

Jana Diesner

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Citizenship: German, USA Permanent Resident
CV current as of 03/2012

Research Interests

My work is at the nexus of network analysis, machine learning and natural language processing. I advance computational methods and technologies that help people to understand the interplay and co-evolution of information and the structure and functioning of socio-technical networks. In my empirical work, I study networks from the geopolitical, business and science domain. I am particularly interested in covert information and covert networks.

Employment

Assistant Professor 01/2012-present
University of Illinois at Urbana-Champaign (UIUC),
Graduate School of Library and Information Science/ The iSchool

Education

Carnegie Mellon University, School of Computer Science, Pittsburgh, PA

- **Ph.D. in Computation, Organizations and Society, ABS status** 2012 (expected)
 - Thesis: Uncovering and Managing the Impact of Methodological Choices for the Computational Construction of Socio-Technical Networks from Texts
 - Committee: Kathleen Carley, William Cohen, Carolyn Rose, Jeffrey Johnson (ECU)
- **M.S. (Master of Science) in Computation, Organizations and Society (COS)** 12/2007
- **Certificate: Expertise in Dynamic and Social Networks** 05/2007
- **Institute for Complex Engineered Systems: Research Scholar** in 2000-2002

Dresden University of Technology, Dresden, Germany

- **M.A. (Magister Artium) in Communication Science** 03/2003
 - Thesis: Automatic Retrieval of Using Patterns applied to Online News
 - Advisor: Prof. Dr. Wolfgang Donsbach

Honors and Awards

- Siebel Scholarship: awarded annually for academic excellence and demonstrated leadership class of to 80 top students from the world's leading graduate schools, award amount: \$35,000 2011
- Selected and supported for participation at Summer Research Institute of Consortium for the Science of Sociotechnical Systems (CSST) 2011
- Gelfand Student Award for Educational Outreach and Service Learning, awarded by CMU 2010
- IBM: Scholarship for Grace Hopper Conference of Women in Computing, Boulder, CO 2008
- Best Student Paper Award: North American Association for Computational Social and Organizational Science Conference (NAACSOS, now CSSS), Atlanta, GA 2007
- Socrates-Erasmus Program: Student fellowship for University of Granada, Spain 1999-2000

Prior Employment

Software Developer and Research Associate 06/2003-08/2006

- Carnegie Mellon University, School of Computer Science
 - Lead developer for software product: built program (AutoMap) for natural language processing and network analysis
 - Management: Interview, train, and supervise technical staff members

Publications

Copies available at <http://people.lis.illinois.edu/~jdiesner/publications.html> if copyright permits.

Peer Reviewed Journal Papers

1. Diesner J, Tambayong L, Carley KM (accepted) Mapping socio-cultural networks of Sudan from open-source, large-scale text data. *Computational and Mathematical Organization Theory*.
2. Dabbish L, Towne B, Diesner J, Herbsleb J (2011) Construction of association networks from communication in teams working on complex projects. *Statistical Analysis and Data Mining (SAM), special issue: Networks*, 4(5), 547-563.
3. Chang Y, Diesner J, Carley KM (2011) Towards automated definition acquisition from operations law. *IEEE Transactions on Systems, Man, and Cybernetics, Part C*.
4. Diesner J, Carley KM (2008) Conditional Random Fields for Entity Extraction and ontological text coding. *Computational and Mathematical Organization Theory*, 14(3), 248-262.
5. Carley KM, Diesner J, Reminga J, Tsvetovat M (2007) Toward an interoperable Dynamic Network Analysis toolkit. *Decision Support Systems (DSS), special issue: Cyberinfrastructure for homeland security: Advances in information sharing, data mining, and collaboration systems*, 43(4), 1324-1347.
6. Diesner J, Frantz T, Carley KM (2005) Communication networks from the Enron Email corpus "It's always about the people Enron is no different". *Computational and Mathematical Organization Theory*, 11(3), 201-228.

Peer Reviewed Conferences (full papers)

7. Diesner J, Carley KM (2010) A methodology for integrating network theory and topic modeling and its application to innovation diffusion. *IEEE International Conference on Social Computing, Workshop on Finding Synergies Between Texts and Networks*, Minneapolis, MN.
8. Diesner J, Tambayong L, Carley KM (2010) Mapping socio-cultural networks of Sudan from open-source, large-scale text data. 29th Conf. of Sudan Studies Association (SSA), Lafayette, IN.
9. Diesner J, Carley KM (2009) He says, she says. Pat says, Tricia says. How much Reference Resolution matters for Entity Extraction, Relation Extraction, and Social Network Analysis. *Proceedings IEEE Symposium on Computational Intelligence for Security and Defence Applications (CISDA)*, Ottawa, Canada.
10. Landwehr P, Diesner J, Carley KM (2009) Words of Warcraft: a relational text analysis of quests in an MMORPG. *Proc. Digital Games Research Association Conference (DiGRA)*, London, UK.
11. Diesner J, Carley KM (2007) Conditional Random Fields for Entity Extraction and ontological text coding. *Proceedings North American Assoc. for Computational Social and Organizational Science Conference (NAACSOS)*, Atlanta, GA. *Best Student Paper Award
12. Lecy J, Diesner J, Carley KM (2006) Identification of knowledge groups from the Enron Email corpus. *56th Conference of International Communication Association (ICA)*, Dresden, Germany.
13. Diesner J, Kumaraguru P, Carley KM (2005) Mental Models of data privacy and security extracted from interviews with Indians. *55th Conference of International Communication Association (ICA)*, New York, NY.
14. Diesner J, Carley KM (2005) Exploration of communication networks from the Enron Email corpus. *Proceedings Workshop on Link Analysis, Counterterrorism and Security, Society for Industrial and Applied Mathematics (SIAM) International Conference on Data Mining*, pg. 3- 14, Newport Beach, CA.
15. Diesner J, Carley KM (2004) Using Network Text Analysis to detect the organizational structure of covert networks. *Proceedings North American Association for Computational Social and Organizational Science Conference (NAACSOS)*, Pittsburgh, PA.

16. Carley KM, Diesner J, Reminga J, Tsvetovat M (2004) An integrated approach to the collection and analysis of network data. *Proceedings North American Association for Computational Social and Organizational Science Conference (NAACSOS)*, Pittsburgh, PA.
17. Lewis ET, Diesner J, Carley KM (2001) Using automated text analysis to study self-presentation strategies. *Proceedings Computational Analysis of Social and Organizational Systems Conference (CASOS)*, Pittsburgh, PA.

Peer Reviewed Conferences (abstracts)

18. Diesner J, Carley KM (2010) Extension of supervised machine learning system to extract socio-technical networks about the Sudan from open source text data. *Women in Machine Learning (WiML) Workshop in conjunction with NIPS*, Vancouver, Canada.
19. Diesner J, Carley KM (2009) WYSIWII - What You See Is What It Is: Informed approximation of relational data from texts. *General Online Research (GOR) Conference*, Vienna, Austria.
20. Carley KM, Frantz T, Diesner J (2006) Social and knowledge networks from large scale databases. *56th Conference of International Communication Assoc. (ICA)*, Dresden, Germany.

Book Chapters

1. Diesner J, Mergel I, Carley KM (2011) Network Analysis software. In G Barnett (Ed) *Encyclopedia of Social Networking* (pp. 595-598), Sage.
2. Diesner J, Carley KM (2011) Semantic Networks. In G Barnett (Ed) *Encyclopedia of Social Networking*, (pp. 595-598) Sage.
3. Diesner J, Carley KM (2011) Words and networks. In G Barnett (Ed) *Encyclopedia of Social Networking*, (pp. 958-961) Sage.
4. Diesner J, Carley KM (2010) Relation Extraction from texts (in German: Extraktion relationaler Daten aus Texten). In C Stegbauer, R Häußling (Eds) *Handbook Network Research* (Handbuch Netzwerkforschung). (pp. 507 -521) VS Verlag.
5. Diesner J, Carley KM (2010) Relational methods for analyzing and preventing crime (German: Relationale Methoden in der Erforschung, Ermittlung und Prävention von Kriminalität). In C Stegbauer, R Häußling (Eds) *Handbook Network Research* (pp. 725-738) VS Verlag.
6. Weil SA, Foster P, Freeman J, Carley KM, Diesner J, et al. (2008) Converging approaches to automated communications-based assessment of team situation awareness. In MP Letsky, NW Warner, SM Flore, CAP Smith (Eds) *Macro cognition in Teams. Theories and Methodologies* (pp. 277-304) Ashgate.
7. Diesner J, Carley KM (2005) Revealing social structure from texts: Meta-matrix text analysis as a novel method for network text analysis. In VK Narayanan, DJ Armstrong (Eds) *Causal Mapping for Information Systems and Technology Research* (pp. 81-108) Idea Group.

Technical Reports

8. Diesner J, Carley KM (2008) *Looking under the hood of stochastic part of speech taggers*. Technical Report CMU-ISR-08-131R.
9. Frantz TL, Carley KM, Diesner J (2005) *An Automated Methodology for Conducting a Social Network Study of a University Faculty*. Technical Report CMU-ISRI-05-106.
10. Tsvetovat M, Diesner J, Carley KM (2004) *NetIntel: A database for manipulation of rich social network data*. Technical Report CMU-ISRI-04-135.
11. Diesner J, Carley KM (2004) *AutoMap1.2 - Extract, analyze, represent, and compare mental models from texts*. Technical Report CMU-ISRI-04-100.

Selected other Papers and Presentations (not peer reviewed)

12. Carley KM, Diesner J, McCulloh I, Martin M, Kunkel F (2008) Technologies for distilling and investigating relational data from unstructured text data. Poster at *US Army Research Laboratory (ARL) Advanced Decision Architectures Consortium Meeting*, Boulder, CO.

13. Diesner J. (2008). *Computer Science in Numbers: Diversity and Employment*. Presentation at Carnegie Mellon University, Pittsburgh, PA.
14. Weil SA, Carley KM, Diesner J., Freeman J, Cooke NJ (2006) Measuring situational awareness through analysis of communications: a preliminary exercise. Paper at *Command and Control Research and Technology Symposium*, San Diego, CA.

Presentations at International Sunbelt Social Network Conference (not peer reviewed):

15. Diesner J., Carley KM (2012) *Impact of methods for relation extraction from text data on network analysis results*.
16. Diesner J., Carley KM (2011) *Extraction and validation of socio-technical network data about the Sudan from text corpora*.
17. Diesner J., Carley KM (2010) *Computational integration of network theory and topic modeling for investigating the relationship between socio-technical networks and innovation in the EU*.
18. Mergel I, Diesner J., Carley KM (2010) *Attention networks among members of congress*.
19. Stuetzer C, Diesner J., Carley KM, Koehler T, Thiem G (2010) *Identifying and integrating social roles and structural for the case of collaborative e-learning environments*.
20. Diesner J., Carley KM, Katzmaier H (2008) *He says, she says - Identity and polarization in communication networks of an organization in crisis*.
21. McConville, E, Diesner J., Carley KM (2008) *AutoMap Software demonstration*.
22. Diesner J., Carley KM, Katzmaier H (2007) *The morphology of a breakdown. How the semantics and mechanics of communication networks from an organization in crisis relate*.
23. Diesner J., Pfeffer J, Katzmaier H (2006) *Evaluating scientific classification systems by bottom-up clustering of abstracts using semantic network analysis*.
24. Diesner J., Carley KM (2005). *Revealing and comparing the organizational structure of covert networks with network text analysis*.
25. Carley KM, Frantz T, Diesner J., Davis G (2005) *Groups: surface and deep structure*.
26. Lewis ET, Carley KM, Diesner J. (2003) *Concept networks in organizational language: consensus or creativity?*
27. Lewis ET, Diesner J., Carley KM (2002) *Using network analysis to extract and analyze self-presentation strategies in texts*.

Invited Talks

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| 1. IT Defense Conference, Germany: <i>Data Mining Methods for Knowledge Discovery from Digital Trace Data</i> . | Feb 2012
Sep 2011 |
| 2. German Armed Forces Command and Staff College, Hamburg, Germany: <i>Network analysis and data mining methods for examining covert networks</i> . | Apr 2011 |
| 3. European Research Center for Information Systems, University of Münster, Germany: <i>Words and Networks: Considering the substance of information for constructing and analyzing socio-technical networks</i> . | Feb 2011 |
| 4. IT Defense Conference, Germany: <i>Network analysis and text mining for detecting and examining the structure, functioning and evolution of covert networks</i> . | |
| 5. Syracuse University, School of Information: <i>Words and Networks</i> . | Jan 2011 |
| 6. Pennsylvania Association for Gifted Education Conf.: <i>Encouraging the participation of girls and women in computer science: research and action</i> . w/ C. Frieze, B. Cheng | Apr 2010 |
| 7. German Armed Forces Command and Staff College, Germany: <i>Network Analysis</i> . | Mar 2010 |
| 8. Dresden University of Technology, Education Sciences Department, Germany: <i>Dynamic Network Analysis and Relational Text Mining</i> . | Oct 2009 |
| 9. NATO School, Oberammergau, Germany: <i>Natural Language Processing and Network Analysis for mapping and understanding covert networks</i> . | Oct 2009 |
| 10. vm-people LLC, Berlin, Germany: <i>Transforming linear data into relational data</i> . | Aug 2008 |

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| 11. Deutsche Welle, Berlin, Germany: <i>Mapping Politics: From words to knowledge.</i>
with P. Ueschner | Aug 2008 |
| 12. Chemnitz Art Museum, Germany: <i>Finding Relations.</i> with C. Stuetzer | July 2008 |
| 13. University of Applied Sciences, Mittweida, Germany, Complexity Meeting: <i>System Dynamics: Approach to Computational Modeling and Simulation.</i> | Mar 2008 |
| 14. University of Applied Sciences, Mittweida, Germany, Complexity Meeting:
<i>Data Collection online: Feasible does not have to mean legal.</i> | Jan 2008 |
| 15. Ars Electronica, Linz, Austria: <i>Communication Networks from the Enron Email Corpus.</i> at Age of Simulation Conference. | Jan 2006 |
| 16. FAS.research LLC, Vienna, Austria: <i>Computer-supported Network Text Analysis.</i> | May 2005 |
| 17. Washington Institute for Near East Policy, Washington, D.C.: <i>Extraction of the Social Structure of Covert Networks from Texts.</i> | Jan 2005 |

Teaching Experience

Course instructor

Full courses: developed syllabi and overall course structure, administered grades:

- *University of Illinois at Urbana-Champaign, iSchool:*
 - Information Networks (co-taught with Les Gasser) Spring 2012
 - Social Aspects of Information Technologies (co-taught with Les Gasser) Spring 2012
- *Carnegie Mellon University, School of Computer Science:*
 - Introduction to Social Network Analysis (co-taught with T. Frantz) Spring 2010

Short courses: developed syllabi and overall course structure, administered grades, all taught in English:

- *University of Hamburg, Germany, Graduate School for Business, Economics & Social Science:*
 - Information and Relation Extraction from Text Data & Analysis of Socio-Technical Networks Fall 2011
- *Mittweida University of Applied Sciences, Germany:*
 - Extraction of Relational Data from Texts and Computational Thinking Summer 2008
 - Extraction of Relational Data from Texts and Applications to Multi-Level Data Summer 2007

Instructor for workshops and tutorials

Developed syllabi and teaching material, delivered methods-focused hands-on training and lectures at the intersection of Network Analysis, Natural Language Processing, and Computational Thinking.

- Humboldt University Berlin, Center for Comparative Analysis of Social Structure, Germany 2011
- International Sunbelt Social Network Conference (USA, Italy) 2009-2010
- Case Western Reserve University, Weatherhead School of Management, Cleveland, OH 2010
- Department of National Defense, Centre for Security Science, Ottawa, Canada 2009
- International Center for the Study of Terrorism, Penn State University 2009
- General Online Research Conference (GOR) (Germany, Austria) 2008-2009
- World Congress on Social Simulation, George Mason University, Fairfax, VA 2008
- North American Association for Computational Social and Organizational Science (NAACSOS) Conference, Emory University, Atlanta, GA 2007
- Graduate School of Public and International Affairs, University of Pittsburgh, PA 2005
- Max Planck Institute for the Study of Societies, Cologne, Germany, with L. Krempel 2005
- Network Text Analysis and AutoMap training (one day) at Annual CASOS Summer Institute, Carnegie Mellon University, Pittsburgh, PA 2004-2011

Guest Lecture

- Carnegie Mellon University: at Information Visualization (course 60-719- ETB Studio), 2007
taught by Ben Fry and Golan Levin

Training in Pedagogy and Teaching

- Completion of “Documentation of Teaching Development Program”, 06/2009-05/2010
Eberly Center for Teaching Excellence, Carnegie Mellon

Student Advising

- Master thesis co-advisor for Patric Ueschner, M.A. in Information & Communication Science, Mittweida University of Applied Sciences, Germany 2008

Service and Leadership

Academic Service

- **Organizer**
 - Cybersecurity Meeting Pittsburgh for Cybersecurity Unit of German Armed Forces (with RAND, GSPIA/University of Pittsburgh, and CyLab/CMU) 2011
 - “Words and Networks” track at International Sunbelt Social Network Conference 2010-2011
 - “Synergies Between Texts and Networks” Workshop at 2nd IEEE International Conference on Social Computing 2010
- **Steering Committee**
 - Society for Learning Analytics Research (SoLAR) since 2011
- **Program Committee**
 - ACM Hypertext and Social Media 2012
 - International Conference on Social Informatics (SocInfo) 2011
 - International Conference on Collaborative Innovation Networks (COINs) 2011
 - Advances in Social Network Analysis and Mining Conference (ASONAM) 2011-2012
 - Conference of Journal of Information Technology & Politics (JITP) “The Future of Computational Social Science” 2011
 - General Online Research (GOR) Conference 2009
- **Organizing Committee**
 - Opportunities for Undergraduate Research in Computer Science (OurCS) Conference 2011
- **Panel co-organizer and chair**
 - “Data collection online” General Online Research Conference (GOR) 2009
- **Reviewer, Journals**
 - ACM Transactions on Information Systems
 - ACM Transactions on Speech and Language Processing
 - ACM Transactions of the Web
 - Journal of Artificial Societies and Social Simulation (JASSS)
 - Social Networks
 - Journal of Information Technology & Politics (JITP)
 - Journal of Computational and Mathematical Organization Theory (CMOT)
 - Procedia - Social and Behavioral Sciences
 - International Journal of Knowledge-based Organizations
- **Reviewer, Conferences**
 - ACM CHI 2011
 - IEEE Social Computing (SocComp) 2009-2010
 - Applications of Social Network Analysis (ASNA) 2011
 - Americas Conference on Information Systems (AMICS) 2008-2009
 - General Online Research Conference (GOR) 2010-2011

- **Membership** **since:**
- ACM 2004
- IEEE 2009
- SIAM (Society for Industrial and Applied Mathematics) 2008
- INSNA (International Network for Social Network Analysis) 2002
- GI (Gesellschaft für Informatik) 2009
- GAIN (German Academic International Network) 2008
- Regional Ambassador in the USA for Dresden University of Technology, Germany 2008 to present

Educational Outreach and Leadership

Working to encourage and train K12 school students, especially women and minorities, to pursue careers in computing:

- Founder and leader of program that provides middle school students with opportunities to discover and practice principles of computational thinking and computing, at:
 - Pittsburgh Science & Technology Academy, K6-12 school Fall 2010-2011
 - Pittsburgh Millones University Preparatory School, K6-12 school Spring 2010
- Organizer and leader of computer science track at annual high school day at CMU, 2008-2011
reaching over 250 women
- Instructor and speaker at technical training sessions, outreach presentations, career 2007 to present
option workshops and conferences for K12 students and instructors

Languages

English – excellent, German – native, Spanish – medium
