

Theresa Eimer

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📄 <https://github.com/TheEimer>

Research Interests

Automated Reinforcement Learning ◦ Generalization in RL ◦ Dynamic Algorithm Configuration

Academic Career

- 09.2022-02.2023 **Research Intern**, *Meta AI London*, Generalization through Natural Language in Reinforcement Learning, Host: Roberta Raileanu.
- Since 2020 **Scientific Researcher**, *Institute of AI, Leibniz University Hannover*, Establishing general & robust Reinforcement Learning methods for AutoML, Supervisor: Marius Lindauer.

Education

- 2016 – 2019 **M.Sc.**, *Computer Science*, Albert-Ludwigs-University Freiburg, Final Grade: 1.7.
Thesis: Improved Meta-Learning for Dynamic Algorithm Configuration (Grade 1.0)
Supervisor: Frank Hutter
- 2015 – 2016 **In: Karlstad, Sweden**, 6 month Erasmus exchange with Karlstads University.
- 2013 – 2016 **B.Sc.**, *Computer Science*, University Hamburg, Final Grade: 1.5.
Thesis: On Thue Numbers (Grade 1.0)
Supervisor: Frank Heitmann

Publications

 Google Scholar

 DBLP

 0000-0001-5561-5908

Journal & Conference Publications

- [1] **T. Eimer**, M. Lindauer, and R. Raileanu. “Hyperparameters in Reinforcement Learning and How To Tune Them”. In: *Proceedings of the Fortieth International Conference on Machine Learning* (July 2023). *Acceptance rate: 27.9%, Conference Rating: A**.
- [2] C. Benjamins*, **T. Eimer***, F. Schubert, S. Döhler, A. Mohan, A. Biedenkapp, B. Rosenhahn, F. Hutter, and M. Lindauer. “Contextualize Me - The Case for Context in Reinforcement Learning”. In: *Transactions on Machine Learning Research* (2023).
- [3] S. Adriaensen, A. Biedenkapp, G. Shala, N. Awad, **T. Eimer**, M. Lindauer, and F. Hutter. “Automated Dynamic Algorithm Configuration”. In: *Journal of Artificial Intelligence Research* 75 (2022), pp. 1633–1699.
- [4] J. Parker-Holder, R. Rajan, X. Song, A. Biedenkapp, Y. Miao, **T. Eimer**, B. Zhang, V. Nguyen, R. Calandra, A. Faust, F. Hutter, and M. Lindauer. “Automated Reinforcement Learning (AutoRL): A Survey and Open Problems”. In: *Journal of Artificial Intelligence Research* (2022).
- [5] **T. Eimer**, A. Biedenkapp, F. Hutter, and M. Lindauer. “Self-Paced Context Evaluation for Contextual Reinforcement Learning”. In: *Proceedings of the Thirty-eighth International Conference on Machine Learning*. *Acceptance rate: 21.5%, Conference Rating: A**. July 2021.
- [6] **T. Eimer**, A. Biedenkapp, M. Reimer, S. Adriaensen, F. Hutter, and M. Lindauer. “DACBench: A Benchmark Library for Dynamic Algorithm Configuration”. In: *Proceedings of the Thirtieth International Joint Conference on Artificial Intelligence (IJCAI’21)*. *Acceptance rate: 19.3%, Conference Rating: A**. ijcai.org, Aug. 2021.
- [7] A. Biedenkapp, H. F. Bozkurt, **T. Eimer**, F. Hutter, and M. Lindauer. “Dynamic Algorithm Configuration: Foundation of a New Meta-Algorithmic Framework”. In: *Proceedings of the European Conference on Artificial Intelligence (ECAI)*. *Acceptance rate: 26.8%, Conference Rating: A*. June 2020.

Workshop Publications & Preprints

- [8] A. Tornede, D. Deng, **T. Eimer**, J. Giovanelli, A. Mohan, T. Ruhkopf, S. Segel, D. Theodorakopoulos, T. Tornede, H. Wachsmuth, and M. Lindauer. "AutoML in the Age of Large Language Models: Current Challenges, Future Opportunities and Risks". In: *ArXiv Preprint*. June 2023.
- [9] C. Benjamins*, **T. Eimer***, F. Schubert, A. Biedenkapp, F. Hutter, B. Rosenhahn, and M. Lindauer. "CARL: A Benchmark for Contextual and Adaptive Reinforcement Learning". In: *Ecological Theory of RL Workshop NeurIPS*. 2021.
- [10] **T. Eimer**, C. Benjamins, and M. Lindauer. "Hyperparameters in Contextual RL are Highly Situational". In: *Ecological Theory of RL Workshop NeurIPS*. 2021.
- [11] Frederik Schubert*, **T. Eimer***, B. Rosenhahn, and M. Lindauer. "Towards Self-Paced Context Evaluation for Contextual Reinforcement Learning". In: *Workshop on Reinforcement Learning for Real Life (RL4RealLife@ICML '21)*. July 2021.

Blog Posts

- [12] **T. Eimer** and C. Benjamins. "Contextualize Me The Case for Context in Reinforcement Learning". In: <https://www.automl.org/automl-blog> (June 2021). URL: <https://www.automl.org/contextualize-me-the-case-for-context-in-reinforcement-learning/>.
- [13] **T. Eimer**. "Self-Paced Context Evaluation for Contextual Reinforcement Learning". In: <https://www.automl.org/automl-blog> (June 2021). URL: <https://www.automl.org/hyperparameter-tuning-in-reinforcement-learning-is-easy-actually/>.
- [14] **T. Eimer**. "Self-Paced Context Evaluation for Contextual Reinforcement Learning". In: <https://www.automl.org/automl-blog> (July 2021). URL: <https://www.automl.org/self-paced-context-evaluation-for-contextual-reinforcement-learning>.
- [15] **T. Eimer**. "Benchmarking Dynamic Algorithm Configuration". In: <https://www.automl.org/automl-blog> (June 2021). URL: <https://www.automl.org/dacbench-benchmarking-dynamic-algorithm-configuration/>.

Presentations & Talks

- 06.2023 **AutoML Seminar Series (Invited Talk)**.
Challenges in Hyperparameter Optimization for Reinforcement Learning
- 05.2023 **AI Grid Science Slam (Invited Contribution)**, *Popular Science Communication Format*.
Dynamic Algorithm Configuration, Second Place in Audience Voting
- 03.2023 **COSEAL Workshop (Poster)**, *COnfiguration and SElection of ALgorithms Workshop*.
Hyperparameter Optimization in Reinforcement Learning
- 07.2022 **KompAKI Seminar Series (Invited Talk)**, *Technical University Darmstadt*.
Dynamic Algorithm Configuration for AutoML
- 11.2021 **COSEAL Workshop (Presentation)**, *COnfiguration and SElection of ALgorithms Workshop*.
Dynamic Algorithm Configuration
- 08.2021 **IJCAI (Poster)**, *International Joint Conferences on Artificial Intelligence*.
Benchmarking Dynamic Algorithm Configuration
- 07.2021 **ICML (Poster)**, *International Conference on Machine Learning*.
Self-Paced Context Evaluations

Community Involvement & Reviewing

- since 2023 **Leibniz University Computer Science Diversity Committee**, *Committee for increasing diversity within the Computer Science faculty*.
Deputy Member

- 2023 **GECCO, Machine Learning Reproducibility Challenge, EWRL.**
Reviewer
- 2022 **DAC4AutoML Competition.**
Lead Organizer
- 2022 **AutoML Conf.**
Diversity Chair
- 2022 **ICML, ECML, AutoML Conf.**
Reviewer
- 2021 **Journal of Evolutionary Computation, ECJ.**
Reviewer
- 2020 **AutoML Workshop, ICML Workshop on Automated Machine Learning.**
Program Committee Member

Teaching Experience

- 2022 – 2023 **Social Responsibility in Machine Learning, Graduate course.**
Selecting lecture content and developing a discussion-first teaching format.
 - 10.2020 – **Reinforcement Learning, Graduate course.**
 - 03.2022 Creation and grading of exercises & final project. Teaching concepts for virtual, hybrid and in-person versions of the course.
 - 04.2021 – **Social Responsibility in Machine Learning, Graduate seminar, Virtual.**
 - 09.2021 Content selection & presentation and report feedback. General course organization including deploying new teaching methods for virtual courses.
 - 04.2020 – **Automated Machine Learning, Graduate seminar, Virtual.**
 - 09.2020 Content selection & presentation and report feedback. General course organization including setting up online teaching through Zoom.

Mentoring

- since **Kai Lessmeister, MSc Thesis.**
- 05.2023 Curriculum Fidelities for Reinforcement Learning
- 06.2021 – **Dren Fazlija, MSc Thesis.**
- 12.2021 Self-Paced Context Evaluation for Dynamic Algorithm Configuration
- 06.2021 – **Rasmus von Glahn, MSc Thesis.**
- 12.2021 Optimizing Multiple Hyperparameters using a Reinforcement Learning Agent in high dimensional Search Space
- 05.2021 – **Tilman Räuher, MSc Thesis.**
- 11.2021 Temporally Extended Reinforcement Learning for Dynamic Algorithm Configuration