

Philipp Singer

Curriculum Vitæ

Vienna

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Country of Citizenship	Austria
Date of Birth	1988/01/06
Website	www.philippsinger.info
Competence areas	Data Science, Machine Learning, Artificial Intelligence, Statistics, Data Mining, Network Analysis, Blockchain

Positions

03/2018 until now	Senior Data Scientist at Uniqa Insurance Group, Vienna, Austria
05/2017 – 02/2017	Data Scientist at Uniqa Insurance Group, Vienna, Austria
02/2015 – 04/2017	Post doctoral researcher at the Data Science group of GESIS - Leibniz Institute for the Social Sciences, Cologne, Germany
09/2015 – 11/2015	Visiting researcher at the Information Science Institute of University of Southern California (USC), Los Angeles, USA; Supervision: Kristina Lerman
05/2014 – 02/2015	Research assistant at the Data Science group of GESIS - Leibniz Institute for the Social Sciences, Cologne, Germany
11/2013 – 01/2014	Visiting researcher at GESIS - Leibniz Institute for the Social Sciences, Cologne, Germany; Supervision: Markus Strohmaier
08/2013 – 10/2013	Visiting researcher at the University of Würzburg, Germany; Supervision: Andreas Hotho
11/2011 – 04/2014	Research assistant at the Knowledge Technologies Institute at Graz University of Technology, Austria

Education

11/2011 – 02/2015	Ph.D. in Computer Science (with distinction) at Graz University of Technology, Austria; Dissertation: Modeling Aspects of Human Trails on the Web, Advisor: Prof. Markus Strohmaier
3/2010 – 11/2011	Diplom in Software Development and Business Management (with distinction) at Graz University of Technology, Austria; Master's Thesis: Time Series Analysis of Online Social Network Data and Content, Advisor: Prof. Markus Strohmaier
10/2006 – 3/2010	B.Sc. in Software Development and Business Management at Graz University of Technology, Austria; Advisor: Prof. Michael Granitzer

Competences & Personal Skills

Competences	Machine Learning (e.g., employment of several core machine learning algorithms such as boosted trees or deep learning), Statistics (e.g., hypotheses testing, Markov Chain modeling, Bayesian inference, frequentist statistics, regression analysis), Data Preparation (e.g., acquisition of large data, feature extraction, OCR text recognition), Data Mining (e.g., applying previously mentioned tools for identifying patterns in large data), Network Analysis (e.g., handling of large graphs, calculation of network properties), Information Retrieval (e.g., extracting semantics, recommender systems), Parallel Computing (e.g., multiprocessing, Hadoop, HDFS, Hive, Spark, BigQuery), Blockchain (e.g., Solidity, technology, use cases), Service Development (e.g., deploying machine learning models, API services, DevOps)
Programming Skills	Python ; further knowledge in R, HTML5, CSS3, Javascript, SQL, MongoDB, Flask, Solidity, Java, C/C++, Matlab, BigQuery, L ^A T _E X, etc.
Project- and Team-leading	Team lead, project lead, and coordination experience in enterprise and academic activities
Native Language	German
Foreign Languages	English (proficient user)

Awards & Honors

- Best Paper Award** CORE A* conference Philipp Singer, Denis Helic, Andreas Hotho and Markus Strohmaier; **HypTrails: A Bayesian Approach for Comparing Hypotheses About Human Trails on the Web**; 24th International World Wide Web Conference, Florence, Italy, 2015 (CORE A* conference, acceptance rate 131/929, 14.1% quota)
- Best Paper Award** Christoph Trattner, Philipp Singer, Denis Helic and Markus Strohmaier. **Exploring the Differences and Similarities of Hierarchical Decentralized Search and Human Navigation in Information Networks**. 12th International Conference on Knowledge Management and Knowledge Technologies, Graz, Austria, 2012
- Excellence Award** Philipp Singer; Excellence award at GESIS - Leibniz Institute for the Social Sciences for first class performance in 2015

Teaching Experience

- Winter 2016/17** Lecturer, Machine Learning and Data Mining at University of Koblenz-Landau, Germany
- Summer 2016** Guest Lecturer, Data Science at University of Koblenz-Landau, Germany
- Winter 2015/16** Lecturer, Machine Learning and Data Mining at University of Koblenz-Landau, Germany
- Summer 2014** TA, Computational Social Science at University of Koblenz-Landau, Germany

Advising & Mentoring

- July 2015 – May 2017** Dimitar Dimitrov, Ph.D. student, University of Koblenz-Landau & GESIS
- May 2015 – May 2017** Lisette Espín-Noboa, Ph.D. student, University of Koblenz-Landau & GESIS
- 2015 – 2016** Maryam Mehrazar, M.Sc. student, University of Bonn & GESIS
- 2014** Clemens Meinhart, M.Sc. student, Technical University of Graz
- 2014** Elias Zeitfogel, M.Sc. student, Technical University of Graz

Selected Peer-reviewed Publications

- 2017** Martin Becker, Florian Lemmerich, **Philipp Singer**, Markus Strohmaier and Andreas Hotho. **MixedTrails: Bayesian Hypothesis Comparison on Heterogeneous Sequential Data**. *Data Mining and Knowledge Discovery*, 2017.
- 2017** **Philipp Singer***, Florian Lemmerich*, Robert West, Leila Zia, Ellery Wulczyn, Markus Strohmaier and Jure Leskovec. **Why We Read Wikipedia**. *26th International World Wide Web Conference*, Perth, Australia. (CORE A* conference, acceptance rate 164/966, 17% quota)
- 2017** **Philipp Singer***, Claudia Wagner*, Fariba Karimi, Jürgen Pfeffer and Markus Strohmaier. **Sampling from social networks with attributes**. *26th International World Wide Web Conference*, Perth, Australia. (CORE A* conference, acceptance rate 164/966, 17% quota)
- 2017** **Philipp Singer***, Dimitar Dimitrov*, Florian Lemmerich and Markus Strohmaier. **What Makes a Link Successful on Wikipedia?**. *26th International World Wide Web Conference*, Perth, Australia. (CORE A* conference, acceptance rate 164/966, 17% quota)
- 2016** Florian Lemmerich, Martin Becker, **Philipp Singer**, Denis Helic, Andreas Hotho and Markus Strohmaier. **Mining Subgroups with Exceptional Transition Behavior**. *22nd ACM SIGKDD Conference on Knowledge Discovery and Data Mining*, San Francisco, USA, 2016. (CORE A* conference, full paper acceptance rate 70/784, 9% quota)
- 2015** **Philipp Singer**, Denis Helic, Andreas Hotho and Markus Strohmaier. **HypTrails: A Bayesian Approach for Comparing Hypotheses About Human Trails on the Web**. *24th International World Wide Web Conference*, Florence, Italy, 2015. (CORE A* conference, acceptance rate 131/929, 14.1% quota) **best paper award**
- 2014** **Philipp Singer**, Denis Helic, Behnam Taraghi and Markus Strohmaier. **Detecting Memory and Structure in Human Navigation Patterns Using Markov Chain Models of Varying Order**. *PLoS ONE*, vol 9(7), 2014. (2014 Impact Factor 3.234)

Peer-reviewed Journal Publications

- 2017 Martin Becker, Florian Lemmerich, **Philipp Singer**, Markus Strohmaier and Andreas Hotho. **MixedTrails: Bayesian Hypothesis Comparison on Heterogeneous Sequential Data**. *Data Mining and Knowledge Discovery*, 2017.
- 2017 **Philipp Singer**, Denis Helic, Andreas Hotho and Markus Strohmaier. **A Bayesian Method for Comparing Hypotheses About Human Trails**. *ACM Transactions on the Web*, vol 11(3), 2017. (2014 Impact Factor 1.255)
- 2017 Lisette Espín-Noboa, Florian Lemmerich, Markus Strohmaier and **Philipp Singer**. **JANUS: A hypothesis-driven Bayesian Approach for Understanding Edge Formation in Attributed Multigraphs**. *Applied Network Science*, vol 2(16), 2017.
- 2016 **Philipp Singer**, Emilio Ferrara, Farshad Kooti, Markus Strohmaier, and Kristina Lerman. **Evidence of Online Performance Deterioration in User Sessions on Reddit**. *PLoS ONE*, vol 9(7), 2014. (2014 Impact Factor 3.234)
- 2016 Stephan Dörfel, Daniel Zoller, **Philipp Singer**, Thomas Niebler, Andreas Hotho and Markus Strohmaier. **What Users Actually do in a Social Tagging System - A Study of User Behavior in BibSonomy**. *ACM Transactions on the Web*, vol 10(2), 14:1–14:32, 2016. (2014 Impact Factor 1.255)
- 2015 Simon Walk, **Philipp Singer**, Markus Strohmaier, Denis Helic, Natalya F Noy and Mark A. Musen. **How to Apply Markov Chains for Modeling Sequential Edit Patterns in Collaborative Ontology-Engineering Projects**. *International Journal of Human-Computer Studies*, vol 84, 51-66, 2015. (2015 Impact Factor 1.476)
- 2015 Claudia Wagner, **Philipp Singer** and Markus Strohmaier. **The Nature and Evolution of Online Food Preferences**. *EPJ Data Science*, vol 3(38), 2015. (2015 Impact Factor 1.567)
- 2014 **Philipp Singer**, Denis Helic, Behnam Taraghi and Markus Strohmaier. **Detecting Memory and Structure in Human Navigation Patterns Using Markov Chain Models of Varying Order**. *PLoS ONE*, vol 9(7), 2014. (2014 Impact Factor 3.234)
- 2014 Simon Walk, **Philipp Singer**, Markus Strohmaier, Tania Tudorache, Mark A. Musen and Natalya F. Noy. **Discovering Beaten Paths in Collaborative Ontology-Engineering Projects using Markov Chains**. *Journal of Biomedical Informatics (JBI)*, vol 51, 254-271, 2014. (2015 Impact Factor 2.447)
- 2014 Claudia Wagner, **Philipp Singer**, Markus Strohmaier and Bernardo Huberman. **Semantic Stability and Implicit Consensus in Social Tagging Streams**. *IEEE Transactions on Computational Social Systems*, vol 1(1), 108–120, 2014.
- 2014 **Philipp Singer**, Thomas Niebler, Markus Strohmaier and Andreas Hotho. **Computing Semantic Relatedness from Human Navigational Paths: A Case Study on Wikipedia**. *International Journal on Semantic Web and Information Systems (IJSWIS)*, 2014. (2014 Impact Factor 0.903)

Peer-reviewed Conference Publications

- 2017 **Philipp Singer***, Florian Lemmerich*, Robert West, Leila Zia, Ellery Wulczyn, Markus Strohmaier and Jure Leskovec. **Why We Read Wikipedia**. *26th International World Wide Web Conference*, Perth, Australia. (CORE A* conference, acceptance rate 164/966, 17% quota)
- 2017 **Philipp Singer***, Claudia Wagner*, Fariba Karimi, Jürgen Pfeffer and Markus Strohmaier. **Sampling from social networks with attributes**. *26th International World Wide Web Conference*, Perth, Australia. (CORE A* conference, acceptance rate 164/966, 17% quota)
- 2017 **Philipp Singer***, Dimitar Dimitrov*, Florian Lemmerich and Markus Strohmaier. **What Makes a Link Successful on Wikipedia?**. *26th International World Wide Web Conference*, Perth, Australia. (CORE A* conference, acceptance rate 164/966, 17% quota)
- 2016 Lisette Espín-Noboa, Florian Lemmerich, Markus Strohmaier and **Philipp Singer**. **A Hypotheses-driven Bayesian Approach for Understanding Edge Formation in Attributed Multigraphs**. *5th International Workshop on Complex Networks and their Applications*, Milan, Italy, 2016.

* equal contribution

- 2016 Florian Lemmerich, Martin Becker, **Philipp Singer**, Denis Helic, Andreas Hotho and Markus Strohmaier. **Mining Subgroups with Exceptional Transition Behavior**. *22nd ACM SIGKDD Conference on Knowledge Discovery and Data Mining*, San Francisco, USA, 2016. (CORE A* conference, full paper acceptance rate 70/784, 9% quota)
- 2015 Martin Becker, **Philipp Singer**, Florian Lemmerich, Andreas Hotho, Denis Helic and Markus Strohmaier. **Photowalking the City: Comparing Hypotheses About Urban Photo Trails on Flickr**. *7th International Conference on Social Informatics*, Beijing, China, 2015.
- 2015 Simon Walk, **Philipp Singer**, Lisette Espín Noboa, Tania Tudorache, Mark A. Musen and Markus Strohmaier. **Understanding How Users Edit Ontologies: Comparing Hypotheses About Four Real-World Projects**. *4th International Semantic Web Conference*, Bethlehem, Pennsylvania, USA, 2015. (CORE A conference, acceptance rate 38/172, 22% quota)
- 2015 Dimitar Dimitrov, **Philipp Singer**, Denis Helic and Markus Strohmaier. **The Role of Structural Information for Designing Navigational User Interfaces**. *26th ACM Conference on Hypertext and Social Media*, Cyprus, 2015. (CORE A conference)
- 2015 **Philipp Singer**, Denis Helic, Andreas Hotho and Markus Strohmaier. **HypTrails: A Bayesian Approach for Comparing Hypotheses About Human Trails on the Web**. *24th International World Wide Web Conference*, Florence, Italy, 2015. (CORE A* conference, acceptance rate 131/929, 14.1% quota) **best paper award**
- 2014 **Philipp Singer***, Simon Walk*, and Markus Strohmaier. **Sequential Action Patterns in Collaborative Ontology Engineering Projects: A Case-study in the Biomedical Domain**. *23rd ACM Conference on Information and Knowledge Management*, Shanghai, China, 2014. (CORE A conference, acceptance rate 95/457, 20.80% quota)
- 2014 **Philipp Singer***, Claudia Wagner*, Markus Strohmaier and Bernardo Huberman . **Semantic Stability in Social Tagging Streams**. *23rd International World Wide Web Conference*, Seoul, South Korea, 2014. (CORE A* conference, acceptance rate 84/650, 12.90% quota)
- 2014 **Philipp Singer***, Fabian Flöck*, Clemens Meinhart, Elias Zeitfogel and Markus Strohmaier; **Evolution of Reddit: From the Front Page of the Internet to a Self-referential Community?**; *Web Science Track at the 23rd International World Wide Web Conference*, Seoul, South Korea, 2014
- 2014 **Philipp Singer**. **Understanding, Leveraging and Improving Human Navigation on the Web (PhD Symposium)**. *23rd International World Wide Web Conference*, Seoul, South Korea, 2014.
- 2013 Claudia Wagner, **Philipp Singer**, Lisa Posch and Markus Strohmaier. **The Wisdom of the Audience: An Empirical Study of Social Semantics in Twitter Streams**. *10th Extended Semantic Web Conference (ESWC 2013)*, Montpellier, France, 2013. (CORE A conference, acceptance rate 42/162, 25.90% quota)
- 2013 Thomas Niebler, **Philipp Singer**, Dominik Benz, Christian Körner, Markus Strohmaier and Andreas Hotho. **How Tagging Pragmatics Influence Tag Sense Discovery in Social Annotation Systems**. *35th European Conference On Information Retrieval*, Moscow, Russia, 2013 (acceptance rate 30/191, 16% quota)
- 2012 Christoph Trattner, **Philipp Singer**, Denis Helic and Markus Strohmaier. **Exploring the Differences and Similarities of Hierarchical Decentralized Search and Human Navigation in Information Networks**. *12th International Conference on Knowledge Management and Knowledge Technologies*, Graz, Austria, 2012, **best paper award**
- 2012 Karin Schöfegger, Christian Körner and **Philipp Singer**. **Learning User Characteristics from Social Tagging Behavior**. *23rd ACM Conference on Hypertext and Social Media*, Milwaukee, Wisconsin, USA, 2012 (CORE A conference)

Peer-reviewed Workshop Publications

- 2016 Lisette Espín-Noboa, Florian Lemmerich, **Philipp Singer** and Markus Strohmaier. **Discovering and Characterizing Mobility Patterns in Urban Spaces: A Study of Manhattan Taxi Data**. *6th International Workshop on Location and the Web at WWW2016*, Montreal, Canada, 2016.

- 2013 Lisa Posch, Claudia Wagner, **Philipp Singer** and Markus Strohmaier. **Meaning as Collective Use: Predicting Hashtag Semantics on Twitter**. *3rd workshop on Making Sense of Microposts at WWW 2013*, Rio de Janeiro, Brazil, 2013.
- 2012 **Philipp Singer**, Claudia Wagner and Markus Strohmaier. **Understanding Co-evolution of Social and Content Networks on Twitter** *22nd workshop on Making Sense of Microposts at WWW 2012*, Lyon, France, 2012

Peer-reviewed Poster & Demo Publications

- 2016 Dimitar Dimitrov, **Philipp Singer**, Florian Lemmerich and Markus Strohmaier. **Visual Positions of Links and Clicks on Wikipedia**. *25th International World Wide Web Conference*, Montreal, Canada, 2016.
- 2015 Martin Becker, **Philipp Singer**, Florian Lemmerich, Andreas Hotho, Denis Helic and Markus Strohmaier. **VizTrails: An Information Visualization Tool for Exploring Geographic Movement Trajectories**. *26th ACM Conference on Hypertext and Social Media*, Cyprus, 2015.
- 2015 Claudia Wagner, **Philipp Singer** and Markus Strohmaier. **Spatial and Temporal Patterns of Online Food Preferences**. *Web-Science Track at the 23rd International World Wide Web Conference*, Seoul, South Korea, 2014.
- 2014 Stephan Dörfel, Daniel Zoller, **Philipp Singer**, Thomas Niebler, Andreas Hotho and Markus Strohmaier. **How Social is Social Tagging?**. *23rd International World Wide Web Conference*, Seoul, South Korea, 2014.
- 2013 **Philipp Singer**, Thomas Niebler, Markus Strohmaier and Andreas Hotho. **Computing Semantic Relatedness from Human Navigational Paths on Wikipedia**. *22nd International World Wide Web Conference*, Rio de Janeiro, Brazil, 2013.

Book Chapters

- 2012 **Philipp Singer**, Claudia Wagner and Markus Strohmaier. **Factors Influencing the Co-evolution of Social and Content Networks in Online Social Media** *Modeling and Mining Ubiquitous Social Media, Lecture Notes in Computer Science Volume 7472*, Springer Verlag, Heidelberg, Germany, 2012
- 2012 **Philipp Singer**, Thomas Niebler, Markus Strohmaier and Andreas Hotho. **Folksonomies**. *Encyclopedia of Social Network Analysis and Mining (accepted for print)*, Springer, 2012.
- 2012 **Philipp Singer**, Markus Strohmaier and Denis Helic. **Social Bookmarking**. *Web 2.0 und Social Media in der Unternehmenspraxis, Grundlagen, Anwendungen und Methoden mit zahlreichen Fallstudien (in German)*, Oldenbourg, 2012.

Tutorials

- 2016 Philipp Singer and Florian Lemmerich. **Analyzing Sequential User Information on the Web**. *25th International World Wide Web Conference*, Montreal, Canada, 2016.

Grants

- 2014 – 2016 Pragmatics and Semantics in Social Tagging Systems II, German Science Foundation (DFG), supervised by Markus Strohmaier (GESIS, U. Koblenz) and in collaboration with Andreas Hotho (U. Würzburg), involved in framing, writing and submitting given project
- 2011 – 2013 Pragmatics and Semantics in Social Tagging Systems, Austrian Science Fund (FWF), supervised by Markus Strohmaier (Techn. U. of Graz) and in collaboration with Andreas Hotho (U. Würzburg), involved in framing and writing given project

Selected Community Service

full reviewing list available on www.philippsinger.info

- 2017 PC co-chair Doctoral Consortium at 28th ACM Conference on Hypertext and Hypermedia
- 2017 PC member International Conference on Web and Social Media
- 2016 Journal reviewer ACM Transactions on the Web
- 2016 PC member International Conference on Web and Social Media

2016 PC member International Conference on Web Engineering
2016 PC member Web Science Conference
2016 PC member World Wide Web Conference
2015 Journal reviewer Plos One
2015 Journal reviewer Journal of Web Semantics
2015 PC member European Semantic Web Conference
2015 PC member International Conference on Web Engineering
2014 Journal reviewer Journal of New Generation Computing
2014 Journal reviewer Social Network Analysis and Mining
2014 PC member International Conference on Social Computing
2013 Journal reviewer Journal of Web Semantics
2013 Journal reviewer Social Network Analysis and Mining
2013 Journal reviewer Physica D: Nonlinear Phenomena
2012 PC member 23rd ACM Conference on Hypertext and Social Media

Invited Talks

September 2015 Artificial Intelligence Seminar at the Information Sciences Institute USC
June 2015 Bayesian Comparison of Hypotheses about Human Trails on the Web, International Conference on Computational Social Science, Helsinki, Finland
May 2015 Bayesian Comparison of Hypotheses about Human Trails on the Web, Modeling and Mining Temporal Interactions Workshop, International Conference on Web and Social Media, Oxford, UK
November 2013 GESIS - Leibniz Institute for the Social Sciences, Cologne, Germany
October 2013 WEST Institute Seminar at the University of Koblenz-Landau