

TIM WENINGER, PH.D.

Last updated February 4, 2020

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EXPERIENCE

Associate Professor	2019 – <i>present</i>
Assistant Professor	2013 – 2019
University of Notre Dame	
Department of Computer Science and Engineering	
Interdisciplinary Center for Network Science and Applications	

EDUCATION

Ph.D.	University of Illinois Urbana-Champaign, Computer Science	2013
	Title: <i>Discovering Roles and Types from Hierarchical Information Networks</i>	
	Committee: Jiawei Han (chair), Kevin C.C. Chang, Saurabh Sinha, Bing Liu	
M.S.	Kansas State University, Computer Science	2008
B.S.	Kansas State University, Information Systems	2007

HONORS AND AWARDS

CSE Outstanding Faculty Teaching Award	2018
Inaugural Member - ACM Future of Computing Program	2017
Army Research Lab Young Investigator Award	2017
National Science Foundation CAREER Award	2017
National Academies Keck Futures Fellow	2014
TED Editors Pick of the Month	2014
Paper Selected as "Best Of" ACM/IEEE ASONAM	2014
UIUC DCS Outstanding Graduate Service Award	2012
National Science Foundation Graduate Research Fellowship	2010
National Defense Science Engineering Graduate Fellowship	2009
UIUC DCS Graduate Fellowship	2009

PUBLICATIONS

(@ indicate supervised PhD Students. * indicate supervised undergraduate students.)

Journal Papers

J18 @Krohn, R., Weninger, T. "Library Adoption in Public Software Repositories"
Journal of Big Data. 6(36), May 2019 (IF=8.808)

- Ms. Krohn collected data and performed most of the experiments. Ms. Krohn and I performed the experimental analysis and wrote the paper together.*
- J17 @Glenski, M., Volkova, S., Weninger, T. “Propagation from Deceptive News Sources” IEEE Trans. on Computational Social Sciences. 5(4), December 2018 (IF=2.65)
Ms. Glenski and Ms. Volkova collected data and conceived of the experiment. Ms. Glenski and I performed the experimental analysis and wrote the paper.
- J16 Hungerman, D., Rinz, K., Weninger, T. and Yoon, C. “Political Campaigns and Church Contributions” Journal of Economic Behavior & Organization. 155, November 2018 (IF=1.323)
Mr. Hungerman and I co-developed the data collection system. Mr. Rinz, Mr. Yoon and Mr. Hungerman performed the economics analysis. We all edited the paper.
- J15 @Glenski, M., Stoddard, G., Resnick, P., Weninger, T. “GuessTheKarma: A Game to Assess Social Rating Systems”, Proc. of ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW), 2018 (IF=conference is transitioning to journal; 25% acceptance rate)
Mr. Stoddard and Ms. Glenski developed and executed the experiment concept with the guidance of Mr. Resnick and myself. Ms. Glenski, Mr. Resnick, and I wrote and edited the paper.
- BC1 Hungerman, D., Rinz, K., Weninger, T. and Yoon, C. “Religious Leadership, Religious Language, and Religious Giving: A Study of Church Bulletins” Handbook chapter for Advances in the Economics of Religion, Palgrave, 2018. (book chapter in press)
Mr. Hungerman and I co-developed the data collection system. Mr. Rinz, Mr. Yoon and Mr. Hungerman performed the economics analysis. We all edited the chapter.
- J14 @Aguinaga, S., Chiang, D., Weninger, T. “Hyperedge Replacement Graph Grammars for Exact Graph Generation” IEEE Trans. on Pattern Analysis and Machine Intelligence (published online for early access via 10.1109/TPAMI.2018.2810877) (IF=11.383)
Mr. Chiang and I co-created the algorithm. Mr. Aguinaga performed the experiments. The authors contributed equally to the writing.
- J13 Zhao, Z., Yang, Q., Lu, H., Weninger, T., Cai, D., He, X., Zhuang, Y. “Community-based Movie Recommendation via Multimodal Network Learning” IEEE Trans. on Multimedia, 20(2), 2018. (IF=3.977)
This project was conceived and performed primarily by the authors at Zhejiang University. I helped craft the narrative and write the paper.
- J12 @Glenski, T., @Pennycuff, C., Weninger, T. “Consumers and Curators: Browsing and Voting Patterns on Reddit” IEEE Trans. on Computational Social Sciences, 4(4), 2017. (IF=2.65)
I conceived of the project. Pennycuff and Glenski wrote the data collection software. Glenski performed the data analysis. Glenski and I co-wrote the paper.
- J11 @Shi, B., Yang, L., Weninger, T. “Forward Backward Similarity Search in Knowledge Networks” Knowledge-Based Systems, 119(1), 2017. (IF=3.325)
Shi and Yang conceived of the project and wrote 75% of the paper. I advised on the experiments and wrote 25% of the paper.

- J10 @Pennycuff, C., Weninger, T. “Striations in PageRank-Ordered Matrices” Social Network Analysis and Mining, 6(1), 1-17, 2017. (IF=[new journal])
Mr. Pennycuff discovered the striations phenomena and wrote 50% of the paper. I conceived of the project, performed most of the experiments and and wrote 50% of the text.
- J9 @Glenski, M., Weninger, T. “Rating Effects on Social News Posts and Comments” ACM Transactions on Intelligent Systems and Technology, 8(6), 78, 2017. (IF=3.19)
Ms. Glenski performed the experiments and data analysis and wrote 25% of the paper. I conceived of the project, and wrote the majority of the text.
- J8 @Shi, B., Weninger, T. “Discriminative Predicate Path Mining for Fact Checking in Knowledge Graphs” Knowledge-Based Systems. 2016. (IF=3.325)
Mr. Shi conceived of the idea. Mr Shi designed and completed the experiments. Mr Shi wrote 25% of the paper, I wrote the remainder.
- J7 @Shi, B., Weninger, T. “Scalable Models for Computing Hierarchies in Information Networks” Knowledge and Information Systems, January, 2016. (IF=2.64)
Mr. Shi implemented a scalable version of a conference paper from 2010. I conceived of the idea, Mr Shi designed and completed the experiments. Mr Shi wrote 25% of the paper, I wrote the remainder.
- J6 Weninger, T., *Palacios, R., Crescenzi, V., Gottron, T., Merialdo, P. “Web Content Extraction – a Meta-Analysis of its Past and Thoughts on its Future” ACM SIGKDD Explorations, 7(2):6 (IF=[Unknown])
I organized this paper with the top subject matter experts. I wrote most of the article; Mr. Palacios, an REU student, performed the experiments and the others contributed discussion, opinions, source code and some text.
- J5 @McCune, R.R., Weninger, T., Madey, G. “Thinking Like a Vertex: a Survey of Vertex-Centric Frameworks for Distributed Graph Processing” ACM Computing Surveys, 48(2):25, November 2015. (IF=4.04)
Mr. McCune is co-advised by myself and Mr. Madey. I conceived of the idea to write a survey paper on this subject. Mr. McCune wrote 80% of the paper, I contributed 15% of the paper and Mr. Madey contributed 5%.
- J4 Weninger, T. “An Exploration of Submissions and Discussions in Social News - Mining Collective Intelligence of Reddit” Social Network Analysis and Mining. 4:173, 2014. (IF=[new journal])
I conceived the idea, designed the study, and wrote the paper.
- J3 Weninger, T., *Johnston, T.J., Han. J. “The Parallel Path Framework for Entity Discovery on the Web.” ACM Transactions on the Web (TWeb), 7(3):16, 2013. (IF=1.595)
I conceived the idea, designed the study, performed 50% of the experiments with the help of an undergraduate student, Mr. Johnston, and wrote the paper.
- J2 Huang, J., Sun, H., Liu, Y., Song, Q., Weninger, T. “Towards Online Multiresolution Community Detection in Large-Scale Networks.” PLoS ONE 6(8): e23829, 2011 (IF=4.092)

Mr Huang conceived of the idea in consultation with myself. His colleagues Mr. Sun, Mr. Liu and Mr. Song implemented the system and completed the experiments. I helped edit the paper.

- J1 Weninger, T., Fumarola, F., Barber, R., Han, J., Malerba, D. “Unexpected Results in List Extraction on the Web.” SIGKDD Explorations. 12:2, ACM, 2010. (IF=[Unknown])

I conceived of the idea, and designed the study in consultation with Dr. Malerba and Dr Han. Dr. Fumarola and Mr. Barber executed the experiments. I wrote the paper.

Conference Papers

- C51 @Shi, B., Yang, J., Weninger, T., How, J., and He, Q. “Representation Learning in Heterogeneous Professional Social Networks with Ambiguous Social Connections” in *Prof. of International Conference on Big Data* (BigData), December 2019.
- C50 @Hibshman, J., @Sikdar S. and Weninger T. “Towards Interpretable Graph Modeling with Vertex Replacement Grammars” in *Prof. of International Conference on Big Data* (BigData), December 2019.
- C49 @Krohn, R. and Weninger T. “Modeling Online Comment Threads from their Start” in *Prof. of International Conference on Big Data* (BigData), December 2019.
- C48 @Ding, Y., Wang, D., Weninger, T., and Jiang, M. “Preserving Composition and Crystal Structures of Chemical Compounds in Atomic Embedding” in *Prof. of International Conference on Big Data* (BigData) (Poster), December 2019.
- C47 @Satyaki, S., @Hibshman, J., Weninger. T “Modeling graphs with Vertex Replacement Grammars” in *Proc. of International Conference on Data Mining* (ICDM), Burlington, VT, November 2019. (9.08% acceptance rate)
- C46 @Satyaki, S., @Hibshman, J., Weninger. T “Modeling graphs with Vertex Replacement Grammars” in *Proc. of International Conference on Network Science* (NetSci), Burlington, VT, May 2019. (Poster)
- W10 @Satyaki, S., @Hibshman, J., Weninger. T “Modeling graphs with Vertex Replacement Grammars” in *SIAM Workshop on Network Science*, May 2019. (Extended Abstract)
- C45 @Bilo Thomas, P., @Krohn, R., Weninger. T. “Dynamics of Team Library Adoptions: An Exploration of GitHub Commit Logs” in *IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining* (ASONAM), September 2019. (14% acceptance rate)
- C44 Blythe, J., Bollenbacher, J., Huang, D. Hui, P.M., Krohn, R., Pacheco, D., Muric, G., Sapienza, A., Tregubov, A., Ahn, Y.Y., Flammini, A., Lerman, K.,

- Menczer, F., Weninger, T., Ferrara, E. “Massive Multi-Agent Data-Driven Simulations of the GitHub Ecosystem.” in *International Conference on Practical Applications of Agents, Multi-Agent Systems* (PAAMS), 2019.
- C43 @Glenski, M., Volkova, S., Weninger, T. “How Humans versus Bots React to Deceptive and Trusted News Sources: A Case Study of Active Users” in *IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining* (ASONAM), September 2018. (16% acceptance rate)
- C42 @Glenski, M., Volkova, S., Weninger, T. “How Humans versus Bots React to Deceptive and Trusted News Sources: A Case Study of Active Users” in *IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining* (ASONAM), September 2018. (16% acceptance rate)
- W9 *Wang, X., @Aguinaga, S., Weninger, T., Chiang, D. “Growing Better Graphs With Latent-Variable Probabilistic Graph Grammars” in *ACM International Conference on Knowledge Discovery in Data Mining (SIGKDD) Workshop on Mining and Learning with Graphs* (MLG), London, United Kingdom, August, 2018.
- C41 @Glenski, C., Volkova, S., Weninger, T. “Identifying and Understanding User Reactions to Deceptive and Trusted Social News Sources” in *Proc. of Association of Computational Linguistics* (ACL), Melbourne, August 2018 (23% acceptance rate).
- C40 @Pennycuff, C., @Sikdar, S., *Vajiac, C., Chiang, D., Weninger, T. “Synchronous Hyperedge Replacement Graph Grammars” in *Proc. of International Conference on Graph Transformation* (ICGT), Toulouse, France. 2018.
- C39 @Shi, B., Weninger, T. “Visualizing the Flow of Discourse with a Concept Ontology” in *Proc. of Conference on the World Wide Web* (WWW), Lyon, France. 2018. (poster track, 35% acceptance rate)
- C38 @Shi, B., Weninger, T. “Open-World Knowledge Graph Completion” in *Proc. of Association for the Advancement of Artificial Intelligence* (AAAI), New Orleans, LA, February, 2018. (25% acceptance rate)
- C37 @Glenski, M., Weninger, T. “Predicting User-Interactions on Reddit” in *IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining* (ASONAM), Sydney, August, 2017. (17% acceptance rate)
- W8 @Pennycuff, C., @Aguinaga, S., Weninger, T. “A Temporal Tree Decomposition for Generating Temporal Graphs” *ACM International Conference on Knowledge Discovery in Data Mining (SIGKDD) Workshop on Mining and Learning with Graphs* (MLG), Halifax, Nova Scotia, August, 2017.
- C36 @Pennycuff, C., Weninger, T. “Complex Striations in Adjacency Matrices” in *Proc. of International Conference for Network Science* (NetSci17), Indianapolis, IN, June 21-23, 2017. (Poster)

- C35 @Shi, B., Weninger, T. “ProjE: Embedding Projection for Knowledge Graph Completion” in *Proc. of Association for the Advancement of Artificial Intelligence*, San Francisco, CA, Feb. 2017. (24.6% acceptance rate)
- C34 @Aguinaga, S., *Palacios, R., Chiang, D., Weninger, T. “Growing Graphs with Hyperedge Replacement Graph Grammars” in *Proc. of International Conference on Information and Knowledge Management (CIKM)*, Indianapolis, IN, Oct. 2016. (12% acceptance rate)
- W7 @Aguinaga, S., Weninger, T. “The Infinity Mirror Test for Analyzing the Robustness of Graph Generators” in *ACM International Conference on Knowledge Discovery in Data Mining (SIGKDD) Workshop on Mining and Learning with Graphs (MLG)*, San Francisco, CA, August 2016.
- C33 Osborne, G., Weninger, T. “Ozy: A General Orchestration Container” in *Proc. of International Conference on Web Services (ICWS)*, San Francisco, CA, Jun. 2016. (26% acceptance rate)
- C32 @Shi, B., Weninger, T. “Fact Checking in Heterogeneous Information Networks” in *Proc. of International Conference on the World Wide Web (WWW)*, Montreal, CA, Mar. 2016. (16% acceptance rate)
- C31 @Aguinaga, S., *Nambiar, A., *Liu, Z., Weninger, T. “Concept Hierarchies and Human Navigation” in *Proc. of IEEE International Conference BigData (BigData)*, Santa Clara, CA, Oct. 2015. (17% acceptance rate)
- W6 @Pennycuff, C., Weninger, T. “Forward Backward Similarity Search in Information Networks”, in *Proc. of ACM International Conference on Knowledge Discovery in Data Mining (SIGKDD) Workshop on High Performance Graph Mining*, Sydney, Australia, Aug. 10, 2015.
- C30 @Glenski, M., *Johnston, T.J., Weninger, T. “Random Voting Effects in Social-Digital Spaces A case study of Reddit Post Submissions” in *Proc of ACM International Conference on Hypertext and Social Media (HT)*, METU, Cyprus, Sept 1-4, 2015. (37% acceptance rate)
- C29 Weninger, T. “Complex Striations in Adjacency Matrices” in *Proc. of International Conference for Network Science (NetSci15)*, Zaragoza, Spain, June 3-5, 2015. (Poster)
- W4 @Shi, B., Weninger, T. “Mining Interesting Meta-Paths from Complex Heterogeneous Information Networks” in *Proc of IEEE International Conference on Data Mining Workshop on Designing a Market of Data (ICDM MoDAT14)*, Shenzhen, China, December 14-17, 2014.
- C28 McBurney, P.W., Liu, C., McMillan, C., Weninger, T. “Improving Topic Model Source Code Summarization.” in *Proc. of International Conference on Program Comprehension (ICPC)*, Hyderabad, India, June 2-3 2014.
- W3 Weninger, T., @Pennycuff, C. “On Typed-Paths in Multi-Typed Information Networks.” in *Proc. of the 2013 Workshop on Information Networks (WIN)*. October 2013, New York City, NY.

- C27 Weninger, T., Zhu, X.A., Han, J. “An Exploration of Discussion Threads in Social News Sites: A Case Study of the Reddit Community.” in *Proc. of the 2013 IEEE/ACM International Conference on Social Networks Analysis and Mining* (ASONAM), August 2013, Niagara Falls, Canada (13% acceptance rate)
- C26 Weninger, T., Han, J. “Information Network Analysis and Extraction on the World Wide Web.” in *Proc. of 2013 International Conference on the World Wide Web* (WWW), Rio de Janeiro, Brazil, May 2013. *Tutorial Paper*.
- C25 Tao, F., Yu, X., Lei, K.H., Brova, G., Cheng, X., Han, J., Kanade, R., Sun, Y., Wang, C., Wang, L., Weninger, T. “Research-Insight: Providing Insight on Research by Publication Network Analysis.” in *Proc. of the International Conference on Management of data* (SIGMOD), New York, NY. *Demo Paper* (36.8% acceptance rate)
- C24 Weninger, T., Han, J. “Exploring Structure and Content on the Web: Extraction and Integration of the Semi-Structured Web.” in *Proc. of 2012 International Conference on Web Search and Data Mining* (WSDM), Rome, Italy, Feb. 2013. *Tutorial Paper*.
- C23 Weninger, T., Bisk, Y., Han, J. “Document-Topic Hierarchies from Document Graphs.” in *Proc. of 2012 International Conference on Information and Knowledge Management* (CIKM), Maui, Hawaii, Oct. 2012. (13.4% acceptance ratio)
- C22 Weninger, T., Zhai, C.X., Han, J. “Building Enriched Web Page Representations Using Link Paths.” in *Proc. 2012 ACM Conference on Hypertext and Social Media* (HT). Milwaukee, WI, June 2012. (27.5% acceptance rate)
- C21 Barsky, M., Kim, S., Weninger, T., Han, J. “Mining Flipping Correlations from Transactional Databases.” in *Proc. 2012 International Conference on Very Large Data Bases* (VLDB) 5(4):370-381, 2011. (18.1% acceptance rate)
- C20 Kim, S., Kim, H., Weninger, T., Han, J., Kim, H.D. “Authorship Classification: A Discriminative Syntactic Tree Mining Approach.” in *Proc. of 2011 International ACM SIGIR Conference on Research & Development in Information Retrieval* (SIGIR), Beijing, China, Jul. 2011. (19.9% acceptance rate)
- C19 Weninger, T., Danilevsky, M., Fumarola, F., Hailpern, J., Han, J., Johnston, T.J., Kallumadi, S., Kim, H., Li, Z., McCloskey, D., Sun, Y., TeGrotenhuis, N.E., Wang, C., Yu, X. “WinaCS: Construction and Analysis of Web-Based Computer Science Information Networks” in *Proc. of International Conference on Modelling of Data* (SIGMOD), Athens, Greece, June. 2011. *Demo Paper*. (35% acceptance rate)
- C18 Fumarola, F., Weninger, T., Barber, R., Malerba, D., Han, J. “Extracting General Lists from Web Documents: A Hybrid Approach” in *Proc. of International Conference on Industrial, Eng. and Other Applications of Applied Intel. Sys.* (IEA/AIE), Syracuse, New York, USA, Mar. 2011. (28.3% acceptance rate)
- C17 Weninger, T., Fumarola, F., Barber, R., Lin, C.X., Han, J., Malerba D. “Growing Parallel Paths for Entity-Page Discovery” in *Proc. of International World*

- Wide Web Conference (WWW)*, Hyderabad, India, Mar. 2011. (16.9% acceptance rate)
- C16 Fumarola, F., Weninger, T., Barber, R., Malerba, D., Han, J. “HyLiEn: A Hybrid Approach to General List Extraction on the Web” in *Proc. of International World Wide Web Conference (WWW)*, Hyderabad, India, Mar. 2011. (16.9% acceptance rate)
- C15 Weninger, T., Fumarola, F., Han, J., Malerba, D. “Mapping Web Pages to Database Records via Link Paths” in *Proc. 2010 ACM International Conference on Information and Knowledge Management (CIKM)*, Toronto, Canada, Oct. 2010. (17.9% acceptance rate)
- C14 Kim, H., Kim, S., Weninger, T., Han, J., Abdelzaher, T. “NDPMine: Efficiently Mining Discriminative Numerical Features for Pattern-Based Classification” in *Proc. on Principles and Practice of Knowledge Discovery in Databases (PKDD)*, Barcelona, Spain, Sept. 2010. (16.1% acceptance rate)
- C13 Weninger, T., Ramachandran, S., Greene, D., Hart, J., Kancherlapalli, A., Hsu, W.H., Han, J. “Speech-Assisted Radiology System for Retrieval, Reporting and Annotation” in *Proc of ACM SIGKDD Conf. on Knowledge Discovery and Data Mining (KDD)*, Washington DC, Jul. 2010. *Demo Paper*
- W2 Kim, S., Kim, H., Weninger, T., Han, J. “Authorship Classification: A Syntactic Tree Mining Approach” in *Proc. of SIGKDD workshop on Useful Patterns (UP’10)*, Washington DC, Jul. 2010.
- C12 Yin, Z., Gupta, M., Weninger, T., Han, J. “A Unified Framework for Link Recommendation Using Random Walks” in *Proc. of International Conference on Advances in Soc. Net. Analysis and Mining (ASONAM)*, Odense, Denmark, Aug. 2010. (16% acceptance rate)
- C11 Weninger, T., Hsu, W.H., Han, J. “CETR - Content Extraction via Tag Ratios” in *Proc. of International World Wide Web Conference (WWW)*, Raleigh, NC, Apr. 2010. (14% acceptance rate)
- C10 Yin, Z., Gupta, M., Weninger, T., Han, J. “LINKREC: A Unified Framework for Link Recommendation with User Attributes and Graph Structure” *Proc. of International World Wide Web Conference (WWW)*, Raleigh, NC, Apr. 2010.
- C9 Lin, C.X., Zhao, B., Weninger, T., Han, J., Liu, B. “Entity Relation Discovery from WebTables and Links” *Proc. of International World Wide Web Conference (WWW)*, Raleigh, NC, Apr. 2010.
- C8 Weninger, T., Greene, D., Hart, J., Hsu, W.H., Ramachandran, S. “Speech-Assisted Radiology System for Retrieval, Reporting and Annotation” in *Proc. of IEEE Conf. on Computer-based Med. Sys. (CBMS)*, Albuquerque, NM, Aug. 2009.
- C7 Weninger, T., Hsu, W.H., Xia, J., Aljandal, W. “An Evolutionary Approach to Constructive Induction for Link Discovery” in *Proc. of International Genetic*

and Evolutionary Computation Conference (GECCO), Montral, Canada, Jul. 2009. (25.8% acceptance rate)

- C6 Crow, J., Weninger, T. “Creating interactive and dynamic choice experiments” in *Proc of Conference of the Soc. of Judgment and Decision Making*, Chicago, Illinois. Nov. 2008.
- C5 Al-Jandal, W., Hsu, W.H., Bahirwani, V., Caragea, D., Weninger, T. “Validation-Based Normalization and Selection of Interestingness Measures for Association Rules” in *Proc. of International Conference on Artificial Neural Networks in Engineering (ANNIE)*. St. Louis, MO, Nov. 2008.
- C4 Hsu, W.H., Weninger, T., Paradesi, M.S.R. “Predicting Links and Link Change in Friends Networks Supervised Time Series Learning with Imbalanced Data”, in *Proc. of International Conference on Artificial Neural Networks in Engineering (ANNIE)*. St. Louis, MO, Nov. 2008.
- C3 Weninger, T., Hsu, W.H. “Web Content Extraction Through Histogram Clustering”, in *Proc. of International Conference on Artificial Neural Networks in Engineering (ANNIE)*. St. Louis, MO, Nov. 2008.
- W1 Weninger, T., Hsu, W.H. “Text Extraction from the Web via Text-To-Tag Ratio” in *Proc. of Workshop on Text Informational Retrieval at DEXA (TIR)*, Turin, Italy, Sept. 2008.
- C2 Hsu, W.H., Lancaster, J., Paradesi, M.S.R., Weninger, T. “Structural Link Analysis from User Profiles and Friends Networks: A Feature Construction Approach” in *Proc. of International Conference on Weblogs and Social Media (ICWSM)*, Boulder, CO, Mar. 2007. (20% acceptance rate)
- C1 Hsu, W.H., King, A., Paradesi, M.S.R., Pydimarri, T., Weninger, T. “Collaborative And Structural Recommendation Of Friends Using Weblog-Based Social Network Analysis” in *Proc of AAAI Conf. on Comp. App. to Analyzing Weblogs (AAAI-CAAW)*, Stanford, CA, Mar. 2006.

PUBLICATIONS UNDER REVIEW

Journal Papers

Conference Papers

GRANTS AND SPONSORED PROGRAMS

“Deception Detection, Tracking and Factuality Assessment in Social and News Media LDRD Project” December 1, 2018 - May 31, 2019
Funding Vehicle: US Dept. of Energy via Pacific Northwest National Laboratory

Amount: \$29,364
 Role: Single P.I.

“Advancing Media Literacy for New Digital Arrivals in Developing Countries” Oc-
 tober 1, 2018 - September 30, 2020
 Funding Vehicle: USAID
 Amount: \$796,343
 Role: Lead P.I.

“Deception Detection, Tracking and Factuality Assessment in Social and News Me-
 dia” December 1, 2017 - May 31, 2018
 Funding Vehicle: US Dept. of Energy via Pacific Northwest National Labora-
 tory
 Amount: \$27,600
 Role: Single P.I.

“COSINE: Cognitive Online Simulation of Information Network Environments” Oc-
 tober 1, 2017 - Sept 30, 2021
 Funding Vehicle: DARPA
 Project Amount: \$4,950,000
 Amount to Notre Dame: \$280,000
 Role: Notre Dame P.I.

“Mining Conversation Trails for Effective Group Behavior” July 15, 2017 - July 14,
 2020
 Funding Vehicle: Army Research Office
 Amount to Notre Dame: \$372,037
 Role: Single P.I.

“Principled Structure Discovery for Network Analysis” July 1, 2017 - June 30, 2022
 Funding Vehicle: National Science Foundation
 Amount to Notre Dame: \$592,565
 Role: Single P.I.

“Verba Volant, Scripta Manent: Automatic Manuscript Analysis for the Vatican
 Secret Archives” June 1, 2017 - May 31, 2018
 Funding Vehicle: Notre Dame Internal Funding
 Amount: \$32,000
 Role: Co-P.I. with ND Prof. Chiang and ND Prof. Scheirer

“Knowledge Hierarchies and Natural Navigation” January 1, 2015 - July 31, 2016
 Funding Vehicle: Templeton Foundation subcontract from University of Chicago
 Project Amount: \$5,200,000
 Amount to Notre Dame: \$58,000 (total from three grant amendments)
 Role: Notre Dame P.I.

“Constructing a Dataset of Catholic Parish Bulletins”
 Funding Vehicle: Notre Dame FRSP June 1, 2015 - May 31, 2016
 Amount: \$10,000
 Role: Co-P.I. with ND Prof. Hungerman

“Knowledge and Social Network Analysis”
 January 1, 2016 - December 31, 2016

Funding Vehicle: Notre Dame RGG
Amount: \$35,500
Role: Single P.I.

“Socio-Digital Influence Attack Models and Deterrence”, September 1, 2014 - August 31, 2017
Funding Vehicle: Air Force Office of Scientific Research
Amount to Notre Dame: \$349,378
Role: Single P.I.

INVITED TALKS

BigGraphs Workshop (Keynote) at International Conference on Big Data, Los Angeles, CA, December 2019
University of Northern Illinois, DeKalb, IL, September 2019
Stanford Information Warfare Center, Stanford, CA, August 2019
Florida 20th Circuit Court (Expert Witness), Punta Gorda, FL, May 2019
Clemson University, Clemson, SC, April 2019
Hesburgh Lecture at the Notre Dame Club of Western Carolinas, April 2019
Getting the Story Straight at Elkhart Public Library, February 2019
Hesburgh Lecture at the Notre Dame Club of Pittsburgh, November 2018
Hesburgh Lecture at the Notre Dame Club of Cincinnati, October 2018
Credibility on the Web Workshop, New York City, October 2018
Computing Community Consortium Early Career Researcher Symposium, Washington DC, August 2018
King’s College, London, June 2018
Computing Community Consortium Meeting on Addressing National Priorities and Societal Needs, Washington DC, October 2017
ACM SIGKDD Workshop on Broadening Participation in Data Mining, Halifax, Nova Scotia, Canada, August 2017
ACM SIGKDD Workshop on Data Driven Science, Halifax, Nova Scotia, Canada, August 2017
International Conference on Weblogs and Social Media Workshop on Digital Misinformation, Montreal, Quebec, Canada, June 2017
University of Oklahoma, Norman, Oklahoma, February 2017
IBM TJ Watson Laboratory, Yorktown Heights, New York, February 2017
Data Mining Meets Visual Analytics Workshop at International Conference on Knowledge Management, Indianapolis, IN, October 2016
University of Indiana, Bloomington, Indiana, October 2016
Wayne State University, Detroit, Michigan, October 2016

Midwest Big Data Challenges and Opportunities Workshop, Chicago, Illinois,
September 2016

ACM SIGKDD Workshop on Broadening Participation in Data Mining, Halifax,
San Francisco, August 2016

Roma Tre University, Rome, Italy, July 2016

University of Southern California, Los Angeles, CA, April 2016

Arizona State University, Tempe, AZ, February 2016

University of Chicago, Chicago, IL, November 2015

Greater Chicago Area System Research Workshop, Chicago, IL, April 2015

International Symposium on Occupational Exposure (Keynote), Ft. Lauderdale,
FL, January 2015

Texas A&M University, College Station, TX, October 2013

National Science Foundation, Arlington, VA, February 2013

University of Texas, Austin, TX, March 2013

University of New Mexico, Albuquerque, NM, March 2013

University of Nebraska, Albuquerque, NM, March 2013

University of Kentucky, Lexington, Kentucky, February 2013

University of Maryland, College Park, MD, February 2013

Arizona State University, Tempe, AZ, January 2013

International Symposium on Occupational Exposure, Ft. Lauderdale, FL, January
2013

Nuclear, Plasma and Radiological and Engineering Seminar, Urbana, IL, January
2013.

University of Michigan, Department of Computer Science, Ann Arbor, MI, Novem-
ber 2012

Command Control and Interoperability Center for Advanced Data Analysis (CCI-
CADA), Urbana, IL, March 2012

Universit degli Studi Roma Tre, Dipartimento di Informatica e Automazione,
Rome, Italy, June 2011

NOTRE DAME INVITED PRESENTATIONS

Ten Years Hence, Mendoza College of Business, January 2019

Shamrock Series Panel, New York City, November 2018

ND Perspectives, University of Notre Dame Reunion Panel, June 2018

TEDxUND, University of Notre Dame, IN, January 2014

PHD STUDENTS GRADUATED

Robert Ryan McCune, *Graduated May 2016*, co-Advised with Greg Madey

Placement: Asst. Professor at Cal Poly

Salvador Aguinaga, *Graduated May 2018*,

Placement: Research Scientist at Kyndi

Corey Pennycuff, *Graduated May 2018*,

Placement: Teaching Professor at University of Notre Dame

Baoxu Shi, *Graduated May 2018*,

Placement: Research Scientist at LinkedIn

Maria Glenski, *Graduated May 2019*,

Placement: Research Scientist at Pacific Northwest National Laboratory

CURRENT STUDENT SUPERVISION

Satyaki Sikdar, *Ph.D. Student* (since September 2017)

Rachel Krohn, *Ph.D. Student* (since September 2017)

Justus Hibshman, *Ph.D. Student* (since September 2018)

Pamela Bilo Thomas, *Ph.D. Student* (since September 2018)

Nicholas Botzer, *Ph.D. Student* (since January 2019)

Trenton Ford, *Ph.D. Student* (since Aug 2019)

Yifan Ding, *Ph.D. Student* (since Aug 2019)

Daniel Gonzalez, *Ph.D. Student* (since Dec 2019)

MEDIA COVERAGE

With modern media, press coverage sometimes spreads far and wide. There are often more outlets reporting than can be captured. This section therefore lists only a representative article (or two) of the total press coverage.

Familiar Shapes (Spring 2020)

<https://www.familiarshapesthemovie.com/>

This is a documentary film that is slated for release in Spring 2020

Host of Problems with Facebook Deepfake Ban, Expert Says – Communications of the ACM Magazine (Fall 2019)

<https://cacm.acm.org/opinion/articles/242052-host-of-problems-with-facebook-deepfake-ban-expert-says/>

Twitter's political ad policy is a small step in the fight against disinformation – CNN Opinion Article (Spring 2019)

<https://www.cnn.com/2019/11/15/perspectives/twitter-political-ad-policy>

Getting the Story Straight (Spring 2019) *Radio interviews with Pamela Bilo Thomas on local radio WTRC, WVPE, WAOR*

Anger on Social Media (Fall 2018)

<http://csmonitor.com/USA/Politics/2018/1207/Outrage-nation-Can-America-overcome-its-addiction-to-anger>

How Fake News Spreads (Fall 2018)

<https://wsbt.com/news/local/researchers-at-notre-dame-are-looking-into-how-fake-news-spreads>

Spread of Lies (Spring 2018)

<https://mashable.com/2018/03/08/twitter-users-retweet-fake-news-study/#b0Jt18NcMmqn>

Social Media Rating Manipulation (Spring 2017)

<https://www.inverse.com/article/27532-twitter-reddit-facebook-social-media-voting-fake-news>

<https://phys.org/news/2017-01-social-media-votes.html>

Community in Focus (Winter 2017)

<https://www.overleaf.com/blog/620-community-in-focus-professor-tim-weninger-on-how-we-consume-and-curate-information>

Content Browsing and Voting (Winter 2017)

https://motherboard.vice.com/en_us/article/vbz49j/new-study-finds-that-most-redditors-dont-actually-read-the-articles-they-vote-on

This article was “trending” on a few social media platforms

<http://www.foxnews.com/tech/2017/12/01/redditors-don-t-read-what-vote-on-according-to-new-study.html>

<https://www.pcmag.com/news/357711/study-reddit-users-tend-to-vote-without-reading>

Social Voting Systems (Fall 2017)

<https://www.sciencenewsforstudents.org/article/power>

Popularity for Sale (Winter 2016)

<https://www.forbes.com/sites/jaymcgregor/2016/12/14/how-we-bought-reddit-for-200/>

PROFESSIONAL ACTIVITIES

Writer/Consultant

Crash Course Artificial Intelligence

YouTube series on AI with 10 million subscribers and millions of views.

https://www.youtube.com/watch?v=a0_lo_GDcFw

Editorial Board

Nature Scientific Reports

Data Mining and Knowledge Discovery IEEE Transactions on Knowledge and Data Engineering

Organizing Committee

Vice-Chair, (2019) IEEE BigData Conference (BigData)

Best Paper Awards Co-Chair, (2019) SIAM Data Mining Conference (SDM)

Co-Chair, (2018, 2019) Workshop on Mining and Learning with Graphs at SIGKDD Conference on Knowledge Discovery in Databases (SIGKDD)

Poster Chair, (2018) International Conference on Data Mining (ICDM)

Travel Chair, (2017) International Conference on Information and Knowledge Management (CIKM)

Co-Chair, (2017) Workshop on Heterogeneous Information Networks at ACM International Conference on Web Search and Data Mining (WSDM)

Workshop Chair, (2016) International Conference on Social Informatics (SocInfo)

Senior Program Committee

2020 SIGKDD Conference on Knowledge Discovery in Databases (KDD)

2020 AAAI International Conference Web and Social Media (ICWSM)

2020 SIAM Data Mining Conference (SDM)

2019 SIAM Data Mining Conference (SDM)

2018 International Conference on the World Wide Web (WWW)

2017 SIGKDD Conference on Knowledge Discovery in Databases (KDD)

2017 ACM Conference on Information and Knowledge Management (CIKM)

Program Committee

2019 AAAI Conference on Artificial Intelligence (AAAI)

International World Wide Web Conference (WWW)

International Conference on Computational Social Science (IC2S2)

2019 AAAI Conference on Artificial Intelligence (AAAI)

International World Wide Web Conference (WWW)

Processing Information Ethically Workshop (PIE)

SIGKDD Conference on Knowledge Discovery in Databases (KDD)

IEEE International Conference on Data Mining (ICDM)

International Conference on Web Search and Data Mining (WSDM)

International Conference on Web Information Systems Engineering (WISE)

2018 AAAI Conference on Artificial Intelligence (AAAI)

International Conference on Web Search and Data Mining (WSDM)

SIAM Network Science

SIGKDD Conference on Knowledge Discovery in Databases (KDD)
International World Wide Web Conference (WWW)

2017 AAAI Conference on Artificial Intelligence (AAAI)
International Conference on Weblogs and Social Media (ICWSM)
DEXA Text Information Retrieval Workshop (TIR)
International Conference on Social Informatics (SocInfo)
ACM International Conference on Knowledge Management (CIKM) International
World Wide Web Conference (WWW)

2016 AAAI Conference on Artificial Intelligence (AAAI)
International World Wide Web Conference (WWW)
SIGKDD Conference on Knowledge Discovery in Databases (KDD)
International Conference on Social Informatics (SocInfo)
International Joint Conference on Artificial Intelligence (IJCAI)

2015 International World Wide Web Conference (WWW)
SIGKDD Conference on Knowledge Discovery in Databases (KDD)
Neural Information Processing Systems (NIPS)
SIAM Conference on Data Mining (SDM)
IEEE International Conference on Data Mining (ICDM)
IEEE International Conference on Machine Learning (ICML)
International Joint Conference on Artificial Intelligence (IJCAI)
IEEE International Conference on Big Data Science and Engineering (BigDataSE)
ACM International Conference on Knowledge Management (CIKM)
DEXA Text Information Retrieval Workshop (TIR)

2014 International Conference on Advanced Data Mining and Applications (ADMA)
AAAI Conference on Artificial Intelligence (AAAI)
International World Wide Web Conference (WWW)
SIGKDD Conference on Knowledge Discovery in Databases (KDD)
IEEE International Conference on Data Mining (ICDM)
IEEE International Conference on Machine Learning
SIAM International Data Mining Conference (SDM)
DEXA Text Information Retrieval Workshop (TIR)
Asian Pacific Web Conference (APWeb)
International Organization for Information Integration and Web-based Applications
& Services Conference (iiWAS)
International Conference on Social Informatics (SocInfo)

2013 International Conference on Advanced Data Mining and Applications (ADMA)
DEXA Text Information Retrieval Workshop (TIR)
ACM International Conference on Knowledge Management (CIKM)

2012 DEXA Text Information Retrieval Workshop (TIR)

2011 DEXA Text Information Retrieval Workshop (TIR)

Journal Reviewer

2019 Transactions on Information Systems (TOIS)
Transactions on Interactive Intelligent Systems (THIS)
Information Systems
Nature Scientific Reports

- Knowledge and Information Systems (KAIS)
 IEEE Transactions on Knowledge and Data Engineering (TKDE)
- 2018* Nature Scientific Reports
 Knowledge and Information Systems (KAIS)
 IEEE Transactions on Knowledge and Data Engineering (TKDE)
 ACM Journal of Data and Information Quality (JDIQ)
 ACM Transactions on the Web (TWeb)
- 2017* Nature Scientific Reports
 Knowledge and Information Systems (KAIS)
 IEEE Transactions on Knowledge and Data Engineering (TKDE)
 ACM Transactions on the Web (TWeb)
- 2016* Knowledge Based Systems
 IEEE/ACM Transactions on Computational Biology and Bioinformatics
 Data Mining and Knowledge Discovery (DAMI)
 ACM Transactions on the Web (TWeb)
 ACM/IEEE Transactions on Computational Biology and Bioinformatics (TCBB)
 ACM Transactions on Knowledge Discovery in Databases (TKDD)
 IEEE Transactions on Network Science and Engineering (TNSE)
 IEEE Transactions on Knowledge and Data Engineering (TKDE)
- 2015* Knowledge and Information Systems (KAIS)
 ACM Transactions on the Web (TWeb)
 IEEE Transactions on Knowledge and Data Engineering (TKDE)
 Information Fusion
 Social Networks Analysis and Mining
- 2014* Journal of the American Society for Information Science and Technology (JASIST)
 Data Mining and Knowledge Discovery (DAMI)
 Neurocomputing
 Knowledge and Information Systems (KAIS)
 ACM Transactions on the Web (TWeb)
 ACM Transactions on Knowledge Discovery and Data Mining (TKDD)
 ACM Transactions on Intelligent Systems and Technology (TIST)
- 2013* IEEE Transactions on Knowledge and Data Engineering (TKDE)
 ACM Transaction on Information Systems (TOIS)
 Digital Multimedia Broadcasting (IJDMB)
 Knowledge and Information Systems (KAIS)
 ACM Transactions on the Web (TWeb)