Dr. Dominik Kowald

Research Area Manager at Know-Center & TU Graz

"If scientific reasoning were limited to the logical processes of arithmetic, we should not get very far in our understanding of the physical world. One might as well attempt to grasp the game of poker entirely by the use of the mathematics of probability." (Vannevar Bush, Author of "As We May Think")

Know-Center GmbH –
FAIR-AI &
ISDS – TU Graz
Sandgasse 36/4
8010 Graz
Austria
T +43 664 6191718
E dkowald [at] know [minus] center [dot] at
W www.dominikkowald.info
tw dkowald1

Education

Dr.techn. (Ph.D.), *Graz University of Technology*, Graz, Austria, *with distinction*. **2012–2017**
Institute of Interactive Systems and Data Science (ISDS)

Dipl.Ing. (MSc.), *Graz University of Technology*, Graz, Austria, *with distinction*. **2009–2012**
Institute for Information Systems and Computer Media (IICM)

BSc., *Graz University of Technology*, Graz, Austria. **2006–2009**
Institute for Information Systems and Computer Media (IICM)

College, *College of Industrial Engineering (BULME)*, Graz, Austria, *with distinction*. **2001–2006**
Manufacturing Computer Science

Habilitation

title: *Transparency, Privacy, and Fairness in Recommender Systems*

scientific topic: Applied Computer Science at TU Graz

to be submitted: 2024

Ph.D. thesis

title: *Modeling Activation Processes in Human Memory to Improve Tag Recommendations*

supervisors: Prof. Stefanie Lindstaedt (TU Graz), Assoc. Prof. Elisabeth Lex (TU Graz), Prof. Tobias Ley (Tallinn University)

Master thesis

title: *Combining Computer-Supported, Collaborative Learning with E-Assessment: Enhancing a Wiki System with Flexible Assessment Methods*

Bachelor thesis

title: *Peer Assessment in Computer Science and Modern Technologies to Build a Flexible E-Learning System around it*

Positions held

Research Area Manager, *Know-Center & TU-Graz*. **2021–now**
Research Area Manager for FAIR-AI.
- Research stay at Explainable AI (XAI) group at Maastricht University, The Netherlands, led by Prof. Nava Tintarev (Nov. 2021, 1 week)

Deputy Research Area Manager, *Know-Center*, Graz. **2017–2020**
Deputy Research Area Manager for Social Computing.

Researcher and developer, *Know-Center*, Graz. **2012–2017**
Conducting research projects in the Social Computing area.

Ph.D. candidate, *Graz University of Technology*, Graz. **2012–2017**
Institute of Interactive Systems and Data Science (ISDS).

Project assistant, *Graz University of Technology*, Graz. **2010–2012**
Institute for Information Systems and Computer Media (IICM).

Software Developer, *IVM Technical Consultants*, Graz. **2009–2010**
Conducting software projects in the automotive sector.

Student assistant, *Graz University of Technology*, Graz. **2008–2009**
Institute of Theoretical Computer Science (IGI).

Teaching and Mentoring

Courses

Course: TU Graz, Winter term. Databases, set up new and own lecture on databases for Computational Social Systems students, 2023 - 2024

Course: TU Graz, Winter+Summer term. Introduction to scientific working (seminar), 2023 - 2024

Invited lecture: TU Graz, Summer term. Data Management, invited lecture on database APIs, 2023

Invited lecture: TU Graz, Winter term. Databases, invited lecture on database APIs, 2022

Invited lecture: FH Joanneum, Summer term. Journalism course, invited lecture on recommender systems in media and beyond, 2022

Course support: TU Graz, Summer term. Science 2.0. 2016.

Course support: PUC Chile. Winter term. Recommender Systems (remote). 2014.

Practical assignment: TU Graz, Summer term. Web Science. 2014.

Practical assignment: TU Graz, Winter term. Information Search and Retrieval. 2011 - 2012.

Teaching assistant: TU Graz, Winter term. Data-Structures and Algorithms. 2009.

Supervision

Supervision: Serban, I., Bias in Public Datasets. Master Thesis. TU Graz. 2024.

Supervision: Serban, I., Auditing Algorithmic Fairness. Master Project. TU Graz. 2023.

Supervision: Yildirim, G., Popularity Bias in Recommender Systems. Erasmus+ internship. 2023.

Supervision: Semmelrock, H., Accuracy, Reproducibility in Machine Learning. Bachelor thesis. TU Graz. 2023.

Co-supervision: Duricic, T., Sparsity and Interpretability of Graph-based Recommender Systems. PhD thesis. TU Graz. 2020 - 2024.

Co-supervision: Muellner, P., Privacy-Aware Recommender Systems. PhD thesis. TU Graz. 2020 - 2024.

Co-supervision: Mayr, G., Accuracy, Popularity Lift and Calibration in Recommender Systems. Master Project. TU Graz. 2022.

Co-supervision: Mayr, G., Calibration in Recommender Systems. Bachelor thesis. Graz University of Technology. 2022.

Co-supervision: Wagner, M., Diversity-Aware Recommendation of Tweets. Master thesis. TU Graz. 2020.

Co-supervision: Muellner, P., Studying Non-Mainstream Listening Behavior For Fair Music Recommendations. Master thesis. TU Graz. 2019.

Co-supervision: Punz, A., Detection and Analysis of Communities on Twitter. Bachelor thesis. TU Graz. 2016.

Certificates

Advanced Teaching certificate: TU Graz Teaching Academy. 2023.

Basic Teaching certificate: TU Graz Teaching Academy. 2022.

Research Activities

International Research Projects

DDIA (FFG): key researcher (2022 - 2026)

TIER-2 (HE): key researcher for ML reproducibility (2023 - 2025)

Radreisen4All (FFG): key researcher (2022 - 2024)

AI-Xciting (FFG): key researcher (2022 - 2024)

DDAI (FFG): key researcher (2020 - 2023)

AI-CARE (FFG): key researcher (2021 - 2023)

TRUSTS (H2020): task lead and key researcher (2020 - 2022)

COGSTEPS (Erasmus+): key researcher (2020 - 2022)

TRIPLE (H2020): key researcher (2019 - 2023)

AI4EU (H2020): co-task lead and key researcher (2019 - 2021)

MarineXChange (FFG): researcher (2020 - 2021)

JOLIOO (FFG): researcher (2020 - 2021)

Heli-D (SFG): work package lead and researcher (2018 - 2021)

Studo (FFG): researcher (2018 - 2020)

Data Market Austria (FFG): researcher (2017 - 2019)

AFEL (H2020): co-task lead (2017 - 2018) and researcher (2016 - 2018)

MoreGrasp (H2020): researcher (2017 - 2018)

Digitale TU Graz: researcher (2017)

Learning Layers (FP7): co-work package lead (2012 - 2016)

Organic.Lingua (FP7): developer (2012 - 2013)

ALICE (FP7): developer (2010 - 2012)

Awards

Mind-the-Gap Gender and Diversity Award: TU Graz. 2022.

Dissertation Award: Chamber of Labor Styria (Arbeiterkammer Steiermark), Austria. 2018.

Nominated for ACM SIGCHI Outstanding Dissertation Award: Faculty for Computer Science of TU Graz for Ph.D. thesis. 2018.

Nominated for Award of Excellence: Faculty for Computer Science of TU Graz for Ph.D. thesis. 2018.

Nominated for Heinz Zemanek Award: Faculty for Computer Science of TU Graz for Ph.D. thesis. 2018.

Best Demo Honourable Mention: Conference on Knowledge Technologies and Data-Driven Business (i-Know'2015) in Graz, Austria. 2015.

Best Poster Award: ACM Conference on Hypertext and Social Media (HT'2014) in Santiago, Chile. 2014.

Grants

FFG – K1 Research Center Grant: 20,4M for the Know-Center (3,4M for Fair-AI) as research area manager for Fair-AI. 2023 - 2026.

Project Grant: RADREISEN4ALL, FFG Femtech, 150k for Fair-AI, Know-Center GmbH as key-researcher. 2022 - 2024.

Intern Grant: Internship for female students, FFG Femtech, 8,5k for 6 month internship as co-supervisor. 2022 - 2023

FFG – COMET Module Grant "DDIA": 3,7M for the Know-Center GmbH (350k for Fair-AI) as key-researcher. 2022 - 2026.

Travel Grant: Research stay (1 week) at XAI group at Maastricht University, The Netherlands, by Land Steiermark. 2021

Travel Grant: Research stay (1 week) at WIS Group at TU Delft, The Netherlands, by Land Steiermark (postponed due to COVID-19). 2020

Project Grant: COGSTEPS, Erasmus+, 130k for Social Computing, Know-Center GmbH and ISDS@TU-Graz as researcher. 2020 - 2023.

Project Grant: JOLIOO, FFG Basisantrag, 120k for Social Computing, Know-Center GmbH as researcher. 2020.

Project Grant: TRUSTS, H2020, 730k for the Know-Center GmbH (138k for Social Computing) as task lead. 2020 - 2022.

FFG – COMET Module Grant "DDAI": 3,7M for the Know-Center GmbH (700k for Social Computing) as key researcher. 2020 - 2022.

Project Grant: TRIPLE, H2020, 377k for the Know-Center GmbH (120k for Social Computing) as co-task lead. 2019 - 2022.

Travel Grant: European Symp. on Computational Social Science (EUROCSS) in Zurich, Switzerland. 2019.

FFG – K1 Research Center Grant: 20,4M for the Know-Center (3,4M for Social Computing) as deputy research area head for Social Computing. 2019 - 2022.

Project Grant: AI4EU, H2020, 147k for the Know-Center GmbH (73,5k for Social Computing) as co-task lead. 2019 - 2021.

Travel Grant: European Symp. on Computational Social Science (EUROCSS) in Cologne, Canada. 2018.

Project Grant: OpenAIRE Matchmaker, OpenAIRE Open Tender Calls, 15k for Social Computing, Know-Center GmbH as researcher. 2018.

Project Grant: Health-Literacy und Diversity (HeLi-D), Gesundheitsfonds Steiermark (2017), 75k for the Know-Center (37.5k for Social Computing) as WP lead. 2018 - 2020.

Travel Grant: ACM Conference on Hypertext and Social Media (HT'2016) in Halifax, Canada. 2016.

Project Grant: Data Market Austria (DMA), IKT der Zukunft, 286k for the Know-Center (170k for Social Computing) as researcher. 2015 - 2019.

Session chairing and workshop organization

Dagstuhl'2024: Participant of the "Evaluation Perspectives of Recommender Systems" Dagstuhl seminar, 2024.

DIH-Sued'2022: Co-Organizer of DIH-Sued workshop on recommender systems, 2022.

SummerAcademy'2020: Co-Organizer of Know-Center summer academy on recommender systems, Graz, Austria (online due to COVID-19), 2020.

CIKM'2018: Session chair of the Recommendation track of the ACM CIKM conference, Turin, Italy, 2018.

RSBDA'2017: Co-Organizer of the Second Workshop on Recommender Systems and Big Data Analytics of i-KNOW 2017, Graz, Austria, 2017.

RSBDA'2016: Co-Organizer of the First Workshop on Recommender Systems and Big Data Analytics of i-KNOW 2016, Graz, Austria, 2016.

i-Know'2015: Session chair of the Social Computing track of the i-KNOW conference, Graz, Austria, 2015.

i-Know'2013: Session chair of the Science 2.0 track of the i-KNOW conference, Austria, 2013.

Program committee membership and reviewing

ECIR (senior PC): Reproducibility track of the European Conference on Information Retrieval, 2023

IJHCI: International Journal of Human–Computer Interaction, 2022

HAAPIE: International Workshop on Human Aspects in Adaptive and Personalized Interactive Environments co-located with UMAP, 2022.

ICWE: International Conference on Web Engineering, 2022.

FRONTIERS (review editor): Frontiers in Big Data - Section Recommender Systems, since 2021.

TIST: ACM Transactions on Intelligent Systems and Technology, 2021.

MORS: Workshop on Multi-Objective Recommender Systems co-located with RecSys, since 2021.

PERSPECTIVES: Perspectives on the Evaluation of Recommender Systems co-located with RecSys, since 2021

FRONTIERS: Frontiers in Psychology, 2020.

CIKM: ACM International Conference on Information and Knowledge Management, since 2020.

WWW: International World Wide Web Conference, since 2020.

IUI: ACM Conf. on Intelligent User Interfaces, since 2020.

RDSM: International Workshop on Rumours and Deception in Social Media co-located with COLING conference, 2020.

EPJ: EPJ Data Science, 2019.

TWEB: ACM Transactions on the Web, 2019.

HT: ACM Conference on Hypertext and Social Media, since 2019.

EUROCSS: EU Symp. on Computational Social Science, 2019.

TCSC: IEEE Transactions on Computational Social Systems, 2019.

ASC: Applied Soft Computing, since 2019.

PlosOne: PlosOne Journal, 2018.

Journal of Systems and Software: Elsevier, 2018.

TKDE: IEEE Transactions of Knowledge and Data Management, 2018.

INRT: Information Retrieval Journal, 2018.

AJSE: Arabian Journal for Science and Engineering, 2018.

RecSys: ACM Conference on Recommender Systems, since 2018.

SoAPS: Workshop on Social Aspects in Personalization and Search co-located with ECIR conference, 2018.

AFEL: Analytics for Everyday Learning Workshop co-located with ECTEL conference, 2018.

SNAM: Social Network Analysis and Mining Journal, 2017.

C&E: Computers and Education Journal, 2017.

TLT: Transactions on Learning Technologies, 2017.

SNAMS'2017: Int. Symp. on Social Networks Analysis, Management and Security, 2017.

WebSci: Int. ACM Web Science Conference, since 2017.

OpenSym: Int. Symp. on Open Collaboration, 2017.

MSM: Int. Workshop on Modeling Social Media co-located with WWW, since 2015.

UMAP: ACM Conf. on User Modelling, Adaption and Personalization, since 2014.

EC-TEL: EU Conference on Technology Enhanced Learning, since 2014 (since 2020 as leading reviewer).

Presentations at international conferences

ECIR'2023: Demo/poster session and Bias Workshop of the 45th European Conference on Information Retrieval in Dublin, Ireland.

ECIR'2022: Poster session, Industry track and Bias Workshop of the 44th European Conference on Information Retrieval in Stavanger, Norway.

EBDVA'2022: Panel discussion on trustworhty AI and EU AI Act as part of the European Big Data Value Forum.

DataWeek'2021: Panel on Breaking silos in data innovation in Europe as part of BDVA Data Week (online event).

ECIR'2020: Reproducibility track of the 42nd European Conference on Information Retrieval in Lisbon, Portugal (online due to COVID-19).

RECSYS'2019: Poster session of the REVEAL workshop co-located with RECSYS'2019 in Kopenhagen, Denmark.

EUROCSS'2019: Pecha Kucha and poster sessions of the EU Symp. on Computational Social Science in Zurich, Switzerland.

EUROCSS'2018: Pecha Kucha and poster sessions of the EU Symp. on Computational Social Science in Cologne, Germany.

CSS-SummerSchool'2019: Madness session and mini-project presentation in Berlin, Germany.

CIKM'2018: Paper session of the Social Interaction-Based Recommender Systems Workshop co-located with CIKM'2018 in Turin, Italy.

WWW'2018: Poster session of the 27th International World Wide Web Conference in Lyon, France.

EUROCSS'2017: Algorithms paper and poster sessions of the EU Symp. on Computational Social Science in London, GB.

UMAP'2017: Poster session of the 25th Conference on User Modeling, Adaption and Personalization in Bratislava, Slovakia.

WWW'2017: Data Mining paper session of the 26th International World Wide Web Conference in Perth, Australia.

HT'2016: Social Media Analytics paper session of the 27th ACM Conference on Hypertext and Social Media in Halifax, Canada.

CSSWS'2015: Pecha Kucha and poster session of the 2nd Computational Social Sciences Winter Symp., Cologne, Germany.

RECSYS'2015: Short Paper slam and poster session of the 9th ACM Conference on Recommender Systems, Vienna, Austria.

WWW'2015: PhD Symp. of the 24th International World Wide Web Conference, Florence, Italy.

i-Know'2015: Demo session of 15th Int. Conference on Knowledge Technologies, Graz, Austria.

WWW'2014: WebScience track and Social Recommender Systems Workshop of the 23rd International World Wide Web Conference, Seoul, Korea.

i-Semantics'2013: Minute madness and poster session of the 9th Int. Conference on Semantic Systems, Graz, Austria.

Selected Publications

SCIREP'23: S. Scher, S. Kopeinik, A. Truegler, and *D. Kowald*, "Modelling the Long-Term Fairness Dynamics of Data-Driven Targeted Help on Job Seekers", in *Nature Scientific Reports*, 13, 1727, 2023
`https://doi.org/10.1038/s41598-023-28874-9`

EPJ'21: *D. Kowald*, P. Muellner, E. Zangerle, C. Bauer, M. Schedl, and E. Lex, "Support the Underground: Characteristics of Beyond-Mainstream Music Listeners", *EPJ Data Science*, 10, 14, 2021
`https://doi.org/10.1140/epjds/s13688-021-00268-9`

FTIR'21: E. Lex, *D. Kowald*, P. Seitlinger, T. Tran, A. Felfernig, and M. Schedl, "Psychology-Informed Recommender Systems", *Foundations and Trends in Information Retrieval*, Vol. 15: No. 2, 2021
`http://dx.doi.org/10.1561/1500000090`

ECIR'20: *D. Kowald*, M. Schedl, and E. Lex, "The Unfairness of Popularity Bias in Music Recommendation: A Reproducibility Study", in *Proceedings of the 42nd European Conference on Information Retrieval*, Springer, 2020
`https://doi.org/10.1007/978-3-030-45442-5_5`

WWW'17: *D. Kowald*, S. C. Pujari, and E. Lex, "Temporal Effects on Hashtag Reuse in Twitter: A Cognitive-Inspired Hashtag Recommendation Approach", in *Proceedings of the 26th International Conference on World Wide Web*, ACM, 2017
`https://doi.org/10.1145/3038912.3052605`

Scientific Indicators

ORCID (82 publications):
https://orcid.org/0000-0003-3230-6234

Google Scholar (h-index: 22):
https://scholar.google.at/citations?user=qQ-L8rUAAAAJ

Full List of Publications

[1] S. Scher, S. Kopeinik, A. Truegler, and D. Kowald, "Modelling the long-term fairness dynamics of data-driven targeted help on job seekers," *Nature Scientific Reports*, 2023.

[2] E. Lacic, T. Duricic, L. Fadljevic, D. Theiler, and D. Kowald, "Uptrendz: Api-centric real-time recommendations in multi-domain settings," in *Proceedings of the 45th European Conference on Information Retrieval*, ECIR '23, 2023.

[3] D. Kowald*, G. Mayr*, M. Schedl, and E. Lex, "A study on accuracy, miscalibration, and popularity bias in recommendations," in *Advances in Bias and Fairness in Information Retrieval*, BIAS@ECIR '23, 2023, * both authors contributed equally.

[4] D. Kowald, D. Yang, and E. Lacic, eds., *Research topic on "Reviews in Recommender Systems" in Frontiers in Big Data (Section Recommender Systems)*, Frontiers, 2023.

[5] P. Muellner, S. Schmerda, D. Theiler, S. Lindstaedt, and D. Kowald, "Towards employing recommender systems for supporting data and algorithm sharing," in *DataEconomy Workshop co-located with the 18th International Conference on emerging Networking EXperiments and Technologies*, CoNext '22, 2022.

[6] E. Lacic, L. Fadljevic, F. Weissenboeck, S. Lindstaedt, and D. Kowald, "What drives readership? an online study on user interface types and popularity bias mitigation in news article recommendations," in *Proceedings of the 44th European Conference on Information Retrieval*, ECIR '22, 2022.

[7] D. Kowald and E. Lacic, "Popularity bias in collaborative filtering-based multimedia recommender systems," in *Advances in Bias and Fairness in Information Retrieval*, BIAS@ECIR '22, 2022.

[8] E. Lacic and D. Kowald, "Recommendations in a multi-domain setting: Adapting for customization, scalability and real-time performance," in *Industry-Day Track of the 44th European Conference on Information Retrieval*, ECIR '22, 2022.

[9] D. Kowald, P. Muellner, E. Zangerle, C. Bauer, M. Schedl, and E. Lex, "Support the underground: Characteristics of beyond-mainstream music listeners," *EPJ Data Science*, 2021.

[10] E. Lex, D. Kowald, P. Seitlinger, T. Tran, A. Felfernig, and M. Schedl, "Psychology-informed recommender systems," *Foundations and Trends in Information Retrieval*, 2021.

[11] M. Schedl, C. Bauer, W. Reisinger, D. Kowald, and E. Lex, "Listener modeling and context-aware music recommendation based on country archetypes," *Frontiers in Artifical Intelligence*, 2021.

[12] P. Muellner, D. Kowald, and E. Lex, "Robustness of meta matrix factorization against strict privacy constraints," in *Proceedings of the 43rd European Conference on Information Retrieval*, ECIR '21, 2021.

[13] O. Lesota, A. Melchiorre, N. Rekabsaz, S. Brandl, D. Kowald, E. Lex, and M. Schedl, "Analyzing item popularity bias of music recommender systems: Are different genders equally affected?," in *Proceedings of the 15th ACM Conference on Recommender Systems*, RecSys '21, 2021.

[14] T. Turicic, D. Kowald, M. Schedl, and E. Lex, "My friends also prefer diverse music: homophily and link prediction with user preferences for mainstream, novelty, and diversity in music," in *Proceedings of International Conference on Advances in Social Network Analysis and Mining (MSDNS Workshop)*, ASONAM '21, 2021.

[15] P. Muellner, E. Lex, and D. Kowald, "Impact of meta learning for privacy-preserving recommender systems," in *In The Responsible AI Forum*, TRAIF '21, 2021.

[16] P. Muellner, E. Lex, and D. Kowald, "Position paper on simulating privacy dynamics in recommender systems," in *Simulation for Recommender Systems Workshop co-located with ACM Conference on Recommender Systems*, SimuRec@RecSys '21, 2021.

[17] E. Lex*, D. Kowald*, and M. Schedl, "Modeling popularity and temporal drift of music genre preferences," *Transactions of the International Society for Music Information Retrieval*, 2020, * both authors contributed equally.

[18] E. Lacic, M. Reiter-Haas, D. Kowald, M. R. Dareddy, J. Cho, and E. Lex, "Using autoencoders for session-based job recommendations," *User Modeling and User-Adapted Interaction*, 2020.

[19] D. Kowald, M. Schedl, and E. Lex, "The unfairness of popularity bias in music recommendation: A reproducibility study," in *Proceedings of the 42nd European Conference on Information Retrieval*, ECIR '20, 2020.

[20] D. Kowald*, E. Lex*, and M. Schedl, "Utilizing human memory processes to model genre preferences for personalized music recommendations," in *HUMANIZE workshop co-located with the 25th ACM Conference on Intelligent User Interfaces*, HUMANIZE@IUI '20, 2020, * both authors contributed equally.

[21] T. Duricic, H. Hussain, L. Emanuel, D. Kowald, D. Helic, and E. Lex, "Empirical comparison of graph embeddings for trust-based collaborative filtering," in *Proceedings of the 25th International Symposium on Intelligent Systems*, ISMIS '20, 2020.

[22] L. Fadljevic*, K. Maitz*, D. Kowald, V. Pammer-Schindler, and B. Gasteiger-Klipcera, "Slow is good: The effect of diligence on student performance in the case of an adaptive learning system for health literacy," in *Proceedings of the 10th International Learning Analytics and Knowledge Conference*, LAK '20, 2020, * both authors contributed equally.

[23] A. Ruiz-Calleja, S. Dennerlein, D. Kowald, D. Theiler, E. Lex, and T. Ley, "An infrastructure for workplace learning analytics: Tracing knowledge creation with the social semantic server," *Journal of Learning Analytics*, 2019.

[24] S. Kopeinik, E. Lex, D. Kowald, D. Albert, and P. Seitlinger, "A real-life school study of confirmation bias and polarisation in information behaviour," in *Proceedings of the 14th European Conference on Technology Enhanced Learning*, ECTEL '19, 2019.

[25] E. Lacic*, D. Kowald*, D. Theiler, M. Traub, L. Kuffer, S. Lindstaedt, and E. Lex, "Evaluating tag recommendations for e-book annotation using a semantic similarity metric," in *REVEAL Workshop co-located with 13th ACM Conference on Recommender Systems*, REVEAL@RECSYS '19, 2019, * both authors contributed equally.

[26] D. Kowald, M. Traub, D. Theiler, H. Gursch, S. Lindstaedt, R. Kern, and E. Lex, "Using the open meta kaggle dataset to evaluate tripartite recommendations in data markets," in *REVEAL Workshop co-located with 13th ACM Conference on Recommender Systems*, REVEAL@RECSYS '19, 2019.

[27] D. Kowald*, E. Lex*, and M. Schedl, "Modeling artist preferences for personalized music recommendations," in *Late-Breaking-Results of the 20th annual conference of the International Society for Music Information Retrieval*, ISMIR '19, 2019, * both authors contributed equally.

[28] E. Lex and D. Kowald, "The impact of time on hashtag reuse in twitter: A cognitive-inspired hashtag recommendation approach," in *Proceedings of the 49th GI Annual Conference*, INFORMATIK '19, 2019.

[29] D. Kowald*, E. Lex*, and M. Schedl, "Modeling artist preferences of users with different music consumption patterns for fair music recommendations," in *3rd European Symposium on Societal Challenges in Computational Social Science*, EUROCSS '19, 2019, * both authors contributed equally.

[30] T. Duricic, E. Lacic, D. Kowald, and E. Lex, "Exploiting weak ties in trust-based recommender systems using regular equivalence," in *3rd European Symposium on Societal Challenges in Computational Social Science*, EUROCSS '19, 2019.

[31] I. Hasani-Mavriqi, D. Kowald, D. Helic, and E. Lex, "Consensus dynamics in online collaboration systems," *Computational Social Networks*, vol. 5, no. 1, 2018.

[32] D. Kowald, P. Seitlinger, T. Ley, and E. Lex, "The impact of semantic context cues on the user acceptance of tag recommendations: An online study," in *Companion of the The Web Conference 2018*, WWW '18, 2018.

[33] M. d'Aquin, D. Kowald, A. Fessl, E. Lex, and S. Thalmann, "Afel-analytics for everyday learning," in *Companion of the The Web Conference 2018*, WWW '18, 2018.

[34] E. Lex, T. Ross-Hellauer, and D. Kowald, "Recommender systems as enabling technology to interlink scholarly information," in *Workshop on Researcher Centric Scholarly Communication co-located with The Web Conference 2018*, RCSC@WWW '18, 2018.

[35] T. Duricic, E. Lacic, D. Kowald, and E. Lex, "Trust-based collaborative filtering: Tackling the cold start problem using regular equivalence," in *Proceedings of the 12th ACM Conference on Recommender Systems*, RECSYS '18, 2018.

[36] D. Kowald, E. Lacic, D. Theiler, and E. Lex, "AFEL-REC: A recommender system for providing learning resource recommendations in social learning environments," in *Social Interaction-Based Recommender Systems Workshop co-located with the 27th ACM International Conference on Information and Knowledge Management*, SIR@CIKM '18, 2018.

[37] E. Lacic, D. Kowald, and E. Lex, "Neighborhood troubles: On the value of user pre-filtering to speed up and enhance recommendations," in *Workshop on Entity Retrieval co-located with the 27th ACM International Conference on Information and Knowledge Management*, EYRE@CIKM '18, 2018.

[38] E. Lacic, D. Kowald, M. Reiter-Haas, V. Slawicek, and E. Lex, "Beyond accuracy optimization: On the value of item embeddings for student job recommendations," in *Workshop on Multi-dimensional Information Fusion for User Modeling and Personalization co-located with the 11th ACM International Conference on Web Search and Data Mining*, IFUP@WSDM '18, 2018.

[39] D. Kowald and E. Lex, "Studying confirmation bias in hashtag usage on twitter," in *2nd European Symposium on Societal Challenges in Computational Social Science*, EUROCSS '18, 2018.

[40] E. Lex, M. Wagner, and D. Kowald, "Mitigating confirmation bias on twitter by recommending opposing views," in *2nd European Symposium on Societal Challenges in Computational Social Science*, EUROCSS '18, 2018.

[41] A. Fessl, D. Kowald, S. L. Sola, A. Moreno, R. Alonso, and S. Thalmann, "Analytics for everyday learning from two perspectives: Knowledge workers and teachers," in *AFEL Workshop co-located with European Conference on Technology Enhanced Learning Conference*, AFEL@ECTEL '18, 2018.

[42] S. Dennerlein, D. Kowald, V. Pammer-Schindler, E. Lex, and T. Ley, "Simulation-based co-creation of algorithms," in *CCTEL Workshop co-located with European Conference on Technology Enhanced Learning*, CCTEL@ECTEL '18, 2018.

[43] M. Traub, H. Gursch, D. Kowald, D. Theiler, R. Kern, and E. Lex, "Providing recommendations of services, datasets and end-users in the data market austria (dma)," in *Decision Making and Recommender Systems Workshop*, DMRS '18, 2018.

[44] D. Kowald, S. C. Pujari, and E. Lex, "Temporal effects on hashtag reuse in twitter: A cognitive-inspired hashtag recommendation approach," in *Proceedings of the 26th International Conference on World Wide Web*, WWW '17, 2017.

[45] D. Kowald, S. Kopeinik, and E. Lex, "The TagRec framework as a toolkit for the development of tag-based recommender systems," in *Adjunct Publication of the 25th Conference on User Modeling, Adaptation and Personalization*, UMAP '17, 2017.

[46] S. Kopeinik, D. Kowald, I. Hasani-Mavriqi, and E. Lex, "Improving collaborative filtering using a cognitive model of human category learning," *The Journal of Web Science*, vol. 2, no. 1, 2017.

[47] P. Seitlinger, T. Ley, D. Kowald, D. Theiler, I. Hasani-Mavriqi, S. Dennerlein, E. Lex, and D. Albert, "Balancing the fluency-consistency tradeoff in collaborative information search with a recommender approach," *International Journal of Human–Computer Interaction*, vol. 34, no. 6, 2017.

[48] D. Kowald and E. Lex, "Overcoming the imbalance between tag recommendation approaches and real-world folksonomy structures with cognitive-inspired algorithms," in *1st European Symposium on Societal Challenges in Computational Social Science*, EUROCSS '17, 2017.

[49] M. d'Aquin, A. Adamou, S. Dietze, B. Fetahu, U. Gadiraju, I. Hasani-Mavriqi, P. Holtz, J. Kimmerle, D. Kowald, E. Lex, S. Lopez.Sola, R. Maturana, V. Sabol, P. Troullinou, and E. Veas, "Afel: Towards measuring online activities contributions to self-directed learning," in *7th ARTEL Workshop co-located with the 12th European Conference on Technology Enhanced Learning*, ARTEL@ECTEL '17, 2017.

[50] E. Lacic, D. Kowald, and E. Lex, "Tailoring recommendations for a multi-domain environment," in *RECSYSKTL Workshop at the 11th ACM Conference on Recommender Systems*, RECSYSKTL@RECSYS '17, 2017.

[51] D. Kowald, "Modeling activation processes in human memory to improve tag recommendations," *SIGIR Forum*, 2017.

[52] D. Kowald, *Modeling Activation Processes in Human Memory for Tag Recommendations: Using Models from Human Memory Theory to Implement Recommender Systems for Social Tagging and Microblogging Environments*. Suedwestdeutscher Verlag fuer Hochschulschriften, 2017.

[53] A. Felfernig, R. Klamma, T. Ley, D. Kowald, E. Lex, and V. Pammer-Schindler, eds., *Focused topic on "Recommender systems and social network analysis" in Journal of Universal Computer Science*, JUCS, 2017.

[54] M. Aehnelt, O. Bluder, G. Breitfuss, R. Kaiser, R. Kern, R. Klamma, D. Kowald, T. Ley, E. Lex, C. Müller, V. Pammer-Schindler, R. Rauter, G. Reiner, and E. Veas, eds., *Proceedings of the Workshop Papers of i-Know 2017*, CEUR, 2017.

[55] D. Kowald, *Modeling Activation Processes in Human Memory to Improve Tag Recommendations*. PhD thesis, Graz University of Technology, 2017.

[56] D. Kowald and E. Lex, "The influence of frequency, recency and semantic context on the reuse of tags in social tagging systems," in *Proceedings of the 27th ACM Conference on Hypertext and Social Media*, HT '16, 2016.

[57] E. Lacic, D. Kowald, and E. Lex, "High enough?: Explaining and predicting traveler satisfaction using airline reviews," in *Proceedings of the 27th ACM Conference on Hypertext and Social Media*, HT '16, 2016.

[58] C. Trattner, D. Kowald, P. Seitlinger, T. Ley, and S. Kopeinik, "Modeling activation processes in human memory to predict the use of tags in social bookmarking systems," *The Journal of Web Science*, vol. 2, no. 1, 2016.

[59] S. Kopeinik, D. Kowald, and E. Lex, "Which algorithms suit which learning environments? a comparative study of recommender systems in tel," in *Proceedings of the 11th European Conference on Technology Enhanced Learning*, ECTEL '16, 2016.

[60] P. Santos, S. Dennerlein, D. Theiler, J. Cook, T. Treasure-Jones, D. Holley, M. Kerr, G. Attwell, D. Kowald, and E. Lex, "Going beyond your personal learning network, using recommendations and trust through a multimedia question-answering service for decision-support: A case study in the healthcare," *Journal of Universal Computer Science*, vol. 22, no. 3, 2016.

[61] E. Lacic, D. Kowald, and E. Lex, "Nneed help? recommending social institutions," in *RSBDA Workshop co-located with the International Conference on Knowledge Technologies and Data-driven Business*, RSBDA@i-KNOW '16, 2016.

[62] D. Kowald and E. Lex, "Evaluating tag recommender algorithms in real-world folksonomies: A comparative study," in *Proceedings of the 9th ACM Conference on Recommender Systems*, RECSYS '15, 2015.

[63] E. Lacic, D. Kowald, M. Traub, G. Luzhnica, J. Simon, and E. Lex, "Tackling cold-start users in recommender systems with indoor positioning systems," in *In Poster Proceedings of the 9th ACM Conference on Recommender Systems*, RECSYS' 15, 2015.

[64] E. Lacic, M. Traub, D. Kowald, and E. Lex, "Scar: Towards a real-time recommender framework following the microservices architecture," in *LSRS workshop at 9th ACM Conference on Recommender Systems*, LSRS@ RECSYS'15, 2015.

[65] D. Kowald, "Modeling cognitive processes in social tagging to improve tag recommendations," in *Companion Proceedings of the 24th International Conference on World Wide Web*, WWW '15 Companion, 2015.

[66] P. Seitlinger, D. Kowald, S. Kopeinik, I. Hasani-Mavriqi, E. Lex, and T. Ley, "Attention please! a hybrid resource recommender mimicking attention-interpretation dynamics," in *Companion Proceedings of the 24th International Conference on World Wide Web*, WWW '15 Companion, 2015.

[67] D. Kowald, S. Kopeinik, P. Seitlinger, T. Ley, D. Albert, and C. Trattner, "Refining frequency-based tag reuse predictions by means of time and semantic context," in *Mining, Modeling, and Recommending'Things' in Social Media*, Springer, 2015.

[68] D. Kowald, P. Seitlinger, S. Kopeinik, T. Ley, and C. Trattner, "Forgetting the words but remembering the meaning: Modeling forgetting in a verbal and semantic tag recommender," in *Mining, Modeling, and Recommending'Things' in Social Media*, Springer, 2015.

[69] E. Lacic, D. Kowald, L. Eberhard, C. Trattner, D. Parra, and L. B. Marinho, "Utilizing online social network and location-based data to recommend products and categories in online marketplaces," in *Mining, Modeling, and Recommending'Things' in Social Media*, Springer, 2015.

[70] C. Trattner, D. Kowald, and E. Lacic, "TagRec: towards a toolkit for reproducible evaluation and development of tag-based recommender algorithms," *ACM SIGWEB Newsletter, Winter*, 2015.

[71] S. Dennerlein, D. Kowald, E. Lex, D. Theiler, E. Lacic, and T. Ley, "The social semantic server: a flexible framework to support informal learning at the workplace," in *Proceedings of the 15th International Conference on Knowledge Technologies and Data-driven Business*, i-KNOW '15, 2015.

[72] M. Traub, D. Kowald, E. Lacic, P. Schoen, G. Supp, and E. Lex, "Smart booking without looking: providing hotel recommendations in the triprebel portal," in *Proceedings of the 15th International Conference on Knowledge Technologies and Data-driven Business*, i-KNOW '15, 2015.

[73] D. Kowald, P. Seitlinger, T. Ley, and E. Lex, "Modeling activation processes in human memory to improve tag recommendations," in *Proceedings of the*

2nd GESIS Computational Social Sciences Winter Symposium, CSSWS' 15, 2015.

[74] D. Kowald, P. Seitlinger, C. Trattner, and T. Ley, "Long time no see: The probability of reusing tags as a function of frequency and recency," in *Companion Proceedings of the 23rd International Conference on World Wide Web*, WWW '14 Companion, 2014.

[75] E. Lacic, D. Kowald, D. Parra, M. Kahr, and C. Trattner, "Towards a scalable social recommender engine for online marketplaces: The case of apache solr," in *SRS Workshop co-located with the 23rd International Conference on World Wide Web*, SRS@WWW '14, 2014.

[76] D. Kowald, E. Lacic, and C. Trattner, "TagRec: Towards a standardized tag recommender benchmarking framework," in *Proceedings of the 25th ACM Conference on Hypertext and Social Media*, HT '14, 2014.

[77] E. Lacic, D. Kowald, and C. Trattner, "Socrecm: A scalable social recommender engine for online marketplaces," in *Proceedings of the 25th ACM conference on Hypertext and social media*, HT '14, 2014.

[78] E. Lacic*, D. Kowald*, P. Seitlinger, C. Trattner, and D. Parra, "Recommending items in social tagging systems using tag and time information," in *1st International Workshop on Social Personalisation co-located with Hypertext'14*, SP@HT '14, 2014, * both authors contributed equally.

[79] P. Seitlinger, D. Kowald, C. Trattner, and T. Ley, "Recommending tags with a model of human categorization," in *Proceedings of the 22nd ACM international conference on information and knowledge management*, CIKM '13, 2013.

[80] D. Kowald, S. Dennerlein, D. Theiler, S. Walk, and C. Trattner, "The social semantic server - a framework to provide services on social semantic network data.," in *I-SEMANTICS (Posters and Demos)*, vol. 1026 of *I-SEMANTICS '13*, 2013.

[81] D. Kowald, "Combining computer-supported, collaborative learning with e-assessment: Enhancing a wiki system with flexible assessment methods," Master's thesis, Graz University of Technology, 2012.

[82] D. Kowald and J. Maderer, "Peer assessment in computer science and modern technologies to build a flexible e-learning system around it," Bachelor's thesis, Graz University of Technology, 2009.