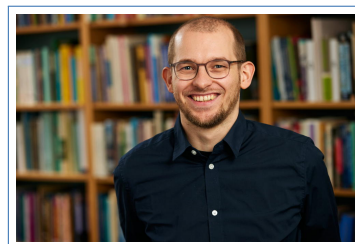


Stefan Neumann

Curriculum Vitae

✉ neum@kth.se

CV last updated: June 6, 2023



Research Interests

- Graph Algorithms
- Opinion Formation
- Social Network Analysis
- Foundations of Data Science

Work Experience

- Since 2023 **Assistant Professor**, KTH Royal Institute of Technology, Stockholm, Sweden
- 2020–2023 **Postdoctoral Researcher**, KTH Royal Institute of Technology, Stockholm, Sweden
 - Hosted by Aristides Gionis
- Spring 2021 **Adjunkt (Adjunct Instructor)**, Uppsala University, Uppsala, Sweden
 - Co-taught *Data Mining I* (5 ECTS)
- 2019 **Visiting Researcher**, Brown University, Providence, RI, USA
 - Hosted by Eli Upfal for 6 months
- 2016–2020 **Research and Teaching Assistant**, University of Vienna, Vienna, Austria
 - Hosted by Monika Henzinger

Education

- 2016–2020 **Ph.D. in Computer Science**, *with distinction*, University of Vienna, Vienna, Austria
 - Thesis: “Provably Finding and Exploiting Patterns in Data”
 - Supervised by Monika Henzinger
- 2013–2015 **M.Sc. in Computer Science**, *with distinction*, Max Planck Institute for Informatics and Saarland University, Saarbrücken, Germany
- 2010–2013 **B.Sc. in Mathematics**, *Friedrich Schiller University*, Jena, Germany

Grants and Awards

- Ph.D. Thesis
 - Won* the **Heinz Zemanek Award** from the Austrian Computer Society (best Austrian Computer Science dissertation in 2020 and 2021; co-won with Daniela Kaufmann)
 - Won* the **Award of Excellence** from the Austrian Ministry of Education, Science and Research (among the 40 best dissertations of 2020 across all fields)
 - Nominated* for the Dissertationspreis of Gesellschaft für Informatik (among the Top 36 Computer Science dissertations in Germany, Austria and Switzerland in 2020)
- Papers
 - Oral presentation* at ICML 2022 (among Top 118 submissions out of 5630)
 - Best paper candidate* at ICDM 2016
 - My single-authored NeurIPS 2018 paper was presented as *Best of Data Science Made in Germany, Austria and Switzerland* at INFORMATIK 2019
- Reviewing
 - Among the *best reviewers* of WebConf 2023 (Top 130 out of 1,300+)
 - Honorable Mention* as one of the best reviewers of WebConf 2022 (Top 50 out of 1,500+)
 - Outstanding Reviewer* at ICML 2022 (among Top 10% reviewers)

Scientific Activities

Program Committees	NeurIPS (2022, 2023), KDD (2022, 2023), ICML (2022, 2023), WebConf (2022, 2023), WSDM (2022, 2023), ECML PKDD (2020–2023), ICDM (2021, 2022), LoG (2022), SDM (2021, 2022), IJCAI-ECAI Survey Track (2021, 2022), ASONAM (2022), SIROCCO (2021)
Organizing Committees	SDM 2022 Publicity Co-Chair
Conference Reviewing	SODA (2022, 2023), ICALP (2016, 2017, 2019–2023), ESA (2016, 2021, 2023), SoCG (2022), STOC (2018, 2021), KDD (2020, 2021), MFCS (2021), WADS (2021), NeurIPS (2020), WebConf (2020), WSDM (2020), ICDM (2020), SWAT (2020), ICDM (2019), CIKM (2019), ECML PKDD (2019), STACS (2019), SWAT (2018), WADS (2017)
Journal Reviewing	SICOMP, IEEE TIT, DAMI, TCS
Grant Reviewing	NSF (2023)
Research Visits	<i>University of Eastern Finland</i> , Host: Pauli Miettinen, Sep. 2019 <i>Brown University</i> , Host: Eli Upfal, Jan.–Jun. 2019
Workshops	<i>ECML PKDD 2021 Satellite Meetup</i> in Ghent, Belgium, Sep. 14–16, 2021 <i>Computation and Statistics in Data Science</i> in Bertinoro, Italy, Sep. 30–Oct. 4, 2019 <i>Data Science in Low-dimensional Spaces</i> at ICERM, Providence, RI, USA, May 13–17, 2019
Talks and Posters	<i>Dynamic Maintenance of Monotone Dynamic Programs and Applications</i> , HALG 2023 (Contributed Talk) <i>Dynamic Maintenance of Monotone Dynamic Programs and Applications</i> , STACS 2023 <i>Opinion Formation in Social Networks: Models and Computational Problems</i> , RAIS Summer School and Workshop 2022 <i>Sublinear-Time Clustering Oracle for Signed Graphs</i> , ICML 2022 <i>Opinion Formation in Social Networks: Models and Computational Problems</i> , IJCAI 2022 <i>Sublinear-Time Clustering Oracle for Signed Graphs</i> , SoBigData++ Plenary Meeting <i>Provably Finding and Exploiting Patterns in Data</i> , Heinz Zemanek Award Hearing 2022 <i>Opinion Formation in Social Networks: Models and Computational Problems</i> , WebConf 2022 <i>Provably Finding and Exploiting Patterns in Data</i> , Hearing for the Dissertationspreis of Gesellschaft für Informatik 2021 <i>Tight Bounds for Online Graph Partitioning</i> , HALG 2021 (Contributed Talk) <i>Tight Bounds for Online Graph Partitioning</i> , SODA 2021 <i>Biclustering and Boolean Matrix Factorization in Data Streams</i> , VLDB 2020 <i>Dynamic Approximate Maximum Independent Set of Intervals, Hypercubes and Hyperrectangles</i> , SoCG 2020 <i>Finding Tiny Clusters in Bipartite Graphs</i> , Workshop on Computation and Statistics in Data Science, Bertinoro, 2019 <i>Finding Tiny Clusters in Bipartite Graphs</i> , INFORMATIK 2019 <i>Bipartite Stochastic Block Models with Tiny Clusters</i> , University of Eastern Finland, 2019 <i>Efficient Distributed Workload (Re-)Embedding</i> , SIGMETRICS 2019 <i>Bipartite Stochastic Block Models with Tiny Clusters</i> , NeurIPS 2018 <i>Ranking the Teams in European Football Leagues With Agony</i> , MLSA@ECML PKDD 2018 <i>What You Will Gain By Rounding: Theory and Algorithms for Rounding Rank</i> , ICDM 2016 <i>Incremental and Fully Dynamic Subgraph Connectivity For Emergency Planning</i> , ESA 2016
Memberships	Association for Computing Machinery (ACM) (since 2023) Austrian Computer Society (since 2022)
Other Affiliations	Digital Futures Faculty Member (since 2023)

Teaching and Supervision

Instructor	<i>Data Mining I</i> at Uppsala University (Spring 2021)
Teaching Assistant	<i>Algorithms and Data Structures</i> at University of Vienna (Summer 2020) <i>Algorithms and Data Structures 2</i> at University of Vienna (Winter 2019) <i>Mathematical Foundations of Computer Science 1</i> at University of Vienna (Winter 2018, Winter 2017, Summer 2017, Winter 2016)
Co-Supervision	2 M.Sc. Theses, 1 B.Sc. Thesis, 1 Teaching Assistant, 1 Student Assistant

Publications

Note that the publication culture in Computer Science is to publish mostly at conferences and that papers in conference proceedings are fully refereed publications. In Data Science, authors are usually ordered by contribution; in Algorithms, authors are ordered alphabetically.

Conference Publications

Corinna Coupette, Stefan Neumann, and Aristides Gionis. “Reducing Exposure to Harmful Content via Graph Rewiring”. In: *ACM International Conference on Knowledge Discovery & Data Mining (KDD)*. To appear. 2023.

Klaus-Tycho Förster, Thibault Marette, Stefan Neumann, Claudia Plant, Ylli Sadikaj, Stefan Schmid, and Yllka Velaj. “Analyzing the Communication Clusters in Datacenters”. In: *ACM Web Conference (WebConf, formerly WWW)*. Authors ordered alphabetically. 2023, pp. 3022–3032.

Monika Henzinger, Stefan Neumann, Harald Räcke, and Stefan Schmid. “Dynamic Maintenance of Monotone Dynamic Programs and Applications”. In: *Symposium on Theoretical Aspects of Computer Science (STACS)*. Authors ordered alphabetically. To appear. 2023.

Thibault Marette, Pauli Miettinen, and Stefan Neumann. “Visualizing Overlapping Biclusterings and Boolean Matrix Factorizations”. In: *European Conference on Machine Learning and Principles and Practice of Knowledge Discovery (ECML PKDD)*. To appear. 2023.

Sijing Tu, Stefan Neumann, and Aristides Gionis. “Adversaries with Limited Information in the Friedkin–Johnsen Model”. In: *ACM International Conference on Knowledge Discovery & Data Mining (KDD)*. To appear. 2023.

Stefan Neumann and Pan Peng. “Sublinear-Time Clustering Oracle for Signed Graphs”. In: *International Conference on Machine Learning (ICML)*. Oral presentation (Top 118 submissions out of 5630). 2022, pp. 16496–16528.

Sijing Tu and Stefan Neumann. “A Viral Marketing-Based Model for Opinion Dynamics in Online Social Networks”. In: *ACM Web Conference (WebConf, formerly WWW)*. 2022, pp. 1570–1578.

Monika Henzinger, Stefan Neumann, Harald Räcke, and Stefan Schmid. “Tight Bounds for Online Graph Partitioning”. In: *ACM-SIAM Symposium on Discrete Algorithms (SODA)*. Authors ordered alphabetically. 2021, pp. 2799–2818.

Monika Henzinger, Stefan Neumann, and Andreas Wiese. “Dynamic Approximate Maximum Independent Set of Intervals, Hypercubes and Hyperrectangles”. In: *Symposium on Computational Geometry (SoCG)*. Authors ordered alphabetically. 2020, 51:1–51:14.

Monika Henzinger, Stefan Neumann, and Stefan Schmid. “Efficient Distributed Workload (Re-)Embedding”. In: *ACM SIGMETRICS*. Authors ordered alphabetically. 2019, pp. 43–44.

Stefan Neumann. “Bipartite Stochastic Block Models with Tiny Clusters”. In: *Neural Information Processing Systems (NeurIPS)*. 2018, pp. 3871–3881.

Monika Henzinger, Andrea Lincoln, Stefan Neumann, and Virginia Vassilevska Williams. “Conditional Hardness for Sensitivity Problems”. In: *Innovations in Theoretical Computer Science (ITCS)*. Authors ordered alphabetically. 2017, 26:1–26:31.

Stefan Neumann and Pauli Miettinen. “Reductions for Frequency-Based Data Mining Problems”. In: *IEEE International Conference on Data Mining (ICDM)*. 2017, pp. 997–1002.

Monika Henzinger and Stefan Neumann. “Incremental and Fully Dynamic Subgraph Connectivity for Emergency Planning”. In: *European Symposium on Algorithms (ESA)*. Authors ordered alphabetically. 2016, 48:1–48:11.

Stefan Neumann, Rainer Gemulla, and Pauli Miettinen. “What You Will Gain By Rounding: Theory and Algorithms for Rounding Rank”. In: *IEEE International Conference on Data Mining (ICDM)*. *Best paper candidate*. 2016, pp. 380–389.

Stefan Neumann and Andreas Wiese. “This House Proves That Debating is Harder Than Soccer”. In: *Fun with Algorithms (FUN)*. Authors ordered alphabetically. 2016, 25:1–25:14.

Journal Publications

Stefan Neumann and Pauli Miettinen. “Biclustering and Boolean Matrix Factorization in Data Streams”. In: *Proc. VLDB Endow.* 13.10 (2020), pp. 1709–1722.

Sayan Bhattacharya, Monika Henzinger, and Stefan Neumann. “New amortized cell-probe lower bounds for dynamic problems”. In: *Theor. Comput. Sci. (TCS)* 779 (2019). Authors ordered alphabetically., pp. 72–87.

Monika Henzinger, Stefan Neumann, and Stefan Schmid. “Efficient Distributed Workload (Re-)Embedding”. In: *Proc. of the ACM on Measurement and Analysis of Computing Systems (POMACS)* 3.1 (2019). Authors ordered alphabetically. Conference version in *SIGMETRICS’19*, 13:1–13:38.

Publications at Workshops and National Conferences

Thibault Marette and Stefan Neumann. “Drawing Clusterings of Bipartite Graphs”. In: *International Symposium on Graph Drawing and Network Visualization (GD)*. Poster presentation. 2021.

Stefan Neumann. “Beweisbar Gesetzmäßigkeiten in Daten finden und ausnutzen”. In: *Ausgezeichnete Informatikdissertationen 2020*. Vol. D-21. LNI. Gesellschaft für Informatik (GI), 2020, pp. 239–248.

Stefan Neumann. “Finding Tiny Clusters in Bipartite Graphs”. In: *INFORMATIK. Session Best of Data Science Made in Germany, Austria and Switzerland*. 2019, pp. 253–254.

Stefan Neumann, Julian Ritter, and Kailash Budhathoki. “Ranking the Teams in European Football Leagues with Agony”. In: *Machine Learning and Data Mining for Sports Analytics (MLSA@PKDD/ECML)*. 2018, pp. 55–66.

Tutorials and Surveys

Aristides Gionis, Stefan Neumann, and Bruno Ordozgoiti. “Opinion Formation in Social Networks: Models and Computational Problems”. In: *ACM Web Conference (WebConf, formerly WWW)*. Authors ordered alphabetically. 2022, pp. 391–399.

Aristides Gionis, Stefan Neumann, and Bruno Ordozgoiti. “Opinion Formation in Social Networks: Models and Computational Problems”. In: *International Joint Conferences on Artificial Intelligence (IJCAI)*. Authors ordered alphabetically. 2022.

Pauli Miettinen and Stefan Neumann. “Recent Developments in Boolean Matrix Factorization”. In: *International Joint Conferences on Artificial Intelligence (IJCAI)*. Survey Article. 2020, pp. 4922–4928.