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ACADEMIC POSITIONS

Professor, University of Illinois at Urbana-Champaign, Department of Computer Science, July 2006 – Present.

Adjunct Professor, University of Illinois at Urbana-Champaign, Department of Linguistics (since 2005); Department of Statistics (since 2008), Graduate School of Library and Information Science (since 2009).

Associate Professor, University of Illinois at Urbana-Champaign, Department of Computer Science, July 2002 – July 2006.

Assistant Professor, University of Illinois at Urbana-Champaign, Department of Computer Science, July 1997 – July 2002.

Faculty Member, Beckman Institute of Advanced Science and Technology, UIUC, July 1998 – Present.

Faculty Member, Computational Science and Engineering Program, UIUC, March 1999 – Present.

Postdoctoral Researcher, Weizmann Institute, Israel, Department of Applied Mathematics and Computer Science, Sept. 1995 – Aug. 1997.

Research Scientist, Harvard University, Division of Applied Sciences, July 1996 – Oct. 1996.

Postdoctoral Fellow, Harvard University, Division of Applied Sciences, Jan. 1995 – Aug. 1995.

EDUCATION

HARVARD UNIVERSITY

S.M., Computer Science, 1992.

Ph.D., Computer Science, 1995.

Dissertation: *Learning in Order to Reason*; Advisor: Leslie G. Valiant

TECHNION, ISRAEL

B.A., *Summa cum laude* in Mathematics, 1981.

AWARDS AND HONORS

Fellow, the Association for Computing Machinery (ACM), 2011.

University Scholar, the University of Illinois, 2010–.

Best student paper award, 11th Conference on Natural Language Learning, 2011. Title: Adapting Text instead of the Model: An Open Domain Approach.”

Best paper award, 27th Army Science Conference, 2010. Title: Comprehensive Trust Metrics for Information Networks.”

Fellow, the Association for the Advancement of Artificial Intelligence (AAAI), 2009–.

Lady Davis Visiting Professorship, Technion- Israel Institute of Technology, 2006-2007.

University of Illinois Award for Excellence in Guiding Undergraduate Research, Honorable Mention, 2006.

1st place, software system competition for Semantic Role Labeling (Semantic Parsing). Run by the Conference on Natural Language Learning (CoNLL), June 2005 (out of 19 systems).

Xerox Award for Faculty Research (Senior Faculty), 2005.

Willett Faculty Scholar Award, University of Illinois, 2002 —.

University of Illinois Award for Excellence in Guiding Undergraduate Research, Honorable Mention, 2002.

Fellow at the Center of Advanced Studies, University of Illinois, 2001-2002.

Incomplete List of Teachers Ranked as Excellent by Their Students, UIUC, Spring 2001.

Xerox Award for Faculty Research (Junior Faculty), 2001.

American Association of Artificial Intelligence, Innovative Applications of AI Award, 2001 (with an IAAI paper award, “Scaling Up Context Sensitive Text Correction”).

C. W. Gear Outstanding Junior Faculty Award, Computer Science Dept., UIUC, 2000.

NSF Career Award, 2000.

Best paper award, IJCAI’99, the 16th International Joint Conference on Artificial Intelligence. Title: “Learning in Natural Language”.

IBM Faculty Equipment Award, 1999.

The Feldman Foundation Postdoctoral Fellowship, 1995–1996.

Nominee for ACM Best Dissertation Award, 1995

Harvard University, Derek Bok Excellence in Teaching Award, 1993.

Technion, Israel, Yuval Levi Award for Best Undergraduate Mathematics Student, 1980.

Technion President’s Fellowship 1979–1981.

INDUSTRIAL EXPERIENCE

Consultant, Machine Learning; Natural Language Processing; Information Extraction and Text Mining, 1994–Present.

Officer, Israeli Defense Forces, R&D Unit, 1981–1990. Last rank: Major.

Senior Researcher and Project Manager, Israeli Defense Forces, R&D Unit, 1988–1990.
Managed a R&D project in intelligent real-time systems.

Software Manager and Lead Designer, Israeli Defense Forces, R&D Unit, 1985–1988.

Researcher and Software Engineer, Israeli Defense Forces, R&D Unit, 1982–1985.

GRANTS

1. *Integrated Social History Environment for Research (ISHER) - Digging Into Social Unrest*, NSF (As part of an International NSF Challenge.) PI. 2012-2013, \$125,000.
2. *System for foresight and understanding from scientific exposition (FUSE)*, IARPA. PI, with a subcontract from SRI. 2011-2015, \$2,350,000.
3. *Knowing what to Believe: Trustworthiness of information*, Google Award. PI, 2010-2011, \$75,000.
4. *SHARPS, Strategic Health IT Advanced Research Projects on Security*, HHS. co-PI (Carl Gunter, PI). 2010-2014, \$3,000,000.
5. *Cyber Analytics*. Boeing. PI, 2010-2012, \$300,000.
6. *MIAS, Multimodal Information Access and Synthesis*, a partner in CCICADA, a DHS Center of Excellence on Advanced Data Analytics. PI and Center Director. 2009-2014, \$2,000,000.
7. *INARC, Multimodal Information Network Academic Research Center*, ARL. co-PI (Jiawei Han, PI). 2009-2014, \$3,000,000.
8. *A Universal Machine Reading System*, DARPA. PI, with a subcontract from SRI. 2009-2014, \$2,400,000.
9. *Guiding Learning and Decision Making in the Presence of Multiple Forms of Information*, ONR Award. PI, with Gerald DeJong. 2009-2012. \$1,300,000.
10. *The Assess-As-You-Go Writing Assistant*, Department of Education Award. co-PI, with William Cope, 2009-2012, \$1,500,000.
11. *A Writing Assistant*, An Award from the Grainger Program in Emerging Technologies. PI. 2009-2010. \$100,000.
12. *Microsoft Research Research Gift*, Microsoft Research. PI, 2008, \$10,000.
13. *The Universal Parallel Computing Research Center*, Microsoft & Intel. On of 18 co-PIs, 2008-, \$18,000,000.
14. *Meta-Data Annotation and Data Integration*, Library of Congress. PI of Subcontract from GSLIS. 2008-2009, \$143,000.
15. *NSF REU (research experience for undergraduates)*. 2008, \$12,000. Supports 2 undergraduate students as a supplement to NSF Science of Design Grant titled "Learning Based Programming."
16. *Free-speech command classification for Car Navigation Systems*, Honda Research Lab. PI. . 2007-2008, \$60,000.
17. *Populating Ontologies: Named Entities and Relations.*, Lawrence Livermore National Lab PI. 2007, \$100,000.
18. *MIAS, Multimodal Information Access and Synthesis*, A DHS Institute of Discrete Institute Center. PI and Center Director. 2007-2009, \$2,400,000.
19. *PLATO: Phased Learning Using Active Thought & Observation: Bootstrap Learning*, DARPA. PI, with a subcontract from SRI. 2007-2010, \$1,431,000.

20. *Verb Learning and the Early Development of Sentence Comprehension*, NIH Award. 2007-2012, co-PI with Cynthia Fisher. \$1,331,821.
21. *Learning Based Programming*, NSF Science of Design Award, 2006-2009, \$471,000.
22. *Textual Entailment*, Google Award. PI, 2006-2007, \$50,000.
23. *Verb Learning and The Early Development of Sentence Comprehension: Experimental and Computational Studies*, NSF Award, 2006-2009, co-PI with Cynthia Fisher. \$391,000.
24. *NSF REU (research experience for undergraduates)*. 2006-2008, \$49,000. Supports 2 undergraduate students as a supplement to NSF Grant titled "Natural Language Technology for Guided Study of Bioinformatics."
25. *Focused Textual Entailment*. Boeing. PI, 2006-2009, \$200,000.
26. *Machine Learning for Security: Digital Guards for Insider Threat Detection*. Boeing. PI, 2005-2007, \$170,000.
27. *Learning by Reading*. Seedling funding from DARPA via a subcontract from SRI. PI. 2005-2006, \$105,000.
28. *Natural Language Technology for Guided Study of Bioinformatics*. NSF ITR. PI with S. Cooper, D. Litman, J. Pellegrino, S. Goldman, S. Rodriguez-Zas and C. Zhai as co-PIs. 2004-2007, \$1,025,000.
29. *Automated Methods for Second-Language Fluency Assessment*, A Critical Research Initiative (CRI) grant, UIUC Research Board. co-PI, with Richard Sproat, Chilin Shih, Mark Hasegawa-Johnson, Brian Ross, Kate Bock, 2005-2006, \$70,000.
30. *Reflex: Named Entity Recognition and Transliteration for 50 Languages*. Department of Interior, the REFLEX Program. co-PI with Richard Sproat, Abbas Benmamoun and Chengxiang Zhai (UIUC). 2004-2006, \$378,000.
31. *Kindle: Knowledge and Inference via Description Logics for Natural Language*. ARDA, the AQUAINT Program. PI with U. of Pennsylvania (Martha Palmer) as a subcontract. 2004-2006, \$700,000.
32. *Cross-Document Entity Identification & Tracing*. ONR, via the TRECC and the NCASSR Programs. PI, along with the ALG group at NCSA. 2004-2005, \$280,000.
33. *Business Intelligence Systems*. Motorola. PI, in a collaboration with NCSA. 2004-2006, \$200,000.
34. *NSF REU (research experience for undergraduates)*. 2003-2004, \$20,000. Supports 2 undergraduate students as a supplement to NSF Grant titled "Learning Coherent Concepts: Theory and Applications to Natural Language".
35. *Programming Environments and Applications for Clusters and Grids*, National Science Foundation CISE Research Resources program. S. V. Adve (PI), W. W. Hwu, L. Kale, D. Padua, S. Patel, V. S. Adve, S. Lumetta, D. Roth, M. Snir, and J. Torrellas. 2002-2004, \$120,000 (additional \$60,000 matched by UIUC).
36. *Multimodal Human Computer Interaction: Toward a Proactive Computer*. NSF ITR. co-PI with T. Huang, D. Brown, D. Kriegman, S. Levinson, G. W. McConkie. 2000-2005, \$3,152,068.

37. *From Bits to Information: Statistical Learning Technologies for Digital Information Management and Search*. NSF ITR, co-PI with a MIT team, 2000-2003, \$2,039,989. PI of subcontract from MIT, \$321,000.
38. *Learning Coherent Concepts: Theory and Applications to Natural Language*, NSF Career Award, 2000-2003, \$300,000.
39. *Decision Making Under Uncertainty*, ONR, MURI Award. \$4,730,000. Co-PI with a UCLA-UCI team. PI of a subcontract from UCLA, 2000-2004, \$541,000.
40. *Context-Sensitive Natural Language Inferences*, IBM Equipment Award, 2000, \$100,000.
41. *The Role of Experience in Natural Language*, NSF (KDI/LIS), co-PI with G. Dell, K. Bock, J. Cole, C. Fisher, S. Garnsey, A. Goldberg, and S. Levinson. 1999-2001, \$600,000.
42. *NSF REU (research experience for undergraduates)* grant. 1999-2000, \$12,000. Supports 2 undergraduate students as a supplement to NSF Grant titled "Learning to Perform Knowledge Intensive Inferences".
43. *Learning to Perform Knowledge Intensive Inferences*, NSF, 1998-2000, \$255,000.
44. *Learning and Inference in Natural Language*, UIUC Research Board, May 1998, \$25,000.
45. *Learning Common Sense Knowledge Base to Support Information Extraction and Retrieval*, Israeli Ministry of Science and the Arts, PI, with S. Edelman, 1996, \$32,000.

PATENTS

US Patent 5,907,839, "*An algorithm for learning to correct context-sensitive spelling errors.*" Granted, May 1999.

US Patent 5,956,739, "*System for text correction adaptive to the text being corrected,*" Granted, Sept. 1999.

SOFTWARE

Learning Based Java (LBJ): A modeling language that expedites the development of systems with one or more learning components, along with Constrained Optimization inference.

SNoW: A Learning Architecture tailored for learning in the presence of a very large number of features. (<http://cogcomp.cs.illinois.edu/page/software>)

FEX: A relational feature extractor for the generation of intermediate knowledge representations for large scale learning. (<http://cogcomp.cs.illinois.edu/page/software>)

Learning in NLP: Learning based natural language processing tools. Software includes: Context Sensitive Text Correction, Shallow Parsing, Part of Speech tagger, A Semantic Parser and other basic tools. Includes an interactive Web demonstration.

(<http://cogcomp.cs.illinois.edu/page/demos>)

Information Extraction Tools: Basic Machine Learning Tools for Information Extraction. Includes: Named Entity Recognition Package, an Interactive Training Tool for Information Extraction etc. Includes an interactive Web demonstration.

(<http://cogcomp.cs.illinois.edu/page/demos>)

Question Answering: Machine Learning components for supporting intelligent information extraction and open domain question answering. Includes an interactive Web demonstration. (<http://L2R.cs.uiuc.edu/~cogcomp/>)

Semantic Role Labeling (Semantic Parsing): A Machine Learning based package that provides a shallow semantic analysis of sentences (E.g., Who did What to Whom, When, When, How). An interactive Web demonstration is available at: (<http://cogcomp.cs.illinois.edu/page/demos>). The system was the top system at the Shared Task competition (out of 19 systems) run by the Conference of Natural Language Learning (CoNLL), June 2005.

PROFESSIONAL ACTIVITIES

PROGRAM CHAIR:

The Conference of the Association of Artificial Intelligence 2011 (AAAI 2011), San Francisco, CA., August 2011.

41st Annual Meeting of the Association for Computational Linguistics (ACL 2003), Sapporo, Japan, July 2003.

Sixth conference on Natural Language Learning (CoNLL'02), Taipei, Taiwan, Aug. 2002.

EDITORIAL BOARDS:

Journal of Artificial Intelligence Research (JAIR): Associate Editor, 2006–2010. (Editorial Board 2004-2005.)

International Journal Machine Learning and Cybernetics (IJMLC): Advisory Board, 2010–.

Machine Learning Journal: Associate (Action) Editor, 2004–2011. (Editorial Board: 2001-2004; 2012-)

Computational Intelligence, 2003–2010.

Computational Linguistics, 2000-2003.

TALIP, ACM Transactions on Asian Language Information Processing, 2003-2005.

EDITOR

Special Issue of the Machine Learning Journal on “Learning Semantics” 2012, Editor.

Special Issue of the Natural Language Engineering Journal on “Textual Entailment”, Summer 2009, Editor.

Special Issue of the Machine Learning Journal on “Machine Learning in Speech and Natural Language”, Winter 2005, Editor.

Special Issue of the Computational Linguistics Journal on “Semantic Role Labeling”, Winter 2006, Program Committee.

Special Issue of the *Linguisticae Investigationes* Journal on “Named Entities”, Fall 2007, Program Committee.

REVIEW BOARDS

Part of a National Review committee for the Statistics Department at Purdue University, 2010.

STEERING/ADVISORY COMMITTEES:

Association of Computational Linguistics, Special Interest Group on Natural Language Learning, 2007–.

IEEE SMC Technical Committee on Cognitive Computing 2007–.

NIST Advisory Committee on Recognizing Textual Entailment 2008–.

PRESIDENT (ELECTED):

Association of Computational Linguistics, Special Interest Group on Natural Language Learning, 2003–2005.

SECRETARY:

Association of Computational Linguistics, Special Interest Group on Natural Language Learning, 2002–2003.

PROGRAM COMMITTEES:

ACL The International Conference of the Association on Computational Linguistics 2000, 2001, 2002, 2003 (Program Chair), 2004, 2005, 2007 (Senior Program Committee Member), 2010, 2012.

ALT The International Conference on Algorithmic Learning Theory (ALT) 2001.

AAAI, The Conference of the American Association for Artificial Intelligence, 1996, 1998, 1999, 2000, 2002 (Senior Program Committee Member), 2006 (Senior Program Committee Member), 2008 (Senior Program Committee Member), 2011 (Program Chair), 2012 (Senior Program Committee Member).

SBIA The Brazilian International Symposium on Artificial Intelligence 2008.

BISFAI The Biennial Bar-Ilan International Symposium on the Foundations of Artificial Intelligence 2001, 2005.

COLT The Annual Conference on Learning Theory (COLT), 1998, 2005, 2006.

CoNLL The ACL conference on Natural Language Learning 2001, 2002 (Program Chair), 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012.

COLING The International Conference on Computational Linguistics, 2008 (Area Chair).

EMNLP The ACL Conference on Empirical Methods in Natural Language, 2005 (Area Chair), 2007, 2009, 2010, 2012.

EACL The European Conference on Computational Linguistics, 2009, 2012.

ICALP The International Colloquium on Automata, Languages and Programming, 1999.

ICML, The International Conference on Machine Learning, 2000, 2001, 2002, 2003 (Area Chair), 2005, 2006 (Area Chair), 2008, 2009 (Area Chair), 2010 (Area Chair), 2012

IJCAI The International Joint Conference on Artificial Intelligence, 2003 (Poster Committee), 2009 (Senior Program Committee; IJCAI advisory board).

ILP The International Conference on Inductive Logic Programming, 2002, 2003, 2004.

KR The International Conference on Principles of Knowledge Representation and Reasoning (2000).

NAACL, The North American Conference on Computational Linguistics 2000, 2001, 2004, 2009, 2010 (Area Chair), 2012.

NIPS, The Neural Information Processing Systems Conference (reviewer) 2002, 2003, 2004, 2005, 2006, 2011.

Workshops:Served on committees of numerous ICML, AAAI, NIPS, ACL and EACL collocated workshops, as well as committees of AAAI and IJCAI Symposia on various topics. A selected subset in recent years include:

EACL-2012 Workshop on Computational Models of Language Acquisition (Cognitive 2012).

ACL-2012 Workshop on the Innovative Use of NLP for Building Educational Applications.

ACL-2011 Workshop on the Innovative Use of NLP for Building Educational Applications.

NAACL-HLT-2010 Workshop on Active Learning for NLP.

NAACL-HLT-2010 Workshop on Innovative Use of NLP for Building Educational Applications.

NAACL-HLT-2010 Workshop on Semantic Search.

ACL-2009 Workshop on Named Entities and Transliteration, 2009.

NSF Sponsored symposium on Semantic Knowledge Discovery, Organization and Use, 2008.

AAAI Workshop on Natural Language Processing and Wikipedia, 2008.

TUTORIALS & COURSES:

Director of the Data Science Summer Institute (DSSI) 2007, 2008, 2010, 2011, 2012. A six weeks long summer school on the foundations and practice of Data Science, UIUC.

Data Science Summer Institute (DSSI) 2007, 2008, 2010, 2011, 2012. A tutorial on Machine Learning in Natural Language Processing.

NAACL'12, The North American Conference of the Association on Computational Linguistics. A Tutorial on *Constrained Conditional Models: Structured Predictions in NLP*.

NAACL'10, The North American Conference of the Association on Computational Linguistics. A Tutorial on *Integer Linear Programming Methods in NLP*.

Reconnect 2010, DHS funded course on Information Extraction, University of Southern California, June 2010.

NASSLLI 2010, Program committee for the North American Summer School in Logic, Language and Information.

EACL'09, The European Conference of the Association on Computational Linguistics. A Tutorial on *Constrained Conditional Models*.

ACL'07, The International Conference of the Association on Computational Linguistics. A Tutorial on *Textual Entailment*.

University of Barcelona, March 2004. An invited Ph.D. course on *Machine Learning and Inference in Natural Language Processing*.

ESSLLI 2001, 13th European Summer School in Logic, Language and Information, Helsinki, Finland, Aug. 2001. Advanced course on *Machine Learning: Theory and Application in Natural Language Processing*.

ORGANIZATION:

Program Co-Chair, The Conference of the Association of Artificial Intelligence 2011 (AAAI 2011), San Francisco, CA. August 2011.

Co-Organizer, A joint ACL-ICML-ICSA Symposium on Machine Learning in Natural Language and Speech, Redmond, WA, June 2011.

Program Co-Chair, The 41st *Annual Meeting of the Association for Computational Linguistics (ACL 2003)*.

Program Co-Chair, The Sixth *Conference on Natural Language Learning (CoNLL-2002)*.

Workshops: Organized and co-chaired a large number of workshops collocated with major conferences. A selected subset includes:

An NAACL-2012 Workshop on “From Words to Actions”: Semantic Interpretation in an Actionable Context”.

Co-Organizer and Chair, *Advanced Tutorial/Workshop on Learning DNF Rules*. Held in conjunction with the Eleventh International Conference on Machine Learning (ML94) and the Seventh Annual Conference on Computational Learning Theory (COLT 94).

NSF PANELS:

CISE/DCA, 1997.

Learning and Intelligent Systems, Principal Investigators Conference, May 1999.

Review panel for NSF-CAREER proposals, 2000, 2001, 2002.

ITR PI meeting, Jan. 2001. National Academy of Science, Cambridge MA.

CDI Panel, 2009.

NSF review workshop on the Penn Discourse Tree Bank, chair of review committee, April 2012.

Various NSF proposal review panels.

ONR MEETINGS:

Multi-University Research Initiative, Principal Investigators Conference, 2000, 2001, 2002, 2003, 2004, 2008

ARDA/IARPA MEETINGS:

IARPA FUSE meetings, 2011, 2012

IARPA planning meeting: Information Extraction, NLP and Machine Learning, 2008.

AQUAINT Program meetings and Symposia, Principal Investigators Conference, 2004, 2005.

DARPA MEETINGS:

DARPA planning meetings and panels. 2005, 2006, 2008, 2009, 2010, 2011.

DEPARTMENT OF HOMELAND SECURITY MEETINGS:

Presentations at multiple Science & Technology division meetings, 2006, 2007, 2008, 2009, 2010, 2011, 2012.

REVIEW:

An International Review Panel, China-Singapore Institute of Digital Media, 2011–Present

Reviewer for the Israeli National Academy of Science, 1998, 2000, 2002, 2008, 2010.

Reviewer for the Netherlands Organization for Scientific Research (NWO), 2008.

Reviewer for NSF-CAREER proposals, 2000, 2001, 2002, 2005.

Reviewer for Army Research Lab (ARL) 2012.

European Union Grant Proposals, 2004, 2005.

Reviewer for NSF-EPSCoR proposal, 1999.

CONFERENCE REVIEWER: ACL, the Annual Meeting of the Association for Computational Linguistics; COLING, the International Conference on Computational Linguistics, ACM Conference on Computational Learning Theory (COLT); Neural Information Processing Systems (NIPS); The European Conference on Computational Learning Theory; The ACM Symposium on the Theory of Computing (STOC); The IEEE Symposium on the Foundations of Computer Science (FOCS); the International Joint Conference on Artificial Intelligence (IJCAI); Uncertainty in Artificial Intelligence (UAI).

JOURNAL REVIEWER: *Artificial Intelligence*; *Annals of Mathematics and AI*; *Computational Linguistics*; *Distributed Computing*; *IEEE Transactions on Neural Networks*; *IEEE Transactions on Knowledge and Data Engineering*; *IEEE Transactions on Pattern Analysis and Machine Intelligence*; *Information and Computation*; *Journal of Artificial Intelligence Research*; *Journal of Machine Learning Research*; *Machine Learning*; *Natural Language Engineering*; *SIAM Journal of Computing*; *The Journal of Logic Programming*; *The Constraints Journal*, *Theoretical Computer Science*.

KEYNOTE & INVITED TALKS IN INTERNATIONAL MEETINGS AND CONFERENCES

The Annual Italian Operation Research Meeting (AIRO 2012), September 2012. A keynote speech *TBD*

Semantic Representation and Inference, A Workshop sponsored by the NSF and the Stanford Center for Language and Information (CLSI), Stanford, CA, March 2012. *Constrained Conditional Models for Natural Language Understanding*

National Academy of Science Workshop on Alerts and Warnings using Social Media, Irvine, CA, February 2012. *Trustworthiness of Information: Can you believe what you read?*

NIPS'11, Workshop on Domain Adaptation, Granada, Spain, December 2011. *Adaptation without Retraining*.

IJCAI'11, Workshop on Agents Learning Interactively from Human Teachers, Barcelona, Spain, July 2011. *Learning from Natural Instructions*.

National University of Singapore, Department of Computer Science, Distinguished Lecture Series, Jun. 2011, *Constraints Driven Structured Learning with Indirect Supervision*.

The Dagstuhl Seminar on “Constraint Programming meets Machine Learning and Data Mining.” May 2011. The international Center for Computer Science in Schloss Dagstuhl, Germany. *Integer Linear Programming for NLP and Constraints Driven Structured Learning*.

University of Maryland at College Park, Workshop on Multimedia Analytics, the Visual Analytics Community Consortium, May 2011. *Data Science: Challenges, Opportunities and Some Solutions*.

University of Pennsylvania, Department of Computer Science, Distinguished Lecture series., Nov. 2010. *Constraints Driven Structured Learning with Indirect Supervision*.

Microsoft Research Lab., Beijing, China August 2010, *Constraints Driven Structured Learning with Indirect Supervision*.

ACL-2010 The Named Entities Workshop, July 2010, Uppsala, Sweden. *Constraints Driven Structured Learning with Indirect Supervision*.

ICML-2010 Workshop on Budgeted Machine Learning, June 2010, Haifa, Israel. *Constraints Driven Structured Learning with Indirect Supervision*.

DARPA Meeting on Machine Reading, St. Petersburg, FL., April, 2010. *Constraints Driven Structured Learning with Indirect Supervision*.

University of Saarland and Max Planck Institute, Saarland, Germany, January, 2010. *Constrained Conditional Models: Learning and Inference for Natural Language Understanding*.

NATO Advanced Workshop on Web Intelligence and Security, Dead Sea, Israel, November 2009. *Title: Making Sense of Unstructured Textual Data*.

University of Pittsburgh, Department of Computer Science, Distinguished Lecture series., Oct. 2009. *Constrained Conditional Models: Learning and Inference for Natural Language Understanding*.

Integer Linear Programming for Natural Language Processing, June 2009. Workshop co-located with HLT-NAACL 2009. *Title: Constrained Conditional Models: Learning and Inference for Natural Language Understanding*.

International Conference on Machine Learning and Applications (ICMLA), San Diego, California. Keynote speaker. Dec. 2008. *Title: Constrained Conditional Models: Learning and Inference for Natural Language Understanding*.

Discovering Opportunities for Information Extraction in Digital Government , An NSF Sponsored Joint US-China meeting, UCS/ISI, Los Angeles, California. Sept. 2008. *Title: Constraints as Prior Knowledge for Information Extraction*.

Kauffman Foundation's Meeting on Global Development, Information Technology, and the Frontiers of Knowledge. Organized by the Cline Center for Democracy, Chicago, IL. April 2008. *Title: Machine Learning and Natural Language Processing for Information Access and Extraction.*

NATO workshop on Security, Informatics and Terrorism Ben-Gurion University, Beer-Sheva, Israel, June 2007. *Title: Semantic Abstraction and Integration across Text Documents and Data Bases.*

IBM Haifa Research Lab (HRL) Annual seminar on Machine Learning Haifa, Israel, June 2007. *Title: Global Learning and Inference with Constraints.*

DIMACS-ONR workshop on Data Analysis, Rutgers University, NJ, April 2007. *Title: Global Learning and Inference with Constraints.*

A Workshop on Machine Learning in Natural Language Processing CRI, The Caesarea Rothchild Institute at the University of Haifa, Haifa, Israel, December 2006. *Title: Global Inference and Learning: Towards Natural Language Understanding.*

AAAI-06, The Conference of the American Association of Artificial Intelligence, Boston, MA., July 2006. *Title: Global Inference and Learning: Towards Natural Language Understanding.*

Computationally Hard Problems and Joint Inference in Speech and Language, New York, NY., June 2006 (Workshop co-located with HLT-NAACL 2006). *Title: Global Inference in Learning for Natural Language Processing.*

AAAI-05 Sister Conference Highlights, Pittsburgh, Pennsylvania, July 2005. *Trends in Natural Language Research.* Representing The Association of Computational Linguistics (ACL) in the AAI-05 Sister Conference.

Empirical Modeling of Semantic Equivalence and Entailment, Ann Arbor, Michigan, June 2005 (Workshop co-located with ACL-2005). *Knowledge Representation and Inference Models for Textual Entailment.*

The Learning Workshop, Snowbird, Utah, April 2005. *An Inference Model for Semantic Entailment in Natural Language.*

The Dagstuhl Seminar on Probabilistic, Logical and Relational Learning - Towards a Synthesis. Jan. 2005. The international Center for Computer Science in Schloss Dagstuhl, Germany. *Knowledge Representations, Learning and Inference for Natural Language Understanding.*

ISCOL'04 The Israeli Annual Symposium on Computational Linguistics, Bar Ilan University, Israel, Dec. 2004. *Learning and Inference with Structured Representations.*

BIC'04 International Workshop on Biologically Inspired Computing, Tohoku University, Sendai, Japan. Nov. 2004. *Learning and Inference in Natural Language: from Stand Alone Learning Tasks to Structured Representations.*

CSLI, Stanford University. A Symposium on Reasoning and Learning in Cognitive Systems, Stanford, March 2004. *Learning and Inference with Structured Representations.*

Haifa Winter Workshop on Computer Science and Statistics, The Caesarea Edmond Benjamin de Rothschild Foundation Institute for Interdisciplinary Applications of Computer

Science, international workshop on Computer Science and Statistics. Dec. 2003, Haifa, Israel. *Learning and Optimization in Natural Language*.

University of Pennsylvania, Department of Computer Science, Distinguished Lecture series., Nov. 2003. *Learning and Reasoning in Natural Language*.

QA Workshop. An international workshop on Question Answering and Text Summarization (held in conjunction with ACL'03) Sapporo, Japan, July 2003. *Inference with Classifiers*.

ECML'02 and PKDD'02. The 13th European Conference on Machine Learning (ECML'02) and the 6th European Conference on Principles and Practice of Knowledge Discovery in Databases (PKDD'02). Helsinki, Aug. 2002. *Inference with Classifiers*.

EMNLP'02. The 2002 Conference on Empirical Methods in Natural Language Processing. Philadelphia, July, 2002. *Learning and Inference in Natural Language*.

The UIC Informatics Visiting Speaker Program, University of Illinois in Chicago. May 2002. *Learning and Inference in Natural Language*.

The Learning Workshop, Snowbird, Utah, April 2002. *On Generalization Bounds, Projection Profile and Margin Distribution*.

The University of Illinois Symposium on Bioinformatics in Medicine and Biology University of Illinois at Chicago, April, 2002. *Gene Recognition based on DAG Shortest Paths: NLP methods in Bioinformatics*.

Haifa Winter Workshop on Computer Science and Statistics, The Cesarea Edmond Benjamin de Rothschild Foundation Institute for Interdisciplinary Applications of Computer Science, international workshop on Computer Science and Statistics. Dec. 2001, Haifa, Israel. *Understanding Probabilistic Classifiers*.

LLL'01 and ILP'01, Third Learning Language in Logic Workshop and Eleventh International Conference on Inductive Logic Programming (Joint Session). Strasbourg, France. Sept. 2001. *Natural Language Learning: Relational Learning via Propositional Algorithms*.

University of Michigan, Computation, Language, and Information series. Nov. 2000. *Learning in Natural Language: Theory and Algorithmic Approaches*.

CoNLL-2000, Fourth Computational Natural Language Learning Workshop, Sep. 2000, Lisbon, Portugal. *Learning in Natural Language: Theory and Algorithmic Approaches*.

ICML-2000 Workshop on Machine Learning from Sequential and Temporal Data July 2000, Stanford, CA. *Inferring Phrase Structure*.

SOFSEM 99, XXVI-th Seminar on Current Trends in Theory and Practice of Informatics, Nov. 1999, Czech Republic. *Toward a theory of learning coherent concepts*.

DIMACS, The Center for Discrete Mathematics and Theoretical Computer Science, June 98, Rutgers University, NJ. *On the characteristic models of Boolean functions*.

NM'98, *The 7th International Workshop on Nonmonotonic Reasoning*, May 1998, Trento, Italy. *Learning to Make Nonmonotonic Inferences*.

AIMA'97, *The 5th International Symposium on Artificial Intelligence and Mathematics*, Jan. 1998, Fort Lauderdale, FL. Invited session on Boolean functions. *On the characteristic models of Boolean functions*.

MFCS'97, *The 22nd International Symposium on Mathematical Foundations of Computer Science*, Aug. 1997, Slovakia. *Learning to perform knowledge-intensive inferences.*

M3D'97, *Mathematical Techniques to Mine Massive Data Sets*, An NSF Sponsored Tutorial Workshop, July, 1997, University of Illinois, Chicago, IL. *Learning and Managing Knowledge in Large Scale Natural Language Inferences.*

The Dagstuhl Seminar on *Theory and Practice of Machine Learning*. Jan. 1997. The international Center for Computer Science in Schloss Dagstuhl, Germany. *Learning to perform knowledge-intensive inferences.*

SOFSEM 96, XXIII-rd Seminar on Current Trends in Theory and Practice of Informatics, Nov. 1996, Czech Republic. *Learning in Order to Reason.*

AAAI 96 Fall Symposium on Learning Complex Behaviors in Adaptive Intelligent Systems, Nov. 1996, Cambridge MA. *Topics in Learning to Reason.*

OTHER INVITED TALKS (COLLOQUIA TALKS)

University of Illinois Technology Showcase, Champaign, IL, April 2012. *Making Sense of Unstructured Data.*

Illinois Informatics Institute Lecture Series, Champaign, IL, March 2012. *Making Sense of Unstructured Data.*

University of Colorado, Boulder, CO, March 2012. *Learning from Natural Instructions.*

Princeton Plasma Physics Laboratory, Princeton, NJ, February 2012 *Learning and Reasoning for Natural Language Understanding.*

Bar-Ilan University, Ramat Gan, Israel, Dec. 2011. *Learning from Natural Instructions.*

Technion, Israeli Institute of Technology, Haifa, Israel, Dec. 2011. *Learning from Natural Instructions.*

University of Toronto, Computer Science Department, Toronto, Canada, Sept. 2011. *Learning from Natural Instructions.*

Microsoft Research, Redmond, WA., June 2011. *Constraints Driven Learning for Natural Language Understanding.*

Microsoft Research, Cambridge, MA., December 2010. *Constraints Driven Learning with Indirect Supervision.*

Vulcan Labs., Seattle, WA., December 2010. *Constraints Driven Learning.*

Boeing, Bellevue, WA., December 2010. *Constraints Driven Learning.*

IBM Research, White Planes, NY., Sept. 2010. *Constraints Driven Structured Learning with Indirect Supervision.*

Carnegie Mellon University, Language Technology Institute, Pittsburgh, Pennsylvania, Apr. 2010. *Constraints Driven Structured Learning with Indirect Supervision.*

University of Illinois at Urbana/Champaign, Linguistics Department, Urbana, IL, Apr. 2010. *Constrained Conditional Models: Learning and Inference for Natural Language Understanding.*

Hebrew University of Jerusalem, Jerusalem, Israel, Nov. 2009. *Constrained Conditional Models: Learning and Inference for Natural Language Understanding.*

Toyota Technical Institute (TTI), University of Chicago, IL, Sept. 2009. *Constrained Conditional Models: Learning and Inference for Natural Language Understanding.*

The university of Maryland at College Park, Apr. 2009. *Title: Constrained Conditional Models: Learning and Inference for Natural Language Understanding.*

Brigham Young University, Utah, Feb. 2009. *Title: Constrained Conditional Models: Learning and Inference for Natural Language Understanding.*

The University of Tilburg, Tilburg, The Netherlands, Feb. 2009. *Title: Constrained Conditional Models: Learning and Inference for Natural Language Understanding.*

The University of Amsterdam, Amsterdam, The Netherlands, Feb. 2009. *Title: Constrained Conditional Models: Learning and Inference for Natural Language Understanding.*

The University of Illinois at Urbana/Champaign, Computer Science Department, Urbana, IL, Jan. 2009. *Title: Constrained Conditional Models: Learning and Inference for Natural Language Understanding.*

Accenture Research Group, Chicago, IL, Nov. 2008. *Title: Constrained Conditional Models: Learning and Inference for Natural Language Understanding.*

University of Edinburgh, Edinburgh, United Kingdom, February 2008. *Title: Constrained Conditional Models for Global Learning and Inference.*

University of California, Irvine, CA, January 2008. *Title: Global Inference and Learning: Towards Natural Language Understanding.*

The Director's Seminar. The Beckman Institute of Advance Science and Technology, University of Illinois at Urbana-Champaign, Urbana, IL, Nov. 2007. *Title: Natural Language Processing via Global Inference and Learning.*

University of Washington, Seattle, WA, April 2007. *Title: Global Inference and Learning: Towards Natural Language Understanding.*

Bar-Ilan University, Ramat Gan, Israel, Jan. 2007. *Title: Global Inference and Learning.*

Technion, Israeli Institute of Technology, Haifa, Israel, Dec. 2006. *Title: Global Inference and Learning: Towards Natural Language Understanding.*

Lawrence Livermore National Laboratory, Livermore, CA, October 2006. *MIAS: Multimodal Information Access and Synthesis.*

Thompson Legal & Regulatory , St. Paul, MN, May 2006. *Learning and Inference for Natural Language Processing and Intelligent Access to Information.*

Massachusetts Institute of Technology, MA, Apr. 2006. *Global Inference in Learning for Natural Language Processing.*

Boeing, Bellevue, WA, Dec. 2005. *Learning and Inference in Natural Language Processing and Intelligent Information Access.*

Cornell University, NY, Dec. 2005. *Global Inference in Learning for Natural Language Processing.*

University of Texas at Austin, TX, Nov. 2005. *Global Inference in Learning for Natural Language Processing*.

Brown University, RI, August 2005. *Global Inference in Learning for Natural Language Processing*.

Lawrence Livermore National Laboratory, Livermore, CA, August 2005. *Learning and Inference in Natural Language Processing and Intelligent Information Access*.

Yahoo!, Sunnyvale, CA. August 2005. *Learning and Inference in Natural Language Processing and Intelligent Information Access*.

Institute for Theoretical Computer Science, Technische Universitt Graz, Austria. Feb. 2005. *Learning and Inference in Natural Language: from Stand Alone Learning Tasks to Structured Representations*.

Haifa University, Haifa, Israel. Dec. 2004. *Learning and Inference with Structured Representations*.

Tokyo University, Tokyo, Japan. Nov. 2004. *Learning and Inference with Structured Representations*.

Universitat Pompeu Fabra, Barcelona, Spain. March 2004. *Learning and Inference with Structured Representations*.

Indian Institute of Technology (IIT) New Delhi, India. February 2004. *Learning and Inference in Natural Language*.

IBM Research Lab, New Delhi, India. February 2004. *Learning and Inference in Natural Language*.

Stanford University. March 2003. *Learning and Inference in Natural Language*.

ISI/USC. March 2003. *Learning and Inference in Natural Language*.

IBM Research, Almaden, CA., March 2003. *Learning and Inference in Natural Language*.

Google, Mountain View, CA., March 2003. *Learning and Inference in Natural Language*.

NIST, National Institute of Standards and Technology. Nov. 2002. *Reasoning with Classifiers: Theory and Application with Natural Language*.

IBM Research, White Planes, NY., Jun. 2002. *Learning and Inference in Natural Language*.

University of Alberta, Edmonton, Canada, Department of Computer Science Colloquium, Apr. 2002. *Natural Language Learning: Relational Learning via Propositional Algorithms*.

Ohio State University, OH., Department of Computer Science Colloquium, Apr. 2001. *Learning in Natural Language. Theory and Algorithmic Approaches*.

Technion, Israel, Department of Computer Science Colloquium, Dec. 2000. *Inference with Classifiers*.

IBM Research, White Planes, NY., Oct. 2000. *Context Sensitive Inferences*.

Department of Computer Science, University of Colorado at Boulder, Apr., 2000. *Learning in Natural Language*.

Department of Mathematics and Computer Science, Bar Ilan University, Israel. Dec., 1999. *Learning in Natural Language*.

Information Technology Research Institute (ITRI), University of Brighton, Brighton, UK. Dec., 1999. *Learning in Natural Language*.

Division of Informatics, University of Edinburgh, Edinburgh, UK. Dec., 1999. *Learning in Natural Language*.

Division of Engineering and Applied Science, Harvard University. Nov., 1999. *A learning centered approach to knowledge-intensive inferences*.

IBM Research, October, 1999. *A learning centered approach to knowledge-intensive inferences*.

Department of Mathematics and Computer Science, University of Waterloo, Canada, August, 1998 Title: *Learning and Managing Knowledge in Large Scale Natural Language Inferences*.

Department of Computer Science, Lucent Technologies, Bell Labs, May, 1997 Title: *Learning to perform knowledge-intensive inferences*.

Department of Computer Science, University of Illinois at Chicago, May, 1997 Title: *Learning to perform knowledge-intensive inferences*.

Department of Computer Science, University of Illinois at Urbana Champaign, May, 1997 Title: *Learning to perform knowledge-intensive inferences*.

Department of Computer Science, NEC Research institute, Princeton, April, 1997 Title: *Learning to perform knowledge-intensive inferences*.

Department of Computer Science, University of Pennsylvania, April, 1997 Title: *Learning to perform knowledge-intensive inferences*.

Department of Computer Science, Cornell University, April, 1997 Title: *Learning to perform knowledge-intensive inferences*.

Department of Computer Science, Ben Gurion University, Israel, March, 1997 Title: *Learning to perform knowledge-intensive inferences*.

Department of Computer Science, Tel Aviv Univ., Israel, June 1996 Title: *Learning to Correct Context-Sensitive Spelling Mistakes*.

Department of Computer Science, Technion, Israel, May 1996 Title: *Learning to Correct Context-Sensitive Spelling Mistakes*.

Department of Computer Science, Ben Gurion Univ., Israel, March 1996 Title: *Learning in Order to Reason*.

Israeli Symposium of Artificial Intelligence, February, 1996 Title: *Learning in Order to Reason*.

Department of Computer Science, Columbia Univ., NY, May 1995 Title: *Learning in Order to Reason*.

MIT, AI Lab, Cambridge MA., April 1995, Title: *Learning in Order to Reason*.

AT&T Bell Laboratories, Murray Hill, NJ, March, 1995. Title: *Learning in Order to Reason*.

NECI, Princeton, NJ, Feb. 1995 Title: *Learning in Order to Reason*.

Harvard's Society of Fellows, Dec 1994.

AT&T Bell Laboratories, Murray Hill, NJ, May, 1994. Title: *Reasoning with Models*.

Department of Computer Science, Rutgers University, April, 1994. Title: *Reasoning with Models*.

STUDENTS

Graduated 20 Ph.D Students, 18 M.S. students, and 15 undergraduate research assistants. Two undergraduate research assistants were nationally recognized by the Computing Research Association (CRA) with honorable mentions for the CRA Outstanding Undergraduate Award for undergraduate research, and one was the finalist for the Outstanding Undergraduate Award. Several of the undergraduate students went on to pursue Ph.Ds at MIT, Stanford and CMU. One undergraduate research assistant received the University of Illinois Undergraduate Employee of the Year Award (Honorable Mention).

LONG TERM VISITORS, POST-DOCS, RESEARCH FACULTY AND RESEARCH STAFF

1. Yuval Krymolowski, Bar Ilan University, Israel, 1999.
2. Chang-Hwan Lee, DongGuk Univ. Seoul, Korea, 2001 - 2002.
3. Xavier Carreras Prez, Universitat Politcnica de Catalunya, Spain, Spring 2002.
4. Charles La, CalTech, Summer 2003.
5. Roxana Girju, Visiting Research Assistant Professor, Aug. 2004 – Aug. 2005.
6. Fabio Aioli, Post-Doctoral Researcher, Nov. 2004 – May 2005.
7. Vasin Punyakanok, Post-Doctoral Researcher, Aug. 2005 – Aug 2006.
8. Mark Sammons, Research Programmer, Aug. 2004 – April 2007; Research Scientist, April 2007 – 2009; Principal Research Scientist, Nov. 2009 – Present.
9. Hiroya Takamura, Tokyo Institute of Technology, Visiting Assistant Professor, July 2006 – March 2007.
10. Sander Canisius, Tilburg University, The Netherlands, Sept. 2007 – Nov. 2007.
11. Adam Vogel, Research Programmer, March 2008 – September 2009.
12. Ivan Titov, Post-Doctoral Researcher, Feb. 2008 – September 2009.
13. James Clarke, Post-Doctoral Researcher, June 2008 – September 2010.
14. Shankar Vembu, Post-Doctoral Researcher, September 2009 – September 2010.
15. Joshua Gioji, Research Programmer, March 2009 – March 2012.
16. Yee Seng Chang, Post-Doctoral Researcher, November 2009 – November 2011.
17. Wei Lu, Post-Doctoral Researcher, October 2011 – Present.

UNIVERSITY SERVICE

Served on a large number of Departmental and College of Engineering Committees.
Key leaderships roles include:

- Chair of the Dept. of Computer Science Advisory Committee (elected), 2005–2010. Responsible, among other issues, for a five year evaluation of the department head.
- Chair of the Dept. of Computer Science Laboratory Assignment Committee, 2006.
- Chair of the Dept. of Computer Science Strategy Committee, 2005–2007.
- Area Chair for the Artificial Intelligence (9 faculty, around 60 graduate students).
- College of Engineering Dean’s Strategic Planning Advisory Group, 2002, 2003.
- College of Engineering Committee for fostering collaboration between CS and ECE, 2008.

Publications

JOURNAL ARTICLES

- [1] Q. Do and D. Roth, “Exploring the Wikipedia Structure in Local and Global Classification of Taxonomic Relations”. *Natural Language Engineering (NLE)*, 2012, To Appear.
- [2] M. Chang, L. Ratinov and D. Roth, “Structured Learning with Constrained Conditional Models”, Accepted for Publication in *Machine Learning*, 2011.
- [3] K. Small and D. Roth, “Margin-based active learning for structured predictions”, *International Journal of Machine Learning and Cybernetics (IJMLC)*, 1:3-25, 2010.
- [4] O. J. Mengshoel, D. Roth and D. Wilkins, “Initialization and Restart in Stochastic Local Search: Computing a Most Probable Explanation in Bayesian Networks”, *IEEE Transactions on Knowledge and Data Engineering*, 2010, To Appear.
- [5] O. J. Mengshoel, D. Roth and D. Wilkins, “Portfolios in Stochastic Local Search: Efficiently Computing Most Probable Explanations in Bayesian Networks”, *Journal of Automated Reasoning*, Vol. 46, Issue 2 (2011) pp. 103.
- [6] D. Roth and R. Samdani, “Learning Multi-Linear Representations”, *Machine Learning*, Volume 76, Issue 2, July 2009, pp. 195-209.
- [7] V. Punyakanok, D. Roth and W. Yih, “The Importance of Syntactic Parsing and Inference in Semantic Role Labeling”, *Computational Linguistics, Special Issue on Semantic Role Labeling*. Vol. 34 (2), June 2008.
- [8] E. Daya, D. Roth and S. Wintner “Identifying Semitic Roots: Machine Learning with Linguistic Constraints”, *Computational Linguistics*, Vol. 34 (3), Sept. 2008.
- [9] Z. Zeng, J. Tu, M. Liu, T. S. Huang, B. Pianfetti, D. Roth and S. Levinson, “Audio-Visual Affect Recognition”, *IEEE Transactions on Multimedia*, Vol. (2), pp. 424-428 February 2007.
- [10] O. J. Mengshoel, D. Roth and D. Wilkins, “Controlled Generation of Hard and Easy Bayesian Networks: Impact on Maximal Clique Size in Tree Clustering”, *Artificial Intelligence*, 2006. Vol. 170, 16-17, Nov. 2006, pp. 1137-1174.
- [11] R. Khardon, D. Roth and R. Servedio, “Efficiency versus Convergence of Boolean Kernels for On-Line Learning Algorithms”, *Journal of Artificial Intelligence Research (JAIR)*, Vol. 24, pp. 341–356, July 2005.
- [12] X. Li and D. Roth, “Learning Questions Classifiers: The Role of Semantic Information”. *Natural Language Engineering (NLE)*, Vol. 11(4), 2005.
- [13] S. Agarawal, T. Greapel, R. Herbich, S. Har-Peled and D. Roth, “Generalization Bounds for the Area Under an ROC curve”, *Journal of Machine Learning Research (JMLR)*, vol. 6, pp. 393–425, 2005.

- [14] S. Agarwal, A. Awan and D. Roth, “Learning to Detect Objects in Images via a Sparse, Part-Based Representation”, *IEEE Transactions on Pattern Analysis and Machine Intelligence*, Vol. 20 (11) pp. 1475–1490, 2004.
- [15] R. Greiner, A. J. Grove and D. Roth, “Learning Cost-Sensitive Active Classifiers”, *Artificial Intelligence*, Vol. 139, 2, Sept. 2002, pp. 137–174.
- [16] D. Roth, M-H. Yang and N. Ahuja, “Learning to Recognize 3D Objects”, *Neural Computation*, Vol 14 (5), May 2002, pp. 1071–1104.
- [17] J. Chuang and D. Roth, “Gene recognition based on DAG shortest paths”, *Bioinformatics*, Vol. 17, Suppl. 1, Jul. 2001, pp. S56-S64.
- [18] A. Grove and D. Roth, “Linear concepts and hidden variables”, *Machine Learning*, Vol 42(1/2), Jan. 2001, pp. 123-141.
- [19] R. Khardon, H. Mannila and D. Roth, “Reasoning with Examples: Propositional Formulae and Database Dependencies”, *Acta Informatica* 36, 4, July 1999, pp. 267–286.
- [20] M. Mavronicolas and D. Roth, “Linearizable Read/Write Objects”, *Theoretical Computer Science*. Vol. 220(1), Jun. 1999, pp. 267-319.
- [21] R. Khardon and D. Roth, “Learning to Reason with Restricted View”, *Machine Learning*, Vol 35, 2, May 1999, pp. 95-117.
- [22] A. R. Golding and D. Roth, “A Winnow-Based Approach to Spelling Correction”, *Machine Learning*, Special issue on Machine Learning and Natural Language Processing, Vol. 34, 1/3, Feb. 1999, pp. 107-130.
- [23] H. Aizenstein, A. Blum, R. Khardon, E. Kushilevitz L. Pitt and D. Roth, “On Learning Read- k -Satisfy- j DNF”, *SIAM Journal on Computing*, Vol. 27, 6, Dec. 1998, pp. 1515-1530.
- [24] R. Khardon and D. Roth, “Defaults and Relevance in Model Based Reasoning”, *Artificial Intelligence* (97)1-2, Dec. 1997, pp. 169-193.
- [25] R. Khardon and D. Roth, “Learning to Reason”, *Journal of the Association for Computing Machinery*, Vol. 44, No 5, Sept. 1997, pp. 697-725.
- [26] K. Daniels, V. J. Milenkovic and D. Roth, “Finding the Maximum Area Axis-Parallel Rectangle in a Polygon”, *Computational Geometry: Theory and Applications*, Vol. 7, Nos. 1-2, Jan. 1997, pp. 125-148.
- [27] R. Khardon and D. Roth, “Reasoning with Models”, *Artificial Intelligence*, Vol. 87, 1-2, Nov. 1996, pp. 187–213.
- [28] E. Kushilevitz and D. Roth, “On Learning Visual Concepts and DNF Formulae”, *Machine Learning*, Vol. 24, 1, Jul. 1996, pp. 65–85.
- [29] D. Roth, “On the Hardness of Approximate Reasoning”, *Artificial Intelligence*, Vol. 82, 1-2, Apr. 1996, pp. 273–302.

JOURNAL ARTICLES IN SUBMISSION

- [30] Y. Tu and D. Roth, “Exploiting Output Structure for Multiclass Classification with Unobserved Labels”, Submitted for Journal Publication.

BOOKS

- [31] I. Dagan, D. Roth and F. Zanzotto, “Textual Entailment”, Morgan & Claypool Publishers. To Appear, 2012.
- [32] W. Burgard, D. Roth, editors, Proceedings of the Twenty-Fifth AAAI Conference on Artificial Intelligence (AAAI-11), San Francisco, CA, USA, Aug. 2011.
- [33] D. Roth and A. van den Bosch, Editors, “Proceedings of CoNLL-2002, The Sixth Conference on Natural Language Learning”, Taipei, Taiwan, Aug. 2002. Morgan Kaufman Publishers.
- [34] E. Hinrichs and D. Roth, Editors, “ACL’03: 41st Annual Meeting of the Association for Computational Linguistics”, Sapporo, Japan, July 2003.

INVITED PAPERS AND BOOK CHAPTERS

- [35] N. Rizzolo and D. Roth “Integer Linear Programming for Co-reference Resolution”, A Chapter invited to ”Anaphora Resolution: Algorithms, Resources, and Applications”, Massimo Poesio, Roland Stuckardt & Yannick Versley, Editors. To Appear, 2012.
- [36] M. Connor, C. Fisher and D. Roth “Starting from Scratch in Semantic Role Labeling: Early Indirect Supervision”, A Chapter invited to ”Cognitive Aspects of Computational Language Acquisition”, Afra Alishahi, Thierry Poibeau, Anna Korhonen, Editors. Springer. To Appear, 2011.
- [37] M. Sammons, V. Vydiswaran and D. Roth “Textual Entailment”, A Chapter invited to ”Multilingual Natural Language Applications: From Theory to Practice”, D. Bikel and I. Zitouni, Editors. Prentice Hall Press. To Appear, 2011.
- [38] I. Dagan, B. Dolan, B. Magnini and D. Roth, “Guest Editors Introduction: Recognizing Textual Entailment: Rational, Evaluation and Approaches”, An Introduction to a Special Issue of the Journal of General Engineering. Vol. 1, pp 1-17, 2009, Cambridge University Press.
- [39] Dan Goldwasser, Ming-Wei Chang, Yuancheng Tu and Dan Roth, “Constraint Driven Transliteration Discovery,” in Recent Advances in Natural Language Processing. Nicolas Nicolov, eds., Springer-Verlag, 2009.

- [40] A. Klementiev and D. Roth, “Named Entity Transliteration and Discovery in Multilingual Corpora,” in *Learning Machine Translation*, Cyril Goutte, Nicola Cancedda, Marc Dymetman and George Foster, eds. MIT Press, 2008.
- [41] R. de Salvo Braz, E. Amir and D. Roth, “A Survey of First-Order Probabilistic Models”, in *Innovations in Bayesian Networks*. D.E. Holmes and L.C. Jain, eds. Springer-Verlag, 2008.
- [42] D. Roth and W. Yih, “Global Inference for Entities and Relations Identification via a Linear Programming Formulation,” in *Statistical Relational Learning*. L. Getoor and B. Taskar, eds. MIT Press, 2007.
- [43] R. de Salvo Braz, D. Roth and E. Amir, “Lifted First-Order Probabilistic Inference”, in *Introduction to Statistical Relational Learning*. L. Getoor and B. Taskar, eds. MIT Press, 2007.
- [44] M. Chang, Q. Do and D. Roth, “Multilingual Dependency Parsing: A Pipeline Approach,” in *Recent Advances in Natural Language Processing*. Nicolas Nicolov, eds., Springer-Verlag, 2006.
- [45] Fung, P. and Roth, D., “Guest Editors Introduction: Machine Learning in Speech and Language Technologies”, An Introduction to a Special Issue of the *Machine Learning Journal*. Vol. 60, no. 1-3, September 2005.
- [46] D. Roth, “Learning Based Programming”, in *Innovations in Machine Learning: Theory and Applications*, Springer-Verlag book, L.C. Jain and D. Holmes, Eds., 2005.
- [47] X. Li and P. Morie and D. Roth, “ Semantic Integration in Text: From Ambiguous Names to Identifiable Entities”, *AI Magazine*. Special Issue on Semantic Integration, 2005.
- [48] D. Roth, “Reasoning with Classifiers” (Invited). In *Proceedings of ECML’02, The European Conference on Machine Learning*, Aug. 2002.
- [49] D. Roth, “Learning in Natural Language: Theory and Algorithmic Approaches” (Invited). In *Proceedings of CoNLL’00: Computational Natural Language Learning*.
- [50] D. Roth, D. Zelenko, “Coherent Concepts, Robust Learning” (Invited). In J. Pavelka, G. Tel, M. Bartosek (Eds.), *SOFSEM’99: Theory and Practice of Informatics*, Springer-Verlag Lecture Notes in Computer Science (LNCS) LNCS 1725, pp. 260–272.
- [51] D. Roth, “Learning and Reasoning with Connectionist Representations”, A contribution to “Connectionist Symbol Processing: Dead or Alive”, A. Jagota (Eds.), *Neural Computing Surveys*, 2, 1999, pp. 1–40.
- [52] D. Roth, “Learning to perform knowledge intensive inferences” (Invited Abstract). In I. Privara and P. Ruzicka (Eds.), *MFCS’97: Mathematical Foundations of Computer Science, 1997*, Springer-Verlag Lecture Notes in Computer Science (LNCS) 1295, pp. 108.
- [53] D. Roth, “Learning in Order to Reason: The Approach” (Invited). In K. G. Jeffery and J. Kral and M. Bartosek (Eds.), *SOFSEM’96: Theory and Practice of Informatics*, Springer-Verlag Lecture Notes in Computer Science (LNCS) 1175, pp. 112–124.

- [54] D. Roth, “Learning in Order to Reason” (Invited). *AAAI Symposium on Learning Complex Behaviors in Adaptive Intelligent Systems, Fall 1996*.

REFEREED CONFERENCE PROCEEDINGS

- [55] R. Samdani, M. Chang and D. Roth, “Unified Expectation Maximization”, *NAACL’12, The North American Conference on Computational Linguistics*, June 2012.
- [56] Y. Chang, Q. Do and D. Roth, “Minimally Supervised Event Causality Extraction”, *EMNLP’11, The SIGDAT Conference on Empirical Methods in Natural Language Processing*, Aug. 2011.
- [57] V. Srikumar and D. Roth, “A Joint Model for Extended Semantic Role Labeling”, *EMNLP’11, The SIGDAT Conference on Empirical Methods in Natural Language Processing*, Aug. 2011.
- [58] K-W Chang and D. Roth, “Selective Block Minimization for Faster Convergence of Limited Memory Large-scale Linear Models”, *KDD’11, The 17th SIGKDD Conference on Knowledge Discovery and Data Mining*, Aug. 2011.
- [59] V.G.V. Vydiswaran, C. Zhai and D. Roth, “Content-driven Trust Propagation Framework”, *KDD’11, The 17th SIGKDD Conference on Knowledge Discovery and Data Mining*, Aug. 2011.
- [60] J. Pasternack and D. Roth, “Making Better Informed Trust Decisions with Generalized Fact-Finding”, *IJCAI’11, The 22nd International Joint Conference on Artificial Intelligence*, Jul. 2011.
- [61] D. Goldwasser and D. Roth, “Learning from Natural Instructions”, *IJCAI’11, The 22nd International Joint Conference on Artificial Intelligence*, Jul. 2011.
- [62] M. Connor, C. Fisher and D. Roth, “Online Latent Structure Training for Language Acquisition”, *IJCAI’11, The 22nd International Joint Conference on Artificial Intelligence*, Jul. 2011.
- [63] G. Kundu, D. Roth and R. Samdani, “Constrained Conditional Models for Information Fusion”, *International Conference on Information Fusion*, Jul. 2011
- [64] D. Wang, T. Abdelzaher, H. Ahmadi, J. Pasternack, D. Roth, M. Gupta, J. Han, O. Fatemieh, H. Le and C. Aggarwal, “On Bayesian Interpretation of Fact-finding in Information Networks”, *International Conference on Information Fusion*, Jul. 2011.
- [65] L. Ratinov, D. Roth, D. Downey and M. Anderson, “Local and Global Algorithms for Disambiguation to Wikipedia”, *ACL’11, the 45th International Conference of the Association of Computational Linguistics*, Jun. 2011.
- [66] Y. Chan and D. Roth, “Exploiting Syntactico-Semantic Structures for Relation Extraction”, *ACL’11, the 45th International Conference of the Association of Computational Linguistics*, Jun. 2011.

- [67] D. Goldwasser, R. Reichart, J. Clarke and D. Roth, “Confidence Driven Unsupervised Semantic Parsing”, *ACL’11, the 45th International Conference of the Association of Computational Linguistics*, Jun. 2011.
- [68] A. Rozovskaya and D. Roth, “Algorithm Selection and Model Adaptation for ESL Correction Tasks”, *ACL’11, the 45th International Conference of the Association of Computational Linguistics*, Jun. 2011.
- [69] G. Kundu and D. Roth, “Adapting Text instead of the Model: An Open Domain Approach”, *CoNLL’11, Proc. of the Annual Conference on Computational Natural Language Learning*, June 2011.
- [70] K-W. Chang, R. Samdani, A. Rozovskaya, N. Rizzolo, M. Sammons and D. Roth, “Inference Protocols for Co-reference Resolution”, *CoNLL’11, Proc. of the Annual Conference on Computational Natural Language Learning*, June 2011.
- [71] J. Pasternack and D. Roth, “Generalized Fact-Finding”, *WWW’11, The 20th International World Wide Web Conference*, Apr. 2011.
- [72] H. Khac Le, J. Pasternack, H. Ahmadi, M. Gupta, Y. Sun, T. Abdelzaher, J. Han and D. Roth, “Apollo: Towards Factfinding in Participatory Sensing”, *International Conference on Information Processing in Sensor Networks*, Apr. 2011.
- [73] J. Pasternack and D. Roth, “Comprehensive Trust Metrics for Information Networks”, *Proc. of the Army Science Conference (ASC)*, Dec. 2010.
- [74] M-W. Chang, M. Connor and D. Roth, “The Necessity of Combining Adaptation Methods”, *EMNLP’10, The SIGDAT Conference on Empirical Methods in Natural Language Processing*, Oct. 2010.
- [75] A. Rozovskaya and D. Roth, “Generating Confusion Sets for Context-Sensitive Error Correction”, *EMNLP’10, The SIGDAT Conference on Empirical Methods in Natural Language Processing*, Oct. 2010.
- [76] Q. Do and D. Roth, “Constraints-based Taxonomic Relation Classification”, *EMNLP’10, The SIGDAT Conference on Empirical Methods in Natural Language Processing*, Oct. 2010.
- [77] G. Levine, J. DeJong, L. Wang, R. Samdani, S. Vembu, D. Roth, “Automatic Model Adaptation for Complex Structured Domains”, *ECML’10, The European Conference on Machine Learning*, Sept. 2010.
- [78] J. Pasternack and D. Roth, “Knowing What to Believe (when you already know something)”, *COLING-2010, The 23rd International Conference on Computational Linguistics*, Aug. 2010.
- [79] Y. Chan and D. Roth, “Exploiting Background Knowledge for Relation Extraction”, *COLING-2010, The 23rd International Conference on Computational Linguistics*, Aug. 2010.
- [80] Y. Tu and N. Johri and D. Roth and J. Hockenmaierh, “Citation Author Topic Model in Expert Search”, *COLING-2010, The 23rd International Conference on Computational Linguistics*, Aug. 2010.

- [81] M. Sammons, V.G. Vydiswaran and D. Roth, “Ask not what Textual Entailment can do for You...” *ACL’10, the 44th International Conference of the Association of Computational Linguistics*, Jul. 2010.
- [82] M. Connor, Y. Gertner, C. Fisher and D. Roth, “Starting From Scratch in Semantic Role Labeling”, *ACL’10, the 44th International Conference of the Association of Computational Linguistics*, Jul. 2010.
- [83] J. Clarke, D. Goldwasser, M. Chang and D. Roth, “Driving Semantic Parsing from the Worlds Response”, *CoNLL’10, The Annual Conference on Computational Natural Language Learning*, July 2010.
- [84] M. Chang, D. Goldwasser, D. Roth and V. Srikumar, “Structured Output Learning with Indirect Supervision”, *ICML’10, The International Machine Learning Conference*, June 2010.
- [85] M. Chang, D. Goldwasser, D. Roth and V. Srikumar, “Discriminative Learning over Constrained Latent Representations”, *NAACL’10, The North American Conference on Computational Linguistics*, June 2010.
- [86] D. Roth and A. Rozovskaya, “Training Paradigms for Correcting Errors in Grammar and Usage”, *NAACL’10, The North American Conference on Computational Linguistics*, June 2010.
- [87] N. Rizzolo and D. Roth, “Learning Based Java for Rapid Development of NLP System”, *LREC’10, The seventh international conference on Language Resources and Evaluation*, May 2010.
- [88] I. Titov, A. Klementiev, K. Small and D. Roth, “Unsupervised Aggregation for Classification Problems with Large Numbers of Categories”, *Proc. of the 13th International Conference on Artificial Intelligence and Statistics (AISTATS)*, May 2010.
- [89] D. Roth and Y. Tu, “Aspect Guided Text Categorization with Unobserved Labels”, *ICDM’09, the 9th IEEE International Conference on Data Mining*, Dec. 2009.
- [90] D. Roth and R. Samdani, “Learning Multi-Linear Representations”, *European Conference of Machine Learning*, September, 2009. Invited and appeared also in a special issue of the *Machine Learning Journal*, Volume 76, Issue 2 July 2009, pp. 195-209.
- [91] J. Pasternack and D. Roth, “Learning Better Transliterations”, *CIKM’09, The 18th ACM Conference on Information and Knowledge Management*, Nov. 2009.
- [92] D. Roth, M. Sammons and V.G. Vydiswaran, “A Framework for Entailed Relation Recognition” *ACL’09, the 43rd International Conference of the Association of Computational Linguistics*, Aug. 2009.
- [93] J. Eisenstein, J. Clarke, D. Goldwasser and D. Roth, “Reading to Learn: Constructing Features from Semantic Abstracts”, *EMNLP’09, The SIGDAT Conference on Empirical Methods in Natural Language*, Aug. 2009.

- [94] A. Klementiev, D. Roth, K. Small and I. Titov, “Unsupervised Rank Aggregation with Domain-Specific Expertise”, *Proc. of the International Joint Conference on Artificial Intelligence (IJCAI)*, July 2009.
- [95] M. Connor, Y. Gertner, C. Fisher and D. Roth, “Minimally Supervised Model of Early Language Acquisition”, *Proc. of the Annual Conference on Computational Natural Language Learning (CoNLL)*, June 2009.
- [96] D. Roth and K. Small, “Interactive Feature Space Construction using Semantic Information”, *Proc. of the Annual Conference on Computational Natural Language Learning (CoNLL)*, June 2009.
- [97] L. Ratinov and D. Roth, “Design Challenges and Misconceptions in Named Entity Recognition”, *Proc. of the Annual Conference on Computational Natural Language Learning (CoNLL)*, June 2009.
- [98] M. Chang, D. Goldwasser, D. Roth and Y. Tu, “Unsupervised Constraint Driven Learning For Transliteration Discovery”, *NAACL’09, The North American Conference on Computational Linguistics*, June 2009.
- [99] J. Pasternack and D. Roth, “Extracting Article Text from the Web with Maximum Subsequence Segmentation”, *WWW’09, The 18th International World Wide Web Conference*, Apr. 2009.
- [100] D. Roth, K. Small and I. Titov, “Sequential Learning of Classifiers for Structured Prediction Problems”, *Proc. of the 12th International Conference on Artificial Intelligence and Statistics (AISTATS)*, April 2009.
- [101] D. Goldwasser and D. Roth, “Transliteration as Constrained Optimization”, *EMNLP’08, The SIGDAT Conference on Empirical Methods in Natural Language*, Oct. 2008.
- [102] E. Bengtson and D. Roth, “Understanding the Value of Features for Coreference Resolution”, *EMNLP’08, The SIGDAT Conference on Empirical Methods in Natural Language*, Oct. 2008.
- [103] M. Connor and Y. Gertner and C. Fisher and D. Roth, “Baby SRL: Modeling Early Language Acquisition”, *CoNLL’08: The 12th Conference on Natural Language Learning*, Aug. 2008.
- [104] V. Srikumar and R. Reichart and M. Sammons and A. Rappoport and D. Roth, “Extraction of Entailed Semantic Relations Through Syntax-based Comma Resolution”, *ACL’08, the 42nd International Conference of the Association of Computational Linguistics*, Jun. 2008.
- [105] B. Liebald and D. Roth and N. Shah and V. Srikumar, “Proactive Intrusion Detection”, *AAAI’08, The National Conference on Artificial Intelligence*, Jul. 2008.
- [106] M. Chang and L. Ratinov and D. Roth and V. Srikumar, “Importance of Semantic Representation: Dataless Classification”, *AAAI’08, The National Conference on Artificial Intelligence*, Jul. 2008.
- [107] M. Chang and L. Ratinov and N. Rizzolo and D. Roth, “Learning and Inference with Constraints”, *AAAI’08, The National Conference on Artificial Intelligence*, Jul. 2008.

- [108] D. Roth and Kevin Small , “Active Learning for Pipeline Models”, *AAAI’08, The National Conference on Artificial Intelligence*, Jul. 2008.
- [109] A. Klementiev and D. Roth and K. Small, “Unsupervised Rank Aggregation with Distance-Based Models”, *ICML’08, 22nd International Conference on Machine Learning*, Jul. 2008.
- [110] D. Goldwasser and D. Roth, “Active Sample Selection for Named Entity Transliteration”, *ACL’08, the 42nd International Conference of the Association of Computational Linguistics*, Jun. 2008.
- [111] M. A. Rahurkar, D. Roth and T. S. Huang, “Which Apple are you talking about”, *WWW’08, The 17th International World Wide Web Conference* , Apr. 2008.
- [112] M. Chang and L. Ratinov and D. Roth, “Guiding Semi-Supervision with Constraint-Driven Learning”, *ACL’07, the 41st International Conference of the Association of Computational Linguistics*, Jun. 2007.
- [113] S. Har-Peled and D. Roth and D. Zimak , “Maximum Margin Coresets for Active and Noise Tolerant Learning”, *IJCAI’07, the 20th International Joint Conference on Artificial Intelligence*, Jan. 2007.
- [114] N. Rizzolo and D. Roth, “Modeling Discriminative Global Inference”, *ICSC’07, The First International Conference on Semantic Computing* , Aug. 2007.
- [115] M. Connor and D. Roth, “Context Sensitive Paraphrasing with a Single Unsupervised Classifier”. *ECML’07, The European Conference on Machine Learning*, Sept. 2007.
- [116] A. Klementiev, D. Roth, and K. Small, “An Unsupervised Learning Algorithm for Rank Aggregation”. *ECML’07, The European Conference on Machine Learning*, Sept. 2007.
- [117] D. Roth and K. Small “Margin-based Active Learning for Structured Output Spaces”, *ECML’06, The European Conference on Machine Learning*, Sept. 2006.
- [118] R. Braz, E. Amir and D. Roth, “MPE and Partial Inversion in Lifted Probabilistic Variable Elimination”, *AAAI’06, The National Conference on Artificial Intelligence*, Jul. 2006.
- [119] A. Klementiev and D. Roth, “Named Entity Transliteration and Discovery from Multilingual Comparable Corpora”, *NAACL’06, The North American Conference on Computational Linguistics*, June 2006.
- [120] A. Klementiev and D. Roth, “Weakly Supervised Named Entity Transliteration and Discovery from Multilingual Comparable Corpora”, *COLING-ACL’06, The joint conference of the International Committee on Computational Linguistics and the Association for Computational Linguistics*, July 2006.
- [121] M. Chang, Q. Do and D. Roth, “Local Search for Bottom-Up Dependency Parsing”, *COLING-ACL’06, The joint conference of the International Committee on Computational Linguistics and the Association for Computational Linguistics*, July 2006.
- [122] M. Chang, Q. Do and D. Roth, “A Pipeline Model for Bottom-Up Dependency Parsing”, *CoNLL’06: The 10th Conference on Natural Language Learning*, June 2006.

- [123] C. O. Alm and D. Roth and R. Sproat, “Emotions from text: machine learning for text-based emotion prediction”, *EMNLP/HLT’05, The Joint SIGDAT Conference on Empirical Methods in Natural Language Processing and on Language Technologies*, Oct. 2005.
- [124] D. Roth and W. Yih, “Integer Linear Programming Inference for Conditional Random Fields”, *ICML’05, 22nd International Conference on Machine Learning*, Aug. 2005.
- [125] R. Braz, E. Amir and D. Roth, “Lifted First-Order Probabilistic Inference”, *IJCAI’05, the 19th International Joint Conference on Artificial Intelligence*, Aug. 2005.
- [126] V. Punyakanok, D. Roth and W. Yih, “The Necessity of Syntactic Parsing for Semantic Role Labeling”, *IJCAI’05, the 19th International Joint Conference on Artificial Intelligence*, Aug. 2005.
- [127] V. Punyakanok, D. Roth, W. Yih, and D. Zimak, “Learning and Inference over Constrained Output”, *IJCAI’05, the 19th International Joint Conference on Artificial Intelligence*, Aug. 2005.
- [128] R. Braz, R. Girju, V. Punyakanok, D. Roth and M. Sammons, “An Inference Model for Semantic Entailment and Question-Answering”, *AAAI’05, The National Conference on Artificial Intelligence*, Jul. 2005.
- [129] X. Li and D. Roth, “Discriminative Training of Clustering Functions: Theory and Experiments with Entity Identification”, *CoNLL’05: The 9th Conference on Natural Language Learning*, Jun. 2005.
- [130] V. Punyakanok, D. Roth and W. Yih, “Generalized Inference with Multiple Semantic Role Labeling Systems”, *CoNLL’05: The 9th Conference on Natural Language Learning*, June 2005.
- [131] S. Agarwal and D. Roth, “Learnability of Bipartite Ranking Functions”, *COLT’05, The ACM Conference on Learning Theory*, Jun. 2005.
- [132] B. Ziebart, A. Dey, R. Campbell, and D. Roth, “Learning Automation Policies for Pervasive Computing Environments”, *ICAC’05, The IEEE International Conference on Autonomic Computing*, Jun. 2005.
- [133] S. Agarwal, S. Har-Peled and D. Roth, “A Uniform Convergence Bound for the Area Under an ROC Curve”, *AI & Statistics’05*, Jan. 2005.
- [134] S. Agarwal, T. Graepel, R. Herbrich and D. Roth “A Large Deviation Bound for the Area Under an ROC Curve”, *NIPS-17, The 2004 Conference on Advances in Neural Information Processing Systems*. MIT Press, Dec. 2004.
- [135] Z. Zeng, J. Tu, M. Liu, T. Zhang, N. Rizzolo, Z. Zhang, T. S. Huang, D. Roth, and S. Levinson, “Bimodal HCI-related Affect Recognition”, *ICMI’04, The 6th International Conference on Multimodal Interfaces* Oct., 2004.
- [136] E. Daya, D. Roth and S. Wintner “Learning Hebrew Roots: Machine Learning with Linguistic Constraints”, *EMNLP’04, The Joint SIGDAT Conference on Empirical Methods in Natural Language Processing*, Jul. 2004.

- [137] V. Punyakanok, D. Roth, W. Yih and D. Zimak, “Semantic Role Labeling Via Generalized Inference Over Classifiers”, *COLING-2004, The 20th International Conference on Computational Linguistics*, Aug. 2004.
- [138] X. Li, P. Morie and D. Roth, “Identification and Tracing of Ambiguous Names: Discriminative and Generative Approaches”, *AAAI’04, The National Conference on Artificial Intelligence*, Jul. 2004.
- [139] X. Li, P. Morie and D. Roth, “Robust Reading: Identification and Tracing of Ambiguous Names”, *NAACL’04, The North American Conference on Computational Linguistics*, May 2004.
- [140] D. Roth and W. Yih, “A Linear Programming Formulation for Global Inference in Natural Language Tasks”, *CoNLL’04: The 8th Conference on Natural Language Learning*, May. 2004.
- [141] V. Punyakanok, D. Roth, Y. Tu, W. Yih and D. Zimak, “Semantic Role Labelling Via Generalized Inference Over Classifiers”, *CoNLL’04: The 8th Conference on Natural Language Learning*, May. 2004.
- [142] X. Li, D. Roth and K. Small, “The Role of Semantic Information in Learning Question Classifiers”, *IJCNLP’04: The First International Joint Conference on Natural Language Processing*, Mar. 2004.
- [143] D. Roth and W. Yih, “A Linear Programming Formulation for Global Inference in Natural Language Tasks”, *AI & Math*, Jan. 2004.
- [144] V. Punyakanok, D. Roth and W. Yih, “Mapping Dependency Trees: An Application to Question Answering”, *AI & Math*, Jan. 2004.
- [145] X. Li and D. Roth and Y. Tu, “PhraseNet: Toward a context dependent Lexical Knowledge Base”, *CoNLL’03: The 7th Conference on Natural Language Learning*, Jun. 2003.
- [146] C. Cumby and D. Roth, “On Kernel Methods for Relational Learning”, *ICML’03, 20th International Conference on Machine Learning*, Aug. 2003.
- [147] A. Garg and D. Roth “Margin Distribution and Learning Algorithms”, *ICML’03, 20th International Conference on Machine Learning*, Aug. 2003.
- [148] S. Har-Peled and D. Roth and D. Zimak “Constraint Classification: A Unified Approach to Multiclass Classification and Ranking”, *NIPS-15, The 2002 Conference on Advances in Neural Information Processing Systems*. MIT Press, Dec. 2002.
- [149] S. Har-Peled and D. Roth and D. Zimak “Constraint Classification: A New Approach to Multiclass Classification”, *ALT’02, The Twelfth International Conference on Algorithmic Learning Theory*, Nov. 2002.
- [150] D. Roth and C. Cumby and X. Li, and P. Morie and R. Nagarajan, and V. Punyakanok, and N. Rizzolo, and K. Small and W. Yih, “Question-Answering via Enhanced Understanding of Questions”, *TREC 2002*.

- [151] A. Garg, S. Har-Peled and D. Roth, “On generalization bounds, projection profile, and margin distribution”, *ICML’02, 19th International Conference on Machine Learning*, Jul. 2002.
- [152] C. Cumby and D. Roth, “Learning with Feature Description Logics”, *ILP’02, The 12th International Conference on Inductive Logic Programming* Jul. 2002.
- [153] D. Roth and W. Yih, “Probabilistic Reasoning for Entity and Relation Recognition”, *COLING-2002, The 19th International Conference on Computational Linguistics*, Aug. 2002.
- [154] X. Li, and D. Roth, “Learning Question Classifiers”, *COLING-2002, The 19th International Conference on Computational Linguistics*, Aug. 2002.
- [155] S. Agarwal and D. Roth, “Learning a Sparse Representation for Object Detection”, *ECCV-2002, The 8th European Conference on Computer Vision*, Jun. 2002.
- [156] M-H. Yang, D. Roth and N. Ahuja, “A Tale of Two Classifiers: SNoW vs. SVM in Visual Recognition”, *ECCV-2002, The 8th European Conference on Computer Vision*, Jun. 2002.
- [157] X. Carreras, L. Màrquez, V. Punyakanok and D. Roth, “Learning and Inference for Clause Identification”, *ECML’02, The European Conference on Machine Learning*, Aug. 2002.
- [158] D. Roth and G. Kao and X. Li, and R. Nagarajan, and V. Punyakanok, and N. Rizzolo, and W. Yih, and C. O. Alm, and L. G. Moran, “Learning Components for a Question Answering System”, *TREC 2001*.
- [159] R. Khardon, D. Roth and R. Servedio, “Efficiency versus Convergence of Boolean Kernels for On-Line Learning Algorithms”, *NIPS-14, The 2001 Conference on Advances in Neural Information Processing Systems*. MIT Press, Dec. 2001.
- [160] A. Garg and D. Roth “Understanding Probabilistic Classifiers”, *ECML’01, The European Conference on Machine Learning*, Aug. 2001.
- [161] D. Roth and W. Yih, “Relational Learning via Propositional Algorithms: An Information Extraction Case Study”, *IJCAI’01, the 17th International Joint Conference on Artificial Intelligence*, Aug. 2001.
- [162] A. Garg and D. Roth “Learning Coherent Concepts”, *ALT’01, The Twelfth International Conference on Algorithmic Learning Theory*, Nov. 2001.
- [163] Y. Even-Zohar and D. Roth “A Sequential Model for Multi Class Classification”, *EMNLP’01, The Joint SIGDAT Conference on Empirical Methods in Natural Language Processing*, Jun. 2001.
- [164] X. Li and D. Roth, “Exploring Evidence for Shallow Parsing”, *CoNLL’01: Computational Natural Language Learning*, Jul. 2001.
- [165] A. J. Carlson, J. Rosen and D. Roth, “Scaling Up Context Sensitive Text Correction”, *IAAI’01 The 13th Innovative Applications of Artificial Intelligence Conference*, Aug. 2001.

- [166] J. Chuang and D. Roth, “Gene recognition based on DAG shortest paths”, *ISMB’01, The International Conference on Intelligent Systems for Molecular Biology* Jul., 2001.
- [167] Punyakanok, V. and D. Roth, “The Use of Classifiers in Sequential Inference”, *NIPS-13, The 2000 Conference on Advances in Neural Information Processing Systems*. MIT Press, 2001.
- [168] Punyakanok, V. and D. Roth, “Shallow Parsing by Inferencing with Classifiers”, *CoNLL’00: Computational Natural Language Learning*, Sept. 2000.
- [169] D. Roth and D. Zelenko, “Toward a theory of learning coherent concepts”, *AAAI’00, The National Conference on Artificial Intelligence*, Jul. 2000.
- [170] C. Cumby and D. Roth, “Relational Representations that Facilitate Learning”, *KR’00, the International Conference on Knowledge Representations and Reasoning*, Apr. 2000.
- [171] Y. Even-Zohar and D. Roth, “A Classification Approach to Word Prediction”, *NAACL’00, The North American Conference on Computational Linguistics*, May 2000.
- [172] E. F. Tjong Kim Sang, W. Daelemans, H. Déjean, R. Koeling, Y. Krymolowski, V. Punyakanok and D. Roth, “Applying System Combination to Base Noun Phrase Identification”, *COLING-2000, The 18th International Conference on Computational Linguistics*, Aug. 2000.
- [173] D. Roth, M-H. Yang and N. Ahuja, “Learning to Recognize Objects”, *CVPR’00, IEEE Conference on Computer Vision and Pattern Recognition*, Jun. 2000.
- [174] M-H. Yang, D. Roth, and N. Ahuja, “Learning To Recognize 3D Objects With SNoW”, *ECCV-2000, The Sixth European Conference on Computer Vision*, Jun. 2000.
- [175] M-H. Yang, D. Roth, and N. Ahuja, “A SNoW-Based Face Detector”, *NIPS-12, The 1999 Conference on Advances in Neural Information Processing Systems*. MIT Press, 2000.
- [176] M-H. Yang, D. Roth and N. Ahuja, “View-Based 3D Object Recognition Using SNoW”, *ACCV-2000, The 2000 Asian Conference on Computer Vision*.
- [177] D. Roth, “Learning in Natural Language”, *IJCAI’99, the 16th International Joint Conference on Artificial Intelligence*, Aug. 1999.
- [178] R. Khardon and D. Roth and L. G. Valiant, “Relational Learning for NLP using Linear Threshold Elements”, *IJCAI’99, the 16th International Joint Conference on Artificial Intelligence*, Aug. 1999.
- [179] M. Muñoz, V. Punyakanok, D. Roth and D. Zimak, “A Learning Approach to Shallow Parsing”, *EMNLP-VLC’99, the Joint SIGDAT Conference on Empirical Methods in Natural Language Processing and Very Large Corpora*, Jun. 1999.
- [180] Y. Even-Zohar and D. Roth and D. Zelenko, “Word Prediction and Clustering”, *The Bar-Ilan Symposium on the Foundations of Artificial Intelligence*, Israel, June, 1999.
- [181] D. Roth, “Learning to Resolve Natural Language Ambiguities: A Unified Approach” *AAAI’98, The National Conference on Artificial Intelligence*, Jul. 1998, pp. 806–813.

- [182] D. Roth and D. Zelenko, “Part of Speech Tagging Using a Network of Linear Separators”, *COLING-ACL’98, The 17th International Conference on Computational Linguistics*, Aug. 1998 pp. 1136–1142.
- [183] R. Basri, D. Roth and D. Jacobs, “Clustering Appearances of 3D Objects”, *CVPR’98, IEEE Conference on Computer Vision and Pattern Recognition*, Jun. 1998.
- [184] A. Grove and D. Roth, “Linear concepts and hidden variables: An empirical study”, *NIPS-10, The 1997 Conference on Advances in Neural Information Processing Systems*, MIT Press, 1998, pp. 500–506.
- [185] I. Dagan, Y. Karov and D. Roth, “Mistake-Driven Learning in Text Categorization”, *EMNLP’97, The Second Conference on Empirical Methods in Natural Language Processing*, Aug. 1997, pp. 55–63.
- [186] D. Roth, “A Connectionist Framework for Reasoning: Reasoning with Examples”, *AAAI’96, The National Conference on Artificial Intelligence*, Aug. 1996, pp. 1256–1261.
- [187] A. R. Golding and D. Roth, “Applying Winnow to Context-Sensitive Spelling Correction”, *ICML’96, 13th International Conference on Machine Learning*, Jul. 1996, pp. 182–190.
- [188] R. Greiner, A. J. Grove and D. Roth, “Learning Active Classifiers” *ICML’96, 13th International Conference on Machine Learning*, Jul. 1996, pp. 207–215.
- [189] D. Roth, “Learning to Reason: The Non-Monotonic Case”, *IJCAI’95, the 14th International Joint Conference on Artificial Intelligence*, Aug. 1995, pp. 1178–1184.
- [190] R. Khardon and D. Roth, “Default-Reasoning with Models”, *IJCAI’95, the 14th International Joint Conference on Artificial Intelligence*, Aug. 1995, pp. 319–325.
- [191] R. Khardon and D. Roth, “Learning to Reason with Restricted View”, *COLT’95, The Eighth ACM Conference on Computational Learning Theory*, Jul. 1995, pp. 301–310.
- [192] R. Khardon and D. Roth, “Reasoning with Models”, *AAAI’94, The National Conference on Artificial Intelligence*, Aug. 1994, pp. 1148–1153.
- [193] R. Khardon and D. Roth, “Learning to Reason”, *AAAI’94, The National Conference on Artificial Intelligence*, Aug. 1994, pp. 682–687.
- [194] A. Blum, R. Khardon, E. Kushilevitz L. Pitt and D. Roth, “On Learning Read- k -Satisfy- j DNF”, *COLT’94, The Seventh ACM Conference on Computational Learning Theory*, Jul. 1994, pp. 317–326.
- [195] E. Kushilevitz and D. Roth, “On Learning Visual Concepts and DNF Formulae”, *COLT’93, The Sixth ACM Conference on Computational Learning Theory*, Jul. 1993, pp. 317–326.
- [196] D. Roth, “On the Hardness of Approximate Reasoning”, *IJCAI’93, the 13th International Joint Conference on Artificial Intelligence*, Aug. 1993, pp. 613–618.

- [197] K. Daniels, V. J. Milenkovic and D. Roth, “Finding the Maximum Area Axis-Parallel Rectangle in a Simple Polygon”, *CCCG-93, the Fifth Canadian Conference on Computational Geometry*, Aug. 1993, pp. 322–327.
- [198] M. Mavronicolas and D. Roth, “Efficient, Strongly Consistent Implementation of Shared Memory”, *6th International Workshop on Distributed Algorithms, WDAG '92*, Nov. 1992, pp. 346–361. (Springer-Verlag Lecture Notes in Computer Science Series Vol. 647.)
- [199] M. Mavronicolas and D. Roth, “Sequential Consistency and Linearizability: Read/Write Objects”, In *Proceedings of the 29th Annual Allerton Conference on Communication, Control and Computing*, Oct. 1991, pp. 683–692.

PUBLICATIONS IN WORKSHOPS PROCEEDINGS

- [200] G. Kundu, M-W. Chang and D. Roth, “Prior Knowledge Driven Domain Adaptation”, *ICML'11 Workshop on Combining Learning Strategies to Reduce Label Cost*, Jun. 2011.
- [201] Y. Tu and D. Roth, “Learning English Light Verb Constructions: Contextual or Statistical”, *ACL'11 Workshop on Multiword Expressions*, Jun. 2011.
- [202] Nikhil Johri, Dan Roth and Yuancheng Tu, “Experts Retrieval with Multiword-Enhanced Author Topic Model”, *NAACL'10 Workshop on Semantic Search*, Jun. 2010.
- [203] Kim Pham, Nick Rizzolo, Kevin Small, Kevin Chang and Dan Roth, “Object Search: Supporting Structured Queries in Web Search Engines”, *NAACL'10 Workshop on Semantic Search*, Jun. 2010.
- [204] A. Rozovskaya and D. Roth, “Annotating ESL Errors: Challenges and Rewards”, *NAACL'10 Workshop on Innovative Use of NLP for Building Educational Applications*, Jun. 2010.
- [205] C. J. Godby, P. Hswe, L. Jackson, J. Klavans, Ratinov, D. Roth and H. Cho. “Whos Who in Your Digital Collection: Developing a Tool for Name Disambiguation and Identity Resolution.” In *Proceedings of the 2009 Chicago Colloquium on Digital Humanities and Computer Science*, Nov. 2009.
- [206] A. Klementiev, D. Roth, K. Small and I. Titov, “Unsupervised Prediction Aggregation”, *NIPS-2009, A Workshop on Learning with Orderings*, Dec. 2009.
- [207] K. Small and D. Roth, “Interactive Feature Space Construction.”, *NIPS-2009, A Workshop on Analysis and Design of Algorithms for Interactive Machine Learning*, Dec. 2009.
- [208] M. Sammons, V.G.V. Vydiswaran, T. Vieira, N. Johri, M.-W. Chang, D. Goldwasser, V. Srikumar, G. Kundu, Y. Tu, K. Small, J. Rule, Q. Do, D. Roth, “Relation Alignment for Textual Entailment Recognition.”, *NIST Text Analysis Conference*, 2009.
- [209] A. Klementiev, D. Roth and K. Small, “A Framework for Unsupervised Rank Aggregation”, *SIGIR'08, A Workshop on Learning to Rank for Information Retrieval*, Jul. 2008.

- [210] M. Chang, L. Ratinov and D. Roth, “Constraints as Prior Knowledge”, *ICML’08, A Workshop on Prior Knowledge for Text and Language Processing*, Jul. 2008.
- [211] J. D. Nath and D. Roth, “A Sequential Model of Learning for Multi-Class Classification using Linear Classifiers”, *IJCAI’07 Workshop on Complex Valued Neural Networks and Neuro-Computing*, Jan. 2007.
- [212] A. Klementiev and D. Roth, “Named Entity Discovery from Multilingual Corpora”, *NIPS-2006, A Workshop on Machine Learning for Multilingual Information Access*, Dec. 2006.
- [213] R. Braz, E. Amir and D. Roth, “MPE and Partial Inversion in Lifted Probabilistic Variable Elimination”, *ICML’06 Workshop on Workshop on Open Problems in Statistical Relational Learning*, Jun. 2006.
- [214] D. Roth and K. Small, “Active Learning with Perceptron for Structured Output”, *ICML’06 Workshop on Learning in Structured Output Spaces*, Jun. 2006.
- [215] M. Connor and D. Roth, “Context Sensitive Paraphrasing”, *The Midwest Computational Linguistics Colloquium (MCLC)*, May 2006.
- [216] R. Braz, R. Girju, V. Punyakanok, D. Roth and M. Sammons, “Knowledge Representation for Semantic Entailment and Question-Answering”, *An IJCAI’05 Workshop on Knowledge and Inference for Question Answering*, July 2005.
- [217] X. Li and D. Roth, “Discriminative Training of Clustering Functions: Theory and Experiments with Entity Identification”, *The Midwest Computational Linguistics Colloquium (MCLC)*, May 2005.
- [218] R. Braz, R. Girju, V. Punyakanok, D. Roth and M. Sammons, “An Inference Model for Semantic Entailment in Natural Language”, *The Midwest Computational Linguistics Colloquium (MCLC)*, May 2005.
- [219] V. Punyakanok, D. Roth and W. Yih, “The Necessity of Syntactic Parsing for Semantic Role Labeling”, *The Midwest Computational Linguistics Colloquium (MCLC)*, May 2005.
- [220] R. Girju and D. Roth and M. Sammons, “Token-level Disambiguation of VerbNet classes”, *The Interdisciplinary Workshop on Verb Features and Verb Classes*, Mar. 2005.
- [221] X. Li and D. Roth, “Supervised Discriminative Clustering”, *NIPS-17, A Workshop on Learning Structured Output*, Dec. 2004.
- [222] V. Punyakanok, D. Roth, W. Yih, and D. Zimak, “Learning via Inference over Structurally Constrained Output”, *NIPS-17, A Workshop on Learning Structured Output*, Dec. 2004.
- [223] R. de Salvo Braz and D. Roth, “Functional Subsumption in Feature Description Logic”, *NIPS 2003 Workshop on Feature Extraction*, a Workshop of the 2003 Neural Information Processing Systems (NIPS) conference, Dec. 2003.
- [224] C. Cumby and D. Roth, “Feature Extraction Languages for Propositionalized Relational Learning”, *IJCAI’03 Workshop on Learning Statistical Models from Relational Data* Aug. 2003.

- [225] Y. Krymolowski and D. Roth, “Incorporating Knowledge in Natural Language Learning: A Case Study”, *COLING-ACL’98 Workshop on the Usage of WordNet in Natural Language Processing Systems*, Aug. 1998, pp. 121–127.
- [226] R. Basri, D. Roth and D. Jacobs, “Clustering Appearances of 3D Objects”, *Workshop on Learning in Computer Vision, held in conjunction with the ECCV’98*, Jun. 1998.
- [227] R. Khardon and D. Roth, “Exploiting Relevance in Model-Based Reasoning”, In *AAAI Fall Symposium on Relevance*, Nov. 1994.