDISCLOSED> approaches.
- Productionized and improved performance for the MNMT models that are used for <UNDISCLOSED> by <UNDISCLOSED> and <UNDISCLOSED>.

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

Oct 2019 – Mar 2021
Tübingen, Germany
⌈Python⌉

Machine Learning Researcher

- 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 the "DeepOBS" framework by fixing and developing key features that included batch comparison scripts, analysis code, and multiple framework endpoints.

IBM 📄

Aug 2019 – Oct 2019
Böblingen, Germany
⌈Python⌉

Extreme Blue Technical Leadership Program (Backend)

- 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 📄

Oct 2015 – Oct 2018
Böblingen, Germany
⌈Java⌉

Software Engineer (Backend)

- Improved the configurable data analysis pipeline for the Manufacturing Execution System "E-MES" by implementing better reporting-frameworks for convenient customer usage.
- Conceptualized and implemented an uncertainty-based single product tracking system that significantly improved transparency for a 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

Oct 2018 – Mar 2021

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

GPA: 1.4/1.0 (German)

Cooperative State University Stuttgart, Germany

Oct 2015 – Oct 2018

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

GPA: 2.0/1.0 (German)

PEER-REVIEWED PUBLICATIONS

[SSH21] **Robin M. Schmidt**, Frank Schneider, and Philipp Hennig. "Descending through a Crowded Valley – Benchmarking Deep Learning Optimizers". In: *Proceedings of the 38th International Conference on Machine Learning, ICML.* (acceptance rate: 21.4%). 2021, pp. 9367–9376.

Skills

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

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

Frameworks & Tools: PyTorch, TensorFlow, Fairseq, Faiss, Slurm, 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.

NL-Augmenter: NLP text transformations and dataset filters – Contributed two filters and code quality changes.

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 & Poster Sessions

International Conference on Machine Learning '21: *Virtual Only, Spotlight*	*July 21st, 2021*
KTH Royal Institute of Technology: *Stockholm, Sweden*	*September 25th, 2020*
IBM Extreme Blue Conference: *Cluj-Napoca, Romania*	*September 3rd, 2019*

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

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

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