kunegis@gmail.com
networkscience.wordpress.com

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 github.com/kunegis

Skills

- Languages: French (native), German (native), English (advanced, C2), Dutch (beginner, A2), Spanish (intermediate), Portuguese (beginner).
- Programming languages: Major work performed in: C (C90, C99), C++ (experience with C++98, C++14, C++20), Java (SE 6, SE 8), Matlab (2009), Perl (5), Python (3), shell scripting (POSIX, Bash, KornShell (KSH)); work performed in: Ada, AWK, BASIC, JavaScript, Julia, Logo, Object Pascal, Octave, PHP, Turbo Pascal.
- Operating systems: Major work performed on: GNU/Linux (Ubuntu, Red Hat), Windows, AIX; work performed on: FreeBSD, macOS.
- Source code management and bug tracking: Bugzilla, CVS, Git, Git-lab/Github/Bitbucket, Jira, Kanban, Subversion/SVN.
- Build systems and continuous integration/delivery (CI/CD): Ant, Autotools/Autoconf/Automake, CMake, Conan, Cook, Jenkins, Make, Maven, Stu (I am the author).
- Programming environments and editors: Eclipse, Emacs, IntelliJ, vi.
- Query, data processing and representation technologies: CSV/TSV, RDF, relational databases, sed, SQL, XSLT.
- Typesetting and layouting: CSS, HTML, JSP, Tex/Latex.
- Programming methodologies and topics: Agent-oriented programming, agile software development, character encodings, chess programming, data manipulation / data engineering, internationalization, linear programming / optimization, machine learning, message passing, numerical computing, object oriented programming, parsing, regular expressions, scrum, systems programming, visualization / plotting.
- Networking and organizatorial skills: Organisation of conferences, workshops, off-campus meetings, use of Twitter/Facebook for outreach, popularization of scientific topics.
- Teaching and didactical skills: Lectures, seminars, projects, supervision of bachelor/master/PhD theses, drafting and correcting exams. I have given both lectures and academic talks in English, French and German.
- Scientific topics: Algebraic graph theory, complex networks, data mining, databases / relational algebra, game theory, graph theory, linear algebra, machine learning, matrix decompositions, network science, network theory, random graphs, recommender systems, search engines / information retrieval, semantic web, web science.
- Research highlights: First study and large published dataset about social networks with negative 'enemy' edges [30], large-scale study of web tracking [12], algebraic analysis of bipartite networks [26] and signed graphs [27], invented a machine learning technique for link prediction [29], introduced the spectral evolution model for networks [25], introduced measures for the skewness of degree distributions [21].

Soft Skills

• Adaptability: I have worked both in the industry and in academia. This gives me a unique perspective on the value of programming and management techniques, as well as the experience when to use them.

<sup>&</sup>lt;sup>1</sup>This version of this file is up to date as of July 24, 2023.

- Communication: I love to convey ideas to other people. As a scientist, talking about new approaches to problems is second nature to me. As is disseminating results to larger audiences.
- **Teamwork:** I am able to work in teams small and large, with collaborators close and distant, from my own teams as well as from other companies. I have both managed a team of developers, as well as been an individual developer in a team.
- Creativity: My usual approach is to go beyond the standard "do what everyone does" and to find novel solutions to problems. This is a core skill for a scientist, which I also strive to apply to software development.
- **Analytic thinking:** Being precise is important to me. "It kind of works" is not enough things must be shown to work via extensive testing, as well as via theoretical consideration.
- Eclecticism: There's more than one way to do it. I don't believe that there is one ideal way to solve a given problem. In my career, I have learned and used a large diversity of programming languages in order to give me a broad range of tools to solve real-world computer science problems.

# Software Development

• Swift's Solution for CREST (CREST over SwiftNet) 2023-present Message passing platform (C, C++)

• FractAda 2022

Animated fractal generation (Ada)

• Flora 2020–present Plant collection database and phylogenetic visualization tool (C++20)

2018

• Tracking Analysis
Analysis of large-scale web tracking data (shell script, Matlab)

• Santé 2018–present

Health data mining and analysis (Python)

• Social Information Processing 2014–2017 Cloud infrastructure for intra-department collaboration on computing projects (acquisition and management of 18-machine cloud)

• REVEAL 2014–2016

Latent data discovery (Octave)

• LiquidFeedback 2014–2015

Extraction and analysis of data from a liquid democracy platform (Python, shell scripting)

• Polcovar 2013

Symbolic calculation of the number of arbitrary subgraph counts in Erdős–Rényi graphs (Matlab, Octave)

• SynGraphy 2013–2015 A library for graph generation based on arbitrary graph properties (Matlab)

• Petster 2013–2017 Crawling and analysis of social media data from pet social networks (shell scripting, Matlab, Python)

• SocialSensor 2013–2014

Social media content analysis platform (Java)

• KONECT-Toolbox 2012–2022

Toolbox for calculation of network statistics, matrix decompositions and other characteristics (Matlab, Octave)

• Stu 2012-present Build system for large data analysis projects (C++14)

**KONECT-Web** 2011–present Website of the KONECT project (HTML, shell scripting, Perl, Octave, Stu)

	• KONECT-Analysis  Analysis code of KONECT, creation of plots and visualization scripting, Matlab, Octave, Julia, Perl)	2011-2022 as (C++11, shell	
	• KONECT-Extr	2010-2019	
	Extraction library for the 1000+ KONECT network datasets C99, Perl)		
	• ROBUST Analysis of business communities (Java)	2010-2013	
	• LiveTweet Extraction and analysis of Twitter trends (Java, Matlab)	2010-2011	
	• Learning Semantic Recommenders	2010	
	Link prediction library on network data with semantic relations	ships (Java)	
	• SmartSenior	2009-2010	
	Intelligent services for elderly people (Java)		
	• WebTV	2008-2010	
	Recommender system for smart TVs (Java)		
	• Slashdot Zoo	2008-2009	
	Crawling Slashdot.org and analysis of friend/foe relationshis (she lab)		
	• Universal Recommender	2007 - 2010	
	Library for building recommender systems (Java)		
	• Search Results Optimization via Linear Integer Progra Search engine using linear integer programming to support has straints (Java)	_	
	• DDDC	2005-2010	
	Monitoring tool for continuous deployment (shell scripting)	2000 2010	
	• PIA – Personal Information Agent	2002-2010	
	Search engine and social exchange site for scientific document CSS)		
	• BabyChess	1998-2006	
	Chess engine and desktop application (C++98)	2000 2000	
Education	[E1] <b>Dr. rer. nat.</b> , University of Koblenz–Landau, Germany (Computer science, PhD-equivalent)	2011	🖹 🚨 😜 🌣
	Thesis: On the Spectral Evolution of Large Networks	2006	
	[E2] <b>DiplInform.</b> , Technical University of Berlin	2006	
	(Computer science, Master-equivalent)	o	
	Thesis: Using Integer Linear Programming for Search Results (		
	[E3] Vordiplom, Technical University of Berlin (Computer science, Bachelor-equivalent) Studiengang: Informatik	2003	
	[E4] <b>Baccalauréat</b> , Lycée Français de Berlin	1999	
	(French high school diploma) Série scientifique	1000	
	[E5] Abitur, Lycée Français de Berlin (German high school diploma)	1999	
	Leistungskurse: Mathematik, Physik		
	[E6] Diplôme national du brevet, Lycée Français de Berlin Série collège	1996	

Positions	Dev/Systems Engineer Society for Worldwide Interbank Financial Telecommunication	2023-present
	Postdoctoral Researcher Namur Center for Complex Systems (naXys), University of Namur	2017–2019 r
	Postdoctoral Researcher	2011-2016
	Institute for Web Science and Technologies, University of Koblenz	
	Visiting Postdoctoral Researcher	2013
	Networks and Operating Systems Group, University of Cambridge	
	Research Assistant	2010-2011
	Institute for Web Science and Technologies, University of Koblenz	
	Research Assistant	2006-2010
	DAI Laboratory, Technical University of Berlin	2000 2010
	Student Research Assistant	2002-2006
	DAI Laboratory, Technical University of Berlin	2002 2000
	Intern, Air Traffic Control Tower	1997
	Berlin-Tempelhof Airport	1331
Danasah Duatasta	. LONEOT	0011
Research Projects	KONECT     Koblenz Network Collection	2011–present
		0017 0010
	• IDEES (ERDF/FEDER – Wallonia/Wallonie)	2017–2019
	L'Internet de Demain pour développer les Entreprises, l'Économie	
	• REVEAL (EU FP7-ICT)	2014-2016
	Revealing Hidden Concepts in Social Media	
	• SIP (DFG WGI)	2014-2016
	Social Information Processing – Cloud Infrastructure at the Univ	of Koblenz-
	Landau	
	• SocialSensor (EU FP7-ICT)	2013–2014
	Sensing User Generated Input for Improved Media Discovery and	
	• KONECT Cloud	2012 - 2013
	Large Scale Network Mining in the Cloud	
	• ROBUST (EU FP7-ICT)	2010 – 2013
	Risk and Opportunity Management of Huge-Scale Business Comm	unity Cooper-
	ation	
	• WeKnowIt (EU FP7-ICT)	2010
	Emerging, Collective Intelligence for Personal, Organisational and	Social Use
	• MULTIPLA (DFG)	2010
	Multi-Ontology Learning: Crossing the Boundaries of Domains an	d Languages
	• LSR	2010
	Learning Semantic Recommenders	
	• UCPM	2010
	User Centric Profile Management	
	• SERUM	2010
	Semantic Recommenders Based on Large Unstructured Datasets	
	Connected Living	2009-2010
	Innovationszentrum "Vernetztes Leben" – Innovation Center "Con	
	• SmartSenior	2009–2010
	Subproject Service Infrastructure and Usability Engineering – Intel	
	for Elderly People	
	• WebTV	2009-2010
	Semantic TV Recommendations	200 <i>9-</i> -2010
	PIA	2006-2010
		2000-2010
	Personal Information Agent	

#### Lecturing

- Graph Theory (Théorie des graphes, in French), Mathematics (BSc), Univ. of Namur, First Quadrimester 2017/18, 2018/19.
- Network Theory and Dynamic Systems (in English), Web Science (MSc), Univ. of Koblenz–Landau, Summer Term 2014, 2015, 2016.
- Introduction to Database Systems (Grundlagen der Datenbanken, in German), Computer Science (BSc), Univ. of Koblenz–Landau, Winter Term 2012/13, 2013/14, 2014/15, 2015/16.

#### Other Teaching

- Advanced Topics in Network Science (Seminar), Univ. of Koblenz–Landau, Summer Term 2016.
- Learning Analytics: Aspects of Machine Learning and Empirical Psychology in E-Learning (Learning Analytics: Aspekte des Machine Learnings und empirischer Psychologie beim E-Learning, Proseminar), Univ. of Koblenz-Landau, Winter Term 2015/2016.
- Recommender Systems (Seminar), Univ. of Koblenz-Landau, Summer Term 2015.
- Distributed Scalable Network Analysis (Research Lab), Univ. of Koblenz-Landau, Winter Term 2014/2015.
- Advanced Topics in Network Theory (Seminar), Univ. of Koblenz–Landau, Summer Term 2014.
- Network Theory and Dynamic Systems, Web Science (MSc), tutoring, Univ. of Koblenz-Landau, Summer Term 2013, 2014.
- Social Networks (Soziale Netzwerke, Proseminar), Univ. of Koblenz–Landau, Summer Term 2012, 2013.
- Introduction to Database Systems (Grundlagen der Datenbanken), tutoring, Computer Science (BSc), Univ. of Koblenz-Landau, Winter Term 2010/2011, 2011/2012.

#### Supervised Theses

• Marcel Reif. Automatische Erkennung von exakten und Near-Duplikaten in einer Netzwerkdatenbank, BSc, Univ. of Koblenz–Landau, 2016.

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- Nils Geilen. Entwicklung eines Systems zur Vorhersage von Nutzeraktivität auf den Diskussionsseiten der Wikipedia, *BSc*, Univ. of Koblenz–Landau, 2015.
- Jesús Cabello González. Berechnung und Approximation von Kürzeste-Pfad-Statistiken in großen Netzwerken für KONECT, BSc, Univ. of Cádiz, 2014.
- Julia Preusse. Analysis of the WebUni Online Student Community, *Dipl.-Inform.*, Otto von Guericke Univ. Magdeburg, 2010.
- Stephan Spiegel. A Hybrid Approach to Recommender Systems based on Matrix Factorization, *Dipl.-Inform.*, Tech. Univ. Berlin, 2009.
- Christian Banik. Recommending Wiki Articles using Collaborative Filtering, *Dipl.-Inform.*, Tech. Univ. Berlin, 2009.
- Iris Breddin. Untersuchung der Klassifizierbarkeit und Klassifikation von Schweißnahtdaten, Dipl.-Inform., Tech. Univ. Berlin, 2008.

# Conference Organization

- Joint International Workshop on Social Influence Analysis and Minining Actionable Insights from Social Networks (SocInf+MAISoN) at the Int. Jt. Conf. on Artif. Intell. and Eur. Conf. on Artif. Intell. (IJCAI-ECAI), 2018, Stockholm, Sweden, Program Chair.
- WeST Off-Campus Meeting (OCM), 2016, La Roche-en-Ardenne, Belgium, Chair.
- INFORMATIK (largest German computer science conference), 2013, Koblenz, Germany, Publicity Chair.
- Web Science Conference, 2011, Koblenz, Germany, Publicity Chair.
- Special Session on Uncertainty in Network Mining (UNM) at the Int. Conf. on Inf. Processing and Manag. of Uncertainty in Knowl.-based Syst. (IPMU), 2010, Dortmund, Germany, Technical Chair.

#### Articles

[1] Understanding Social Networks using Transfer Learning. Jun Sun, Steffen Staab, Jérôme Kunegis, *IEEE Comput. Mag.*, 51(6):52–60, 2018.

- [2] On the Ubiquity of Web Tracking: Insights from a Billion-Page Web Crawl. Sebastian Schelter, Jérôme Kunegis, J. of Web Sci., 4(4):53–66, 2018.
- [3] The Problem of Action at a Distance in Networks and the Emergence of Preferential Attachment from Triadic Closure. Jérôme Kunegis, Fariba Karimi, Jun Sun, J. of Interdiscip. Methodol. and Issues in Sci., 2, Graphs and Social Systems, 2017.
- [4] Continuous-Time Quantum Walks on Directed Bipartite Graphs. Beat Tödtli, Monika Laner, Jouri Semenov, Beatrice Paoli, Marcel Blattner, Jérôme Kunegis, Phys. Rev. A, 94(5):052338, 2016.
- [5] Linguistic Neighbourhoods: Explaining Cultural Borders on Wikipedia through Multilingual Co-editing Activity. Anna Samoilenko, Fariba Karimi, Daniel Edler, Jérôme Kunegis, Markus Strohmaier, Eur. Phys. J. Data Sci., 5:9, 2016.
- [6] Glaubwürdigkeit und Vertrauen von Online-News. Ines C. Vogel, Jutta Milde, Karin Stengel, Steffen Staab, Christoph Carl Kling, Jérôme Kunegis, Datenschutz und Datensicherheit, 40(5):312–316, 2015.
- [7] Exploiting the Structure of Bipartite Graphs for Algebraic and Spectral Graph Theory Applications. Jérôme Kunegis, Internet Math., 11(3):201–321, 2015.
- [8] Spectral Evolution in Dynamic Networks. Jérôme Kunegis, Damien Fay, Christian Bauckhage, Knowl. and Inf. Syst., 37(1):1–36, 2013.
- Discriminating Graphs through Spectral Projections. Damien Fay, Hamed Haddadi, Steve Uhlig, Liam Kilmartin, Andrew W. Moore, Jérôme Kunegis, Marios Iliofotou, Comput. Netw., 55(15):3458-3468, 2011.
- [10] Ein gradualisiertes Community-Modell zur Bildung wissenschaftlicher Gemeinschaften. Michael Hahne, Corinna Jung, Jérôme Kunegis, Andreas Lommatzsch, André Paus, In: Analyse sozialer Netzwerke und Social Software – Grundlagen und Anwendungsbeispiele, 2007.

- Conference Papers [11] 'Dark Germany': Hidden Patterns of Participation in Online Far-Right Protests Against Refugee Housing. Sebastian Schelter, Jérôme Kunegis, In: Proc. Int. Conf. on Soc. Inform., pp. 277–288, 2017.
  - [12] Tracking the Trackers: A Large-Scale Analysis of Embedded Web Trackers. Sebastian Schelter, Jérôme Kunegis, In: Proc. Int. Conf. on Web and Soc. Media, pp. 679–682, 2016.
  - [13] Private-Collective Invention and Open Source Software: Longitudinal Insights from Linux Kernel Development. Dirk Homscheid, Jérôme Kunegis, Mario Schaarschmidt, In: Proc. IFIP Conf. on e-Business, e-Services and e-Society, pp. 299– 313, 2015.
  - [14] Voting Behaviour and Power in Online Democracy: A Study of LiquidFeedback in Germany's Pirate Party. Christoph Carl Kling, Jérôme Kunegis, Heinrich Hartmann, Markus Strohmaier, Steffen Staab, In: Proc. Int. Conf. on Weblogs and Soc. Media, pp. 208–217, 2015. (Won Best Paper Honorable Mention)
  - [15] Detecting Non-Gaussian Geographical Topics in Tagged Photo Collections. Christoph Carl Kling, Jérôme Kunegis, Sergej Sizov, Steffen Staab, In: Proc. Int. Conf. on Web Search and Data Min., pp. 603-612, 2014.
  - [16] Preferential Attachment in Online Networks: Measurement and Explanations. Jérôme Kunegis, Marcel Blattner, Christine Moser, In: Proc. Web Sci. Conf., pp. 205-214, 2013.
  - [17] What Is the Added Value of Negative Links in Online Social Networks? Jérôme Kunegis, Julia Preusse, Felix Schwagereit, In: Proc. Int. World Wide Web Conf., pp. 727–736, 2013.

[18] Centrality and Mode Detection in Dynamic Contact Graphs; a Joint Diagonalisation Approach. Damien Fay, Jérôme Kunegis, Eiko Yoneki, In: *Proc. Int. Conf. on Advances in Soc. Netw. Anal. and Min.*, pp. 41–48, 2013.

- [19] Structural Dynamics of Knowledge Networks. Julia Preusse, Jérôme Kunegis, Matthias Thimm, Thomas Gottron, Steffen Staab, In: Proc. Int. Conf. on Weblogs and Soc. Media, pp. 506–515, 2013.
- [20] Predicting Directed Links using Nondiagonal Matrix Decompositions. Jérôme Kunegis, Jörg Fliege, In: *Proc. Int. Conf. on Data Min.*, pp. 948–953, 2012.
- [21] Fairness on the Web: Alternatives to the Power Law. Jérôme Kunegis, Julia Preusse, In: *Proc. Web Sci. Conf.*, pp. 175–184, 2012.
- [22] Diversity Dynamics in Online Networks. Jérôme Kunegis, Sergej Sizov, Felix Schwagereit, Damien Fay, In: *Proc. Conf. on Hypertext and Soc. Media*, pp. 255–264, 2012. (Nelson Newcomer Award Nominee)
- [23] Searching Microblogs: Coping with Sparsity and Document Quality. Nasir Naveed, Thomas Gottron, Jérôme Kunegis, Arifah Che Alhadi, In: Proc. Int. Conf. on Inf. and Knowl. Manag., pp. 183–188, 2011.
- [24] Bad News Travels Fast: A Content-based Analysis of Interestingness on Twitter. Nasir Naveed, Thomas Gottron, Jérôme Kunegis, Arifah Che Alhadi, In: *Proc. Web Sci. Conf.*, 2011.
- [25] Network Growth and the Spectral Evolution Model. Jérôme Kunegis, Damien Fay, Christian Bauckhage, In: *Proc. Int. Conf. on Inf. and Knowl. Manag.*, pp. 739–748, 2010. (Won Student Travel Award)
- [26] The Link Prediction Problem in Bipartite Networks. Jérôme Kunegis, Ernesto W. De Luca, Şahin Albayrak, In: Proc. Int. Conf. in Inf. Process. and Manag. of Uncertain. in Knowl.-based Syst., pp. 380–389, 2010.
- [27] Spectral Analysis of Signed Graphs for Clustering, Prediction and Visualization. Jérôme Kunegis, Stephan Schmidt, Andreas Lommatzsch, Jürgen Lerner, In: *Proc. SIAM Int. Conf. on Data Min.*, pp. 559–570, 2010. (Won Student Travel Fellowship Award)
- [28] Connecting Senior Citizens through Interactive TV. Barış Karataş, Torsten Schmidt, Jérôme Kunegis, Till Plumbaum, In: *Proc. Ambient Assist. Living*, 2010.
- [29] Learning Spectral Graph Transformations for Link Prediction. Jérôme Kunegis, Andreas Lommatzsch, In: *Proc. Int. Conf. on Mach. Learn.*, pp. 561–568, 2009.
- [30] The Slashdot Zoo: Mining a Social Network with Negative Edges. Jérôme Kunegis, Andreas Lommatzsch, Christian Bauckhage, In: *Proc. Int. World Wide Web Conf.*, pp. 741–750, 2009.
- [31] Alternative Similarity Functions for Graph Kernels. Jérôme Kunegis, Andreas Lommatzsch, Christian Bauckhage, In: *Proc. Int. Conf. on Pattern Recognit.*, 2008.
- [32] Modeling Collaborative Similarity with the Signed Resistance Distance Kernel. Jérôme Kunegis, Stephan Schmidt, Christian Bauckhage, Martin Mehlitz, Şahin Albayrak, In: *Proc. Eur. Conf. on Artif. Intell.*, pp. 261–265, 2008.
- [33] Assessing the Value of Unrated Items in Collaborative Filtering. Jérôme Kunegis, Andreas Lommatzsch, Martin Mehlitz, Şahin Albayrak, In: *Proc. Int. Conf. on Digital Inf. Manag.*, pp. 212–216, 2007.
- [34] Adapting Ratings in Memory-Based Collaborative Filtering using Linear Regression. Jérôme Kunegis, Şahin Albayrak, In: *Proc. Int. Conf. on Inf. Reuse and Integration*, pp. 49–54, 2007.
- [35] Collaborative Filtering using Electrical Resistance Network Models with Negative Edges. Jérôme Kunegis, Stephan Schmidt, In: *Proc. Industrial Conf. on Data Min.*, pp. 269–282, 2007. (Best Paper Nominee)

**B** % [36] A Multi-agent Framework for Personalized Information Filtering. Andreas Lommatzsch, Martin Mehlitz, Jérôme Kunegis, In: Proc. German e-Science, 2007. [37] Using Novel IR Measures to Learn Optimal Cluster Structures for Web Informa-tion Retrieval. Martin Mehlitz, Jérôme Kunegis, Şahin Albayrak, In: Proc. Int. Conf. on Web Intell., pp. 312–316, 2007. [38] Scalable Bandwidth Optimization in Advance Reservation Networks. Stephan Schmidt, Jérôme Kunegis, In: Proc. Int. Conf. on Netw., pp. 95–100, 2007. [39] A New Evaluation Measure for Information Retrieval Systems. Martin Mehlitz, Christian Bauckhage, Jérôme Kunegis, Şahin Albayrak, In: Proc. Int. Conf. on Syst., Man and Cybern., pp. 1200–1204, 2007. Workshop Papers [40] Predicting User Roles in Social Networks using Transfer Learning with Feature Transformation. Jun Sun, Jérôme Kunegis, Steffen Staab, In: Proc. Int. Conf. on Data Min. Workshops, pp. 128–135, Int. Workshop on Data Min. in Netw., 2016. [41] KONECT - The Koblenz Network Collection. Jérôme Kunegis, In: Proc. Int. Conf. on World Wide Web Companion, pp. 1343–1350, Web Obs. Workshop, 2013. [42] Online Dating Recommender Systems: The Split-complex Number Approach. Jérôme Kunegis, Gerd Gröner, Thomas Gottron, In: Proc. RecSys Workshop on Recomm. Syst. and the Soc. Web, pp. 37-44, 2012. [43] KONECT Cloud – Large Scale Network Mining in the Cloud. Jérôme Kunegis, In: Proc. Spring 2012 Future SOC Lab Day, pp. 107-110, HPI Technical Report Series, 2012. [44] Link Prediction on Evolving Data using Tensor Factorization. Stephan Spiegel, Jan Clausen, Şahin Albayrak, Jérôme Kunegis, In: Proc. Int. Conf. on Data Min. Workshops, pp. 262–269, Workshop on Behav. Informat., 2011. [45] Multilingual Ontology-based User Profile Enrichment. Ernesto W. De Luca, Till Plumbaum, Jérôme Kunegis, Şahin Albayrak, In: Proc. Int. Conf. on World Wide Web Companion, pp. 41–42, Workshop on the Multiling. Semant. Web, 2010. [46] Hydra: A Hybrid Recommender System [Cross-Linked Rating and Content Information]. Stephan Spiegel, Jérôme Kunegis, Fang Li, In: Proc. Int. Workshop on Complex Netw. Meet Inf. and Knowl. Manag., pp. 75–80, 2009. [47] On the Scalability of Graph Kernels Applied to Collaborative Recommenders. Jérôme Kunegis, Andreas Lommatzsch, Christian Bauckhage, Sahin Albayrak, In: Proc. Eur. Conf. on Artif. Intell. Workshops, pp. 35–38, Workshop on Recomm. Syst., 2008. [48] Resource-Aware Update Policy for Highly Dynamic P2P Networks. Dragan Milo-šević, Jérôme Kunegis, Şahin Albayrak, In: Proc. Int. Conf. on Web Intell. and Intell. Agent Tech. Workshops, pp. 419–423, Int. Workshop on P2P Comput. and Auton. Agents, 2007. [49] Spectral Evolution of Social Networks. Jérôme Kunegis, Encyclopedia of Soc. Netw. Anal. and Min., Springer, 2013, 2017. [50] Social Network Datasets. Jérôme Kunegis, Encyclopedia of Soc. Netw. Anal. and 

Abstracts

Reference Works

[51] The Role of Cultural Importance in Sister City Relationships. Mridul Seth, Jérôme Kunegis, Renaud Lambiotte, In: Proc. Wiki Workshop, 2018.

Min., Springer, 2013, 2017.

[52] SynGraphy: Succinct Summarisation of Large Networks via Small Synthetic Representative Graphs. Jérôme Kunegis, Pawan Kumar Jun Sun, Giuseppe Pirrò, In: Proc. Int. Sch. and Conf. on Netw. Sci., 2018.

[53]	SynGraphy: Succinct Summarisation of Large Networks via Small Synthetic Representative Graphs. Jérôme Kunegis, Pawan Kumar, Jun Sun, Giuseppe Pirrò, Anna Samoilenko, In: <i>Proc. Belg. Netw. Res. Meet.</i> , 2017.	₩ %
[54]	Socio-semantic Aspects of Wikipedia Usage across Five Languages. Yérali Gandica, Jérôme Kunegis, In: <i>Proc. Eur. Conf. on Soc. Netw.</i> , 2017.	%
[55]	Linguistic Neighbourhoods: Explaining Cultural Borders on Wikipedia Through Multilingual Co-editing Activity. Anna Samoilenko, Fariba Karimi, Daniel Edler, Jérôme Kunegis, Markus Strohmaier, In: <i>Proc. Int. Conf. on Comput. Soc. Sci.</i> , 2017.	•
[56]	'Dark Germany': Temporal Characteristics and Connectivity Patterns in Online Far-Right Protests Against Refugee Housing. Sebastian Schelter, Jérôme Kunegis, In: <i>Proc. Web Sci. Conf. Extended Abstracts</i> , 2017.	
[57]	The Problem of Action at a Distance in Networks and the Emergence of Preferential Attachment from Triadic Closure. Jérôme Kunegis, Fariba Karimi, Jun Sun, In: <i>Proc. Int. Sch. and Conf. on Netw. Sci.</i> , 2017.	<b>₽</b>
[58]	A Random Graph Model based on a Given Set of Networks. Jérôme Kunegis, Jun Sun, Eiko Yoneki, In: <i>Proc. Int. Sch. and Conf. on Netw. Sci.</i> , 2016.	8
[59]	Social Networking by Proxy: Analysis of Dogster, Catster and Hamsterster. Daniel Dünker, Jérôme Kunegis, In: <i>Proc. Int. Conf. on World Wide Web Companion</i> , pp. 361–362, 2015.	
[60]	Twitter as a Political Network – Predicting the Following and Unfollowing Behavior of German Politicians. Julia Perl, Claudia Wagner, Jérôme Kunegis, Steffen Staab, In: <i>Proc. Web Sci. Conf.</i> , 2015.	
[61]	Linguistic Influence Patterns within the Global Network of Wikipedia Language Editions. Anna Samoilenko, Fariba Karimi, Jérôme Kunegis, Daniel Edler, Markus Strohmaier, In: <i>Proc. Web Sci. Conf.</i> , 2015.	
[62]	KONECT – The Koblenz Network Collection. Jérôme Kunegis, Steffen Staab, Daniel Dünker, In: <i>Proc. Int. Sch. and Conf. on Netw. Sci.</i> , 2012.	
[63]	LiveTweet: Monitoring and Predicting Interesting Microblog Posts. Arifah Che Alhadi, Thomas Gottron, Jérôme Kunegis, Nasir Naveed, In: <i>Proc. Eur. Conf. on Inf. Retrieval Demonstrations</i> , pp. 569–570, 2012.	<b>■ %</b>
[64]	Time-Aware Centrality in Contact Network Analysis. Eiko Yoneki, Damien Fay, Jérôme Kunegis, In: <i>Proc. Eur. Conf. on Complex Syst.</i> , pp. 58, 2011.	
[65]	LiveTweet: Microblog Retrieval Based on Interestingess and an Adaptation of the Vector Space Model. Arifah Che Alhadi, Thomas Gottron, Jérôme Kunegis, Nasir Naveed, In: <i>Proc. Text Retrieval Conf.</i> , 2011.	
[66]	One Community Does Not Rule Them All. Thomas Gottron, Jérôme Kunegis, Ansgar Scherp, Steffen Staab, In: <i>Proc. Web Sci. Conf.</i> , 2011.	
[67]	Challenges in Mining Social Media: Sparsity and Quality. Thomas Gottron, Nasir Naveed, Jérôme Kunegis, Arifah Che Alhadi, In: <i>Proc. Challenges in Document Min. (Dagstuhl Seminar 11171)</i> , 2011.	
[68]	Exploiting Hierarchical Tags for Context-awareness. Alan Said, Jérôme Kunegis, Ernesto W. De Luca, Şahin Albayrak, In: <i>Proc. Workshop on Exploiting Semantic Annotations for Inf. Retrieval</i> , pp. 35–36, 2010.	
[69]	Guided Graph Generation: Evaluation of Graph Generators in Terms of Network Statistics, and a New Algorithm. Jérôme Kunegis, Jun Sun, Eiko Yoneki, $CoRR$ , abs/2303.00635, 2023.	X
[70]	SynGraphy: Succinct Summarisation of Large Networks via Small Synthetic Representative Graphs. Jérôme Kunegis, Pawan Kumar, Jun Sun, Anna Samoilenko, Giuseppe Pirró, $CoRR$ , abs/2302.07755, 2023.	X

Other Publications

	[71] Modeling the Evolution of Networks as Shrinking Structural Diversity. Jérôme Kunegis, $CoRR$ , abs/2009.09764, 2020.	X
	[72] Handbook of Network Analysis [KONECT project]. Jérôme Kunegis, $CoRR$ , abs/1402.5500(v4), 2017.	
	[73] Social Networking by Proxy: A Case Study of Catster, Dogster and Hamsterster.  Daniel Dünker, Jérôme Kunegis, CoRR, abs/1501.04527, 2015.	X
	[74] Applications of Structural Balance in Signed Social Networks. Jérôme Kunegis, $CoRR$ , abs/1402.6865, 2014.	x
	[75] DecLiNe – Models for Decay of Links in Networks. Julia Preusse, Jérôme Kunegis, Matthias Thimm, Sergej Sizov, CoRR, abs/1403.4415, 2014.	x
	[76] Polcovar: Software for Computing the Mean and Variance of Subgraph Counts in Random Graphs. Jérôme Kunegis, <i>CoRR</i> , abs/1402.5835, 2014.	<b>x</b>
	[77] On Joint Diagonalisation for Dynamic Network Analysis. Damien Fay, Jérôme Kunegis, Eiko Yoneki, Technical report, University of Cambridge, 2011.	
	[78] Semantic Engine. Andreas Lommatzsch, Jérôme Kunegis, Torsten Schmidt, Stefan Marx, White paper, 2010.	
	[79] The Universal Recommender. Jérôme Kunegis, Alan Said, Winfried Umbrath, White paper, 2009.	<b>x</b>
Keynotes and Invited Talks	[T1] Cats, Dogs, and Hamsters: The Secret Online Network of Pet Owners, DataBeers Brussels, 2017.	% ■
	[T2] Algebraic Graph-theoric Measures of Conflict, Journée Graphes et Systèmes Sociaux (Seminar on Graphs and Soc. Syst.), 2016.	<b>⋄</b> 🔐
	[T3] Measuring Conflict in Signed Social Networks, Application of Netw. Theory on Comput. Soc. Sci. (Workshop), 2015.	
	[T4] Large Network Collections: The Power of Many Datasets, Int. Workshop on Soc. Netw. Anal. (ARS), 2015.	�.
	[T5] Network Analysis Tools for Online Communities: The Koblenz Network Collection. Keynote, Workshop on Metrics, Anal. and Tools for Online Community Manag. (MAMA), 2013.	<b>&amp;</b> ₩
f Academic $f Tutorials$	[T6] Network Analysis in the Age of Large Network Dataset Collections – Challenges, Solutions and Applications. Jérôme Kunegis, Renaud Lambiotte, Int. Conf. on Inf. and Knowl. Manag., 2017.	<b>&amp;</b> ₩
	[T7] Web Science in Practice: Web Observatories. Jérôme Kunegis, Steffen Staab, WSTNet Web Sci. Summer Sch., 2016.	% 🔐 <b>■</b>
Other Talks	[T8] Prediction of Network Semantics from Network Structure: Approaches Based on Large Network Collections. Univ. of Mons, 2018.	
	[T9] What Is the Difference between a Social and a Hyperlink Network? – How the Type of Network Can Be Determined from the Network Structure Alone. Workshop on Network Comparison, Univ. of Oxford, 2017.	•
	[T10] Measuring the Conflict in a Social Network with Friends and Foes: A Recent Algebraic Approach. Tech. Univ. Berlin, 2017.	•
	<ul> <li>[T11] The New KONECT Project at the University of Namur. Univ. of Namur, 2017.</li> <li>[T12] Generating Networks with Realistic Properties Based on a Given (Set of) Network(s), and a Short Overview of the KONECT Project. Univ. of Namur, 2016.</li> </ul>	
	[T13] It's Really about Hamsters. Int. Conf. on Weblogs and Soc. Media Sci. Slam, 2016. (Won First Prize)	
	[T14] KONECT: The Koblenz Network Collection – Towards a Broad Analysis of Complex Systems. ETH Zürich, 2015.	•

	[T15]	Modeling the Evolution of Networks as Shrinking Structural Diversity. Univ. of Koblenz–Landau, 2015.	
	[T16]	Trust in Networks. KoMePol Project, 2013.	
		Observing the Web: The Koblenz Network Collection. Bournemouth Univ., 2013.	
		Eight Formalisms for Defining Graph Models. Univ. of Koblenz-Landau, 2013.	
		Diversity vs Uniformity: Understanding the Evolution of Large Networks. RO-	
	[110]	BUST Project, 2012.	•
	[T20]	Linguistic Network Analysis with the Koblenz Network Collection. Workshop on	
	. ,	Modeling Linguist. Networks, 2012.	•
	[T21]		
	. ,	shop on Artif. Intell. on the Web, 2012.	
	[T22]	Models of Like, Dislike, Similarity and Dissimilarity using Split-complex Num-	
	. ,	bers, Univ. Coll. Dublin, 2012.	
	[T23]	Why Is Beyoncé More Popular Than Me: Fairness, Diversity and Other Measures	
	. ,	of Network Equality. Univ. of Freiburg, 2012.	
	[T24]	Fairness on the Web: Alternatives to the Power Law. Leibniz-Institut für Sozial-	
	. ,	wissenschaften, Cologne, 2012.	
	[T25]	KONECT – The Koblenz Network Collection. WSTNet Meeting, 2012.	
		On the Spectral Evolution of Large Networks. Univ. Coll. Cork, 2011.	
	[T27]	Spectral Analysis of the Vector Space Model (and Explicit Semantic Analysis).	
	. ,	Jérôme Kunegis, Thomas Gottron, Univ. of Koblenz–Landau, 2011.	•
	[T28]		
	. ,	2011.	
	[T29]	On the Spectral Evolution of Large Networks. Tech. Univ. Berlin, 2011.	
	[T30]	The Slashdot Zoo: Mining a Social Network with Negative Edges. Data and	
	. ,	Knowl. Engineering Research Colloquium, Otto von Guericke Univ. Magdeburg,	
		2010.	
	[T31]	The Slashdot Zoo: Mining a Social Network with Negative Edges. Univ. of	
		Koblenz–Landau, 2010.	
	[T32]	The Slashdot Zoo: Mining a Social Network with Negative Edges. Univ. of	
		Hannover, 2010.	
	[T33]	Kernel Methods. Competence Center for Information Retrieval and Machine	
		Learning (CC IRML) Journal Club, DAI Laboratory, 2008.	
	[T34]	PIA+COMM – an Intelligent Search Engine. Michael Hahne, Corinna Jung,	
		Jérôme Kunegis, Andreas Lommatzsch and André Paus. Workshop on the For-	
		mation of Soc. Netw. in Soc. Software Applications, INFORMATIK, 2006.	_
	[T35]	v	
	[T36]	Schach und Computer. Seminar Geschichte der Entwicklung des Computers,	
		Tech. Univ. Berlin, 2005.	_
	[T37]	Wettkampf Kasparow – Deep Blue. Ahmad Haj Fares and Jérôme Kunegis.	
		Seminar Computerschach, 2003.	
,	[P1]	Linguistic Neighbourhoods: Explaining Cultural Borders on Wikipedia through	<u> </u>
		Multilingual Co-editing Activity. Anna Samoilenko, Fariba Karimi, Daniel Edler,	
		Jérôme Kunegis, Markus Strohmaier, Int. Sch. and Conf. on Netw. Sci. (NetSciX),	
	r= -	2016. (Won Best Poster Award)	
	[P2]	Do You Use Stu? Soon, You'll Do. Jérôme Kunegis, WeST Institute Off-Campus	
	r	Meeting (OCM), 2016.	
	[P3]	Social Network Observatory. Jérôme Kunegis, Markus Strohmaier, Steffen Staab.	
		Computat. Soc. Sci. Winter Symp. (CSSWS), 2015.	

Posters without Publication

- [P4] Quantifying Cultural Similarity through Language Co-occurrences in Wikipedia Editing Activity. Anna Samoilenko, Fariba Karimi, Daniel Edler, Jérôme Kunegis, Markus Strohmaier. Comput. Soc. Sci. Winter Symp. (CSSWS), 2015.
- [P5] Polarisation in Voting Platforms: A Case Study of LiquidFeedback in the German Pirate Party. Manuel Mittler, Christoph Carl Kling, Jérôme Kunegis, Markus Strohmaier, Comput. Soc. Sci. Winter Symp. (CSSWS), 2015.
- [P6] Twitter as a Political Network Predicting the Following and Unfollowing Behavior of German Politicians. Julia Perl, Claudia Wagner, Jérôme Kunegis, Steffen Staab, Web Sci. Conf., 2015.
- [P7] Online Delegative Democracy: A Case Study of the German Pirate Party's Voting Platform. Christoph Carl Kling, Jérôme Kunegis, Heinrich Hartmann. Comput. Soc. Sci. Winter Symp. (CSSWS), 2014.
- [P8] Social Networking By Proxy: A Case Study of Catster, Dogster and Hamsterster. Comput. Soc. Sci. Winter Symp. (CSSWS), 2014.
- [P9] A Theory-Driven Approach for Link and Unlink Predictions in Directed Social Networks. Julia Perl, Claudia Wagner, Jérôme Kunegis, Steffen Staab. Comput. Soc. Sci. Winter Symp. (CSSWS), 2014.

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- [P10] Large Scale Network Analysis [KONECT The Koblenz Network Collection]. Jérôme Kunegis, Tag der Computervisualistik (CV-Tag), University of Koblenz–Landau, 2013.
- [P11] Need Networks? KONECT The Koblenz Network Collection. Eur. Summer Sch. on Inf. Retrieval (ESSIR), 2011.
- [P12] KONECT The Koblenz Network Collection. Web Sci. Conf., 2011.
- [P13] Uncovering Multi-modal Spread Modes using Joint Diagonalization in Dynamic Human Contact Networks. Damien Fay, Jérôme Kunegis, Eiko Yoneki. Interdiscip. Workshop on Inf. and Decision in Soc. Netw., 2011.
- [P14] On the Spectral Evolution of Large Networks. Postersession für Nachwuchswissenschaftler/innen, Univ. of Koblenz–Landau, 2011.
- [P15] On the Spectral Evolution of Large Networks. SIAM Conf. on Data Min. Doctoral Forum (SIAM SDM), 2010.

## Demonstrations

- [D1] Schülerinformationstage, Institute for Web Science and Technologies, Univ. of Koblenz–Landau, 2011, 2013, 2015, 2016.
- [D2] Institute for Web Science and Technologies, conference booth. INFORMATIK 2013.
- [D3] LiveTweet: Monitoring and Predicting Interesting Microblog Posts, Eur. Conf. on Inf. Retrieval (ECIR), 2012.
- [D4] PIA, Spree, CeBIT, 2010.
- [D5] PIA+COMM, CeBIT, 2007.
- [D6] PIA, Lange Nacht der Wissenschaften Berlin/Potsdam, 2006.

#### Program Committees

- Int. Conf. on Complex Netw. and Their Applications [Workshop in 2016], 2016, 2017, 2018.
- Int. AAAI Conf. on Web and Soc. Media (ICWSM), 2016.
- Workshop on Soc. News on the Web (SNOW) at the World Wide Web Conf. (WWW), 2014, 2016.
- Workshop on Soc. Semant. Anal. (SALSA), 2016.
- #FAIL! The Workshop Series at the Internet Research Conf. (IR), 2015.
- Web Sci. Track, Int. World Wide Web Conf. (WWW), 2014, 2015.
- #FAIL! The Workshop Series at the Web Sci. Conf. (WebSci), 2015.
- Web Sci. Conf., 2011, 2012, 2013, 2014.

- Workshop on Connecting Online & Offline Life (COOL) at the World Wide Web Conf. (WWW), 2014.
- Int. Joint Conf. on Artif. Intell. (IJCAI), 2013.
- Web Sci. Education Workshop at the Web Sci. Conf., 2013.
- Conf. on Semant. Tech. and Inf. Retrieval (STAIR), 2013.
- Int. Workshop on Semant. Personalized Inf. Manag. (SPIM) at the Int. Conf. on Web Search and Data Min. (WSDM), 2013.
- Eur. Conf. on Inf. Retrieval (ECIR), 2013.
- Workshop on Metrics, Anal. and Tools for Online Community Manag. (MAMA), at INFORMATIK, 2013
- Eur. Conf. on Inf. Retrieval (ECIR), poster track, 2012.
- Conf. on Natural Language Processing (KONVENS), 2012.
- Workshop on Personalized Inf. Manag.: Linking Soc. and Semant. Web (SPIM) at the Int. Conf. on Web Engineering (ICWE), 2012.
- Int. Conf. on Inf. and Knowl. Manag. (CIKM), 2011.
- Int. Conf. on Knowl. Discovery and Data Min. (KDD), research track, 2011.
- Challenge on Context-aware Movie Recomm. (CAMRa) at the Conf. on Recomm. Syst. (RecSys), 2010.
- Special Session on Uncertainty in Netw. Min. (UNM) at the Int. Conf. on Inf. Processing and Manag. of Uncertainty in Knowl.-based Syst. (IPMU), 2010.

### Other Reviewing

- Royal Military Academy, Belgium, 2018.
- Netw. Sci., 2015, 2016.
- ACM Comput. Surveys, 2014, 2015.
- The J. of Web Sci., 2014, 2018.
- ACM Trans. on Internet Tech. (TOIT), 2014.
- Special Issue on "Propagation Phenomenon in Complex Networks: Theory and Practice", New Generation Comput., 2014.
- Int. Semant. Web Conf. (ISWC), 2013.
- Int. Conf. on Comput. Stat. (COMPSTAT), 2012.
- Int. J. of Comput. and Telecommunications Netw. (COMNET), 2012.
- IEEE Trans. on Neural Netw. (TNN), 2011.
- J. on Auton. Agents and Multi-agent Syst. (AAMAS), Special Issue on Agent Mining, 2011.
- ACM Trans. on Knowl. Discovery from Data (TKDD), 2011.
- TV Content Anal. (TVCA), 2011.
- Workshop on Ontologies and Lexical Resources (OntoLex) at the Int. Conf. on Comput. Linguist. (COLING), 2010.

# Volunteering

- WSTNet Web Science Summer School (WWSSS), Koblenz, 2016.
- Festival of Ideas, Cambridge, 2013.
- International Semantic Web Conference (ISWC), Bonn, 2011
- European Summer School on Information Retrieval (ESSIR), Koblenz, 2011.

# Software Authorship

- Stu, build automation (C++14)
- KONECT Toolbox, network analysis toolbox (Matlab, C99)
- Polcovar, counting subgraph patterns in random graphs (Matlab)
- Universal Recommender, recommendation library (Java)
- BabyChess, chess engine and GUI (C++98)
- More: see github.com/kunegis







#### Mentions in Media

- Die Abstimmungssoftware LiquidFeedback in der Piratenpartei: wegweisend für Demokratie 2.0? (in German), www.piratenpartei.de, May 2015.
- Come ha funzionato davvero la democrazia liquida dei Pirati tedeschi (in Italian), Wired Italia, April 2015.

## Awards and Nominations

- First Prize, Int. Conf. on Web and Soc. Media (ICWSM) Science Slam, 2016.
- Best Poster Award, Int. Sch. and Conf. on Netw. Sci. (NetSciX), 2016.
- Best Paper Honorable Mention, Int. Conf. on Web and Soc. Media (ICWSM), 2015.
- Ted Nelson Newcomer Award Nominee, Conf. on Hypertext and Soc. Media (HT), 2012.
- Student Travel Award, Int. Conf. on Inf. and Knowl. Manag. (CIKM), 2010.
- Student Travel Fellowship Award, SIAM Conf. on Data Min. (SDM), 2010.
- Best Paper Nominee, Industrial Conf. on Data Min. (IndCDM), 2007.
- First Prize, Rallye mathématique d'Alsace, Terminale (Alsace Mathematical Rally, 12<sup>th</sup> grade), 1999.

## Popularization

- [i] Game Dependency Graph: Day of the Tentacle. 2021.
- [ii] Game Dependency Graph: The Curse of Monkey Island. 2020.
- [iii] Game Dependency Graph: Monkey Island 2: LeChuck's Revenge. 2020.
- [iv] Network of Characters in Harry Potter. 2019.
- [v] Phylogenetic Tree of My Houseplants. 2019.
- [vi] Game Dependency Graph: The Secret of Monkey Island. 2019.
- [vii] Binary Fluorine Compounds. 2017.
- [viii] How to Pronounce German Vowels. 2017.
- [ix] Pronunciation of English Vowels. 2015.
- [x] Taxonomy of  $n \times n$  Matrices. 2012.

#### Miscellaneous

- Birthday: March 27
- Full titles: Dr. rer. nat. Dipl.-Inform. Jérôme KUNEGIS

#### Legend

Publication is available Publication is available on arXiv Poster is available Slides are available Publication has 100+ citations Publication/event has an accompanying website Dataset is available Source code is available Video of talk is available A blog article was written about the topic Publication has media coverage I won a prize for this work Nomination for a prize



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