

Philipp Hager

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Research interests: I am interested in leveraging complex user feedback to learn and evaluate new AI systems, particularly for search and recommendation.

Keywords: Off-policy learning, offline evaluation, unbiased learning-to-rank, click modeling.

Education

- 01/2022 - 01/2026
(planned graduation) **PhD Candidate, University of Amsterdam**
Supervisors: Prof. Dr. Maarten de Rijke and Dr. Onno Zoeter
Member of the Mercury Machine Learning Lab with Booking.com and TU Delft
- 04/2017 - 09/2020 **M.Sc. IT-Systems Engineering, HPI University of Potsdam**
Thesis: Multi-faceted domain-specific document embeddings (1.2, cum laude)
- 08/2013 - 04/2017 **B.Sc. Media Informatics, University of Applied Sciences Düsseldorf**
Thesis: App-based detection and analysis of security and privacy concerns introduced into Android apps by third-party libraries (1.3)

Professional Experience

- 01/2021 - 01/2022 **Research Assistant, University of Southern Denmark - Odense**
Part-time research work on mainstream bias in recommender systems.
Supervisor: Dr. Pantelis P. Analytis
- 07/2020 - 12/2021 **Data Scientist L2, Blinkist - Berlin**
Built production systems for recommending multilingual audio and textual content for over 18M users in real time. Algorithms included transformer-based dense retrieval and autoencoders implemented using a.o. Tensorflow, Serverless, DynamoDB, Docker, and FastAPI [\[reference letter\]](#).
- 08/2019 - 06/2020 **Working Student Data Science, Blinkist - Berlin**
Multi-lingual content-based book recommendation using transformer models.
- 09/2018 - 01/2019 **Software Development Engineering Intern, Amazon - Madrid**
Data analytics for the EU leadership of Amazon Fashion.
- 09/2015 - 09/2018 **Working Student Android Development, Blinkist - Berlin**
Early development of the Blinkist Android app using reactive programming and Kotlin.

Publications

- 2024 **M. de Haan, P. Hager. [Understanding the Effects of the Baidu-ULTR Logging Policy on Two-Tower Models](#).** The CONSEQUENCES Workshop at the 18th ACM Conference on Recommender Systems.
- P. Hager***, R. Deffayet*, JM. Renders, O. Zoeter, M. de Rijke. [Unbiased Learning to Rank Meets Reality: Lessons from Baidu's Large-Scale Search Dataset](#). Accepted at the 47th International ACM SIGIR Conference on Research and Development in Information Retrieval.

- 2023 P. Analytis*, **P. Hager***. [Collaborative filtering algorithms are prone to mainstream-taste bias](#). In Proceedings of the 17th ACM Conference on Recommender Systems.
- R. Deffayet*, **P. Hager***, JM. Renders, M. de Rijke. [An Offline Metric for the Debiasedness of Click Models](#). In Proceedings of the 46th International ACM SIGIR Conference on Research and Development in Information Retrieval.
- P. Hager**, M. de Rijke, and O. Zoeter. [Contrasting Neural Click Models and Pointwise IPS Rankers](#). In Advances in Information Retrieval: 45th European Conference on Information Retrieval.
- 2022 **P. Hager**, M. de Rijke, and O. Zoeter. [Are Neural Click Models Pointwise IPS Rankers?](#) The CONSEQUENCES+REVEAL Workshop at the 16th ACM Conference on Recommender Systems.
- 2021 **J. Risch**, P. Hager, R. Krestel. [Multifaceted Domain-Specific Document Embeddings](#). In Proceedings of the 2021 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies: Demonstrations.

Tutorials & Talks

- 2024 [Lecture] **P. Hager**. [Learning to Rank](#). Search Engines Course, University of Amsterdam.
- [Lecture] **P. Hager**. [Improvements That Add Up: An opinionated rant on reproducibility and progress in IR](#). Guest lecture at the 15th European Summer School on Information Retrieval.
- [Tutorial] S. Gupta, **P. Hager**, J. Huang, A. Vardasbi, H. Oosterhuis. [Unbiased Learning to Rank: On Recent Advances and Practical Applications](#). Tutorial at the 17th ACM International Conference on Web Search and Data Mining.
- 2023 [Tutorial] S. Gupta, **P. Hager**, H. Oosterhuis. [Recent Advancements in Unbiased Learning to Rank](#). Tutorial at the Forum for Information Retrieval Evaluation 2023.
- [Talk] **P. Hager**, R. Deffayet, JM. Renders, M. de Rijke. [An Offline Metric for the Debiasedness of Click Models](#). Talk at the 21st Dutch-Belgian Information Retrieval Workshop.
- [Talk] **P. Hager**. [When Metrics Break Down - On Evaluating User Models from Clicks](#). Invited talk at ICAI: The Labs - Machine Learning in the service industry.
- [Lecture] **P. Hager**. [Learning to Rank](#). Search Engines Course, University of Amsterdam.
- [Tutorial] S. Gupta, **P. Hager**, J. Huang, A. Vardasbi, H. Oosterhuis. [Recent Advances in the Foundations and Applications of Unbiased Learning to Rank](#). In Proceedings of the 46th International ACM SIGIR Conference on Research and Development in Information Retrieval.
- [Talk] **P. Hager**, M. De Rijke. [A Brief Tutorial on Supervised Learning to Rank](#). Booking.com.
- 2021 [Lecture] **P. Hager**. [NLP in Production - A Content-based Recommender System Case Study](#). Data Science Course, University of Southern Denmark.

Teaching & Supervision

- 2024 **Morris de Haan**, B.Sc. Computer Science, University of Amsterdam
Thesis: Understanding the Effects of the Logging Policy on Two Tower Models.
Search Engines Course, B.Sc. Artificial Intelligence, University of Amsterdam
- 2023 **Cedrik Blommestijn**, B.Sc. Computer Science, University of Amsterdam
Thesis: Bridging the gap between large language models and traditional learning-to-rank.
Search Engines Course, B.Sc. Artificial Intelligence, University of Amsterdam
- 2022 **Search Engines Course**, B.Sc. Artificial Intelligence, University of Amsterdam

2014 - 2015 **Database Systems I & II**, B.Sc. Media Informatics, University of Applied Sciences Düsseldorf

Activities

- 2024 **Search Engines Amsterdam, University of Amsterdam**
Organizer of the monthly SEA meetup of the IRLab Amsterdam.
- 2023 - now **PhD Council Member, University of Amsterdam**
Student representative and secretary of the PhD council of the informatics institute, which tackles academic, social, and cultural issues affecting PhD students.
- 2023 **Research Meeting Chair, University of Amsterdam**
Organizer of the weekly group meetings of the IRLab Amsterdam.
- 2022 - now **Mentor at Inclusive AI, University of Amsterdam**
IAI is an inclusive space for students to get non-academic help from senior peers in the field and connect with people of a similar background.
- 2014 - 2020 **Scholar of the German Academic Scholarship Foundation**
Merit-based scholarship for outstanding academic achievements.

Reviewing

- 2025 **ECIR**
- 2024 **SIGIR, RecSys** (outstanding reviewer award), **CIKM**
- 2023 **CIKM, ML Reproducibility Challenge** (outstanding reviewer award), **ICTIR** (student PC)
- 2022 **SIGIR** (subreviewer), **CIKM** (subreviewer)

Skills

- Programming** Python, Java, SQL, Kotlin
- Tools** PyTorch, NumPy, Jax, Scikit-Learn, Hydra, PySpark, AWS
- Languages** English, German