

## DAN ROTH

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## ACADEMIC POSITIONS

**Eduardo D. Glandt Distinguished Professor**, Department of Computer and Information Science, University of Pennsylvania, May 2017 – Present

**Founder Professor of Engineering**, University of Illinois at Urbana-Champaign, January 2016 – May 2017

**Professor**, University of Illinois at Urbana-Champaign, Department of Computer Science, July 2006 – May 2017

**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); Department of Electrical and Computer Engineering (since 2012).

**Adjunct Professor**, Toyota Technological Institute at Chicago, 2015–

**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

The International Joint Conference on AI (IJCAI) John McCarthy Award, 2017.  
Eduardo D. Glandt Distinguished Professor, University of Pennsylvania.  
Founder Professor of Engineering, University of Illinois at Urbana-Champaign.  
David F. Linowes Faculty Fellow, Cline center for Democracy, University of Illinois, 2015, 2016.  
Fellow, the American Association for the Advancement of Science (AAAS), 2014.  
College of Engineering Council Outstanding Advising Award, 2013.  
Fellow, the Association for Computational Linguistics,(ACL), 2012.  
Fellow, the Association for Computing Machinery (ACM), 2011.  
University Scholar, the University of Illinois, 2010.  
Fellow, the Association for the Advancement of Artificial Intelligence (AAAI), 2009.  
Best student paper award, 11th Conference on Natural Language Learning (CoNLL), 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.”  
Lady Davis Visiting Professorship, Technion- Israel Institute of Technology, 2006-2007.  
University of Illinois Award for Excellence in Guiding Undergraduate Research, Honorable Mention, 2006.  
Software Awards: 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). 1st place, software system competition for Grammatical Text Correction. Run by the Conference on Natural Language Learning (CoNLL), June 2013 (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.

**Advisory Board**, On the board of several start-up companies in the area of Machine Learning and Text Analytics. 2005–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.

## ENTREPRENEURSHIP

**NexLP, Inc.** Story Engine Technologies: E-Discovery Text Analytics, Co-Founder; Chicago, IL. 2012–Present.

**Text-IE, Inc.** Middleware for Text Analytics, Founder and President; Champaign, IL. 2011–Present.

**Semantica, Inc.** Co-Founder; Haifa, Israel. 2006–Present.

## GRANTS

1. *IBM-Center of Cognitive Systems Research*. IBM, Co-PI, 2016-2019. \$1,000,000.
2. *Communication with Computers (CwC)*, DARPA. PI, 2015-2019. \$3,000,000.
3. *Low Resource Languages for Emergent Incidents (LORELEI)*, DARPA. PI, 2015-2019. \$1,800,000.
4. *Profiler: A Paradigm for Global Knowledge Acquisition and Grounding*, Google Award. PI, 2015-2016, \$78,500.
5. *Verb Learning and the Early Development of Sentence Comprehension*, NIH Award. 2014-2019 (continuation of NIH Award no. 33), co-PI with Cynthia Fisher. \$1,861,557.
6. *Verb Learning and the Early Development of Sentence Comprehension: Experimental and Computational Studies*, NSF. 2014-2018 (complements the NIH Award no. 5), co-PI with Cynthia Fisher. \$426,012.

7. *Representation and Reasoning for Answering Quantitative Questions from Text*, Allen Institute of AI Award. 2014-2017 \$300,000.
8. *KnowEng, a Scalable Knowledge Engine for Large-Scale Genomic Data*, NIH BD2K Center for Excellence. 2014-2019. co-PI. \$15,000,000.
9. *Insight, A comprehensive, multidisciplinary brain training system*, IARPA SHARP program. 2014-2017. co-PI. \$12,500,000.
10. *Deep Exploration and Filtering of Text (DEFT)*, DARPA. PI, 2012-2016, \$2,500,000.
11. *Integrated Social History Environment for Research (ISHER) - Digging Into Social Unrest*, NSF (As part of an International NSF Challenge.) PI. 2012-2013, \$125,000.
12. *System for foresight and understanding from scientific exposition (FUSE)*, IARPA, through a subcontract from SRI. PI, 2011-2015, \$2,335,000.
13. *Information Network Academic Research Center (INARC): An Integrated Approach Towards Information Integration, Modeling, Retrieval, and Discovery*. Army Research Lab (ARL) through a subcontract from BBN. co-PI (Jiawei Han, PI). 2009-2017, \$8,152,000.
14. *SHARPS, Strategic Health IT Advanced Research Projects on Security*, HHS. co-PI (Carl Gunter, PI). 2010-2014, \$15,000,000.
15. *Cyber Analytics*. Boeing. PI, 2010-2013, \$400,000.
16. *MIAS, Multimodal Information Access and Synthesis*, a partner in CCICADA, a DHS Center of Excellence for Command, Control, & Interoperability. Illinois PI and Center Director. DHS, through Rutgers University. 2009-2014, \$2,000,000.
17. *Analytical Enhancements to a Unique UI Resource: The Cline Center's Digitized Global News Archive.*, UIUC Grant, Co-PI (Scott Althaus, PI) 2012. \$50,000.
18. *Knowing what to Believe: Trustworthiness of information*, Google Award. PI, 2010-2011, \$75,000.
19. *PASI: Methods in Computational Discovery for Multidimensional Problem Solving (Workshop)*, NSF. co-PI. 2013, \$100,000.
20. *MRI: Development of a Novel Computing Instrument for Big Data in Genomics*, NSF. Senior Personal. 2013-2017, \$1,800,000.
21. *Guiding Learning and Decision Making in the Presence of Multiple Forms of Information*, ONR Award. PI, with Gerald DeJong. 2009-2013. \$1,350,000.
22. *A Universal Machine Reading System*, DARPA, through a subcontract from SRI. PI, 2009-2014, \$2,400,000.
23. *The Assess-As-You-Go Writing Assistant*, Department of Education Award. co-PI, with William Cope, 2009-2012, \$1,500,000.
24. *A Writing Assistant*, An Award from the Grainger Program in Emerging Technologies. PI. 2009-2010. \$100,000.
25. *Microsoft Research Research Gift*, Microsoft Research. PI, 2008, \$10,000.
26. *The Universal Parallel Computing Research Center*, Microsoft & Intel. One of 18 co-PIs, 2008-2012, \$18,000,000.

27. *Meta-Data Annotation and Data Integration*, Library of Congress. PI of Subcontract from GSLIS. 2008-2009, \$143,000.
28. *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.”
29. *Free-speech command classification for Car Navigation Systems*, Honda Research Lab. PI. . 2007-2008, \$60,000.
30. *Populating Ontologies: Named Entities and Relations.*, Lawrence Livermore National Lab PI. 2007, \$100,000.
31. *MIAS, Multimodal Information Access and Synthesis*, A DHS Institute of Discrete Institute Center. PI and Center Director. 2007-2009, \$2,400,000.
32. *PLATO: Phased Learning Using Active Thought & Observation: Bootstrap Learning*, DARPA. PI, with a subcontract from SRI. 2007-2010, \$1,431,000.
33. *Verb Learning and the Early Development of Sentence Comprehension*, NIH Award. 2007-2012, co-PI with Cynthia Fisher. \$1,331,821.
34. *Learning Based Programming*, NSF Science of Design Award, 2006-2009, \$471,000.
35. *Textual Entailment*, Google Award. PI, 2006-2007, \$50,000.
36. *Verb Learning and The Early Development of Sentence Comprehension: Experimental and Computational Studies*, NSF Award, 2007-2012, co-PI with Cynthia Fisher. \$391,000.
37. *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.”
38. *Focused Textual Entailment*. Boeing. PI, 2006-2009, \$200,000.
39. *Machine Learning for Security: Digital Guards for Insider Threat Detection*. Boeing. PI, 2005-2007, \$170,000.
40. *Learning by Reading*. Seedling funding from DARPA via a subcontract from SRI. PI. 2005-2006, \$105,000.
41. *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.
42. *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.
43. *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.
44. *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.

45. *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.
46. *Business Intelligence Systems*. Motorola. PI, in a collaboration with NCSA. 2004-2006, \$200,000.
47. *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”.
48. *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).
49. *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.
50. *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.
51. *Learning Coherent Concepts: Theory and Applications to Natural Language*, NSF Career Award, 2000-2003, \$300,000.
52. *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.
53. *Context-Sensitive Natural Language Inferences*, IBM Equipment Award, 2000, \$100,000.
54. *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.
55. *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”.
56. *Learning to Perform Knowledge Intensive Inferences*, NSF, 1998-2000, \$255,000.
57. *Learning and Inference in Natural Language*, UIUC Research Board, May 1998, \$25,000.
58. *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

(See <http://cogcomp.cs.illinois.edu/page/software> for a complete list of publicly available software, and <http://cogcomp.cs.illinois.edu/page/demos> for on-line demonstrations). Below is a partial list of tools developed and made available to the community.

Saul, A a next generation Declarative Learning Based Programming Language.

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

Structured Learning (SL): A Java based Structured Learning Library.

Joint Learning with Indirect Supervision (JLIS): A software package for structured prediction and structured prediction with latent variables.

SNoW: A Learning Architecture tailored for learning in the presence of a very large number of features.

FEX: A relational feature extractor for the generation of intermediate knowledge representations for large scale learning.

NLP Pipeline: Learning based natural language processing tools. Software includes the basic tools for an NLP pipeline, from Tokenizer, Sentence Segmentation, Lemmatizer, Part of Speech tagger, to Shallow Parsing and Dependency Parser. Includes an interactive Web demonstration.

Information Extraction Tools: Basic Machine Learning Tools for Information Extraction. Includes: Named Entity Recognition Package, Event Extractor, Temporal Reasoning, and Quantitative Reasoning. Integrated with the aforementioned pipeline and includes an interactive Web demonstration.

Textual Entailment: A Machine Learning based tool and components for supporting open domain textual entailment. Includes an interactive Web demonstration.

Co-Reference Resolution: A Machine Learning based tool for co-reference resolution and for resolving hard pronoun resolution problems. Includes an interactive Web demonstration.

Entity Resolution and Wikification: A Machine Learning based tool for “wikification” – disambiguating entities and concepts and mapping them to an encyclopedic resource. Includes an interactive Web demonstration.

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). The system includes extensions over the standard verb-based SRL, and includes noun predicates, prepositional predicates, and others. The verb-SRL 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. Includes an interactive Web demonstration.

Grammar Checker for (ESL) English As a Second Language: A Machine Learning based package for context sensitive grammar correction, focusing on adapting to errors made by non-native English writers. 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 2013. Earlier versions won two other software competitions – HOO (Helping Our Own) Text Correction Challenges, 2012, 2011.

## 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.

### EDITOR

Journal of Artificial Intelligence Research (JAIR): Editor-in-Chief January 2015 – February 2017.

Journal of Artificial Intelligence Research (JAIR): Associate Editor-in-Chief January 2013 – January 2015.

Special Issue of the Italian Journal of Computational Linguistics (IJCoL) on “Language and Learning Machines” 2017, 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.

### EDITORIAL BOARDS:

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

AI Access, a not-for-profit book publisher for free access books, Advisory Board, 2013–2017

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

Machine Learning Journal: Associate (Action) Editor, 2004–2011. (Editorial Board: 2001-2004; 2012-2014)

ECML/PKDD, The Journal of the European Conference on Machine Learning, Editorial Board, 2013.

Computational Intelligence, 2003-2010.

Computational Linguistics, 2000-2003.

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

### REVIEW BOARDS

On a National Review committee for the Statistics Department, Purdue University, 2010.

NSF review of the Penn Discourse Tree Bank (PDTB) project, co-chair, 2012.



#### STEERING/ADVISORY COMMITTEES:

Science advisor to the U.S.-Israel Binational Science Foundation, 2016 –.  
Allen AI Institute, Scientific Advisory Board; 2014–.  
AI Summit, a joint AAAI/IJCAI committee of AI leaders; 2014.  
AI Access Books, An Open Access Publisher, 2014–.  
Cline Center for Democracy, University of Illinois, Advisory Committee, 2014–.  
IJCAI, the International Joint Conference on AI, Advisory Board (2011, 2016).  
Excitement, a European Union project on Recognizing Textual Enticement, Advisory Board, 2011–.  
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, 2013 (Area Chair).

**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), 2013 (Senior Program Committee Member), 2015 (Senior Program Committee Member), 2016 (Senior Program Committee Member), 2017 (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, 2013, 2014, 2015, 2017.

**COLING** The International Conference on Computational Linguistics, 2008 (Area Chair), 2012.

**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, 2013 (Area Chair), 2015 (Area Chair), 2016 (Area Chair)

**IJCAI** The International Joint Conference on Artificial Intelligence, 2003 (Poster Committee), 2009 (Senior Program Committee; IJCAI advisory board), 2016 (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, 2016 (Area Chair)

**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 of workshops in recent years include:

IJCAI-17 Workshop on Declarative Learning Based Programming (DeLBP 2017).

AAAI-16 Workshop on Declarative Learning Based Programming (DeLBP 2016).

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

ACL-2011-2016 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.

EACL'17, The European Conference of the Association of Computational Linguistics; A tutorial on *Integer Linear Programming Formulations in Natural Language Processing*.

AAAI'16, The Conference of the Association for the Advancement of Artificial Intelligence; A tutorial on *Structured Prediction*.

A Summer School on Non-Convex Optimization in Machine Learning, Mumbai, India. June, 2015. A tutorial on *Learning, Inference and Supervision for Structured Prediction Tasks*.

ACL'14, The Conference of the Association on Computational Linguistics. June, 2014. A tutorial on *Entity Linking and Wikification*.

University of Heidelberg, Germany. October 2013. A Fall School tutorial on *Integer Linear Programming Methods in NLP*.

AAAI'13, The Conference of the Association for the Advancement of Artificial Intelligence, A Tutorial on *Information Trustworthiness*.

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

COLING'12, The International Conference on Computational Linguistics. A Tutorial on *Temporal Information Extraction and Shallow Temporal Reasoning*.

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:

Co-Organizer, A joint NAACL-ICML Symposium on Machine Learning and Natural Language, Atlanta, GA, June 2013.

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 recent subset includes:

AAAI-2016 Workshop on Declarative Learning Based Programming, Phoenix, AZ, February 2016.

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).

#### SELECTED NSF AND DoD MEETINGS AND 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.

National Academy of Science panel on Alerts and Warnings using Social Media, Irvine, CA, February 2012.

Various NSF proposal review panels.

ARL planning meetings and panels 2010, 2011, 2012, 2013, 2014.

ONR, Multi-University Research Initiative (MURI) Principal Investigators Conference, 2000, 2001, 2002, 2003, 2004, 2008

IARPA FUSE meetings, 2011, 2012, 2013, 2014

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

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

DARPA planning meetings and panels. 2005, 2006, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016.

Department of Homeland Security: presentations at multiple Science & Technology division meetings, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015.

NSF Smart & Connected Health Visioning Meeting, 2017

## REVIEW:

INTERNATIONAL REVIEW PANELS: International Review Panels for the European Union; An International Review Panel, China-Singapore Institute of Digital Media; Reviewer for the Israeli National Academy of Science; Reviewer for the Netherlands Organization for Scientific Research (NWO).

NATIONAL REVIEW PANELS: Multiple NSF Review Panels; Reviewer for Army Research Lab (ARL); Reviewer for ONR; Reviewer for DTRA; Reviewer for NSF-EPSCoR.

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*.

## DISTINGUISHED LECTURES AND KEYNOTE TALKS

**Computer Science Distinguished Lecture Series**, Northwestern University, Chicago IL, October 2017. *TBD*.

**Illinois Health Data Analytics Summit**, University of Illinois, May 2017. *Natural Language Processing in Support of Healthcare*

**NSF Smart & Connected Health Visioning Meeting**, Boston University, March 2017. *Natural Language Processing in Support of Healthcare*

**American Bar Association (ABA) Antitrust Law Spring Meeting**, Washington DC, March 2017. *Expert Testimony of the Future of Machine Learning in the Legal Domain*

**Workshop on India's Tryst with Artificial Intelligence**, Bangalore, India, January 2017. *Making Sense of Unstructured Data: The Emergence of AI*

**NIPS 2016 Workshop on Cognitive Computation**, Barcelona, Spain, December 2016. A keynote speech on *Natural Language Understanding with Common Sense Reasoning*.

**15th Conference of the Italian Association for Artificial Intelligence**, Genoa, Italy, November 2016. A keynote speech on *Inducing Semantics with Minimal (or No) Supervision*.

**Computer Science Distinguished Lecture Series**, Northeastern University, Boston MA, November 2016. *Making Sense of (And Trusting) Unstructured Data*.

**The Conference of the Association of Computational Linguistics**, The 7th Workshop on Cognitive Aspects of Computational Language Learning, August 2016. Berlin, Germany. An invited talk on *Starting from Scratch in Semantic Role Labeling*.

**The North American Conference of the Association of Computational Linguistics**, The 4th Workshop on EVENTS, June 2016. San Diego, CA. An invited talk on *Events in Natural Language Text*.

**The University of Amsterdam**, A EU workshop on Semantic Processing. June 2016. Amsterdam, The Netherlands. An invited talk *Inducing Semantics with Minimal (or No) Supervision*.

**University of Wisconsin**, Madison, WI, May 2016. Department of Computer Science Distinguished Lecture Series on Data Management and Analysis . *Making Sense of (And Trusting) Unstructured Data*.

**Rutgers University**, New Brunswick, NJ, April 2016. Department of Homeland Security Retreat. An Invited Lecture on *Information Trustworthiness*.

**University of Pennsylvania**, Philadelphia, PA, February 2016. Department of Computer Science Distinguished Lecture Series. *Constraints Driven Learning and Inference for Natural Language Understanding*.

**AAAI'16, Phoenix, AZ. A workshop on Declarative Learning Based Programming**, January 2016. A keynote speech on *Declarative Learning Based Programming*.

**The University of Utrecht**, The Netherlands, October 2015. A workshop on Common Sense and Logic for Reasoning in Natural Language. Keynote Speaker. *Common Sense Reasoning for Natural Language Understanding*.

**NLPCC**, Nanchang, China, October 2015. The 4th China Computer Federation Conference on Natural Language Processing & Chinese Computing. Keynote Speaker. *Learning and Inference for Natural Language Understanding*.

**TSD**, Plzen, Czech Republic, September 2015. The 18th International Conference on Text, Speech and Dialogue. Keynote Speaker. *Learning and Inference for Natural Language Understanding*.

**IJCAI'15**, Buenos Aires, Argentina, July 2015. The 10th International Workshop on Neural-Symbolic Learning and Reasoning (NeSy'15). Distinguished Workshop Speaker. *Natural Language Understanding with Common Sense Reasoning*.

**Microsoft Research**, Redmond, WA, July 2015. An Invited Lecture in the MSR Faculty Summit. *Common Sense Reasoning for Natural Language Understanding*.

**Data Science Initiative, Distinguished Lecture Series**, Boston University, Boston MA, April 2015. *Learning and Inference for Natural Language Understanding*.

**Advanced Digital Sciences Center**, Singapore, December 2014. Workshop on Natural Language Processing. A keynote talk on *Learning and Inference for Natural Language Understanding*.

**Rochester Institute of Technology**, Rochester, NY, October 2014. Distinguished Computational Linguistics Lecture on *Learning and Inference for Natural Language Understanding*.

**Rutgers University**, New Brunswick, NJ, October 2014. A Fusion Fest Workshop in honor of Paul Kantor. An Invited Lecture on *Making Sense of Unstructured Data*.

**Andreessen Horowitz, Academic Roundtable**. Palo Alto, CA. September 2014. *Data Science: Making Sense of Unstructured Data*.

**AutoML, an ICML workshop**, June 2014. Beijing, China. A keynote speech on *Learning Based Programming*.

**EACL'14, The European Conference on Computational Linguistics**. Gutenberg, Sweden, April 2014. A keynote speech on *Learning and Inference for Natural Language Understanding*.

**Allen Institute for AI (AI2)**, Seattle, WA., March 2014. A Distinguished Lecture Series talk on *Learning and Inference for Natural Language Understanding*.

**ITA 2014, The Information Theory and Applications Workshop**, San Diego, CA, February 2014. An invited talk on *Amortized Integer Linear Programming Inference*.

**NIPS 2013 Workshop on Output Representation Learning**, Lake Tahoe, CA, December 2013. A keynote speech on *Amortized Integer Linear Programming Inference*.

**Fondazione Bruno Kessler, The Center for Information and Communication Technology**, Trento, Italy, November 2013. Distinguished Lecture Colloquium on *Amortized Integer Linear Programming Inference*.

**JSSP 2013 - Joint Symposium on Semantic Processing**, Trento, Italy, November 2013. A keynote speech on *Computational Frameworks for Supporting Textual Inference*.

**Institute of Computational Linguistics, Distinguished Lecture Colloquium**, The University of Heidelberg, Heidelberg, Germany, October 2013. *Better Natural Language Analysis and Amortized Integer Linear Programming*.

**The CIKM Workshop on Exploiting Semantic Annotations in Information Retrieval (ESAIR'13)**, San Francisco, CA, October 2013. A keynote speech on *Computational Frameworks for Semantic Analysis and Wikification*.

**The University of Washington & Microsoft Research Summer Institute on Understanding Situated Language in Everyday Life**, July 2013. A keynote speech on *Starting from Scratch in Semantic Role Labeling*.

**The Second AAAI workshop on Combining Constraint Solving with Mining and Learning**, July 2013. A keynote speech on *Amortized Integer Linear Programming Inference*.

**Inferning: Interactions between Learning and Inference, an ICML workshop**, June 2013. A keynote speech on *Amortized Integer Linear Programming Inference*.

**Structured Learning: Inferring Graphs from Structured and Unstructured Inputs, an ICML Workshop**, June 2013. A keynote speech on *Decomposing Structured Prediction via Constrained Conditional Models*.

**22nd Annual Belgium-Netherlands Conference on Machine Learning (BENELEARN-2013)**, Nijmegen, the Netherlands, June 2013. A keynote speech on *Constrained Conditional Models: Towards Better Semantic Analysis of Text*.

**KU Leuven Distinguished Lecture Series**, Leuven, Belgium, May 2013. *Constrained Conditional Models: ILP Formulations for Natural Language Understanding*.

**Computational Science and Engineering Center, University of Illinois**. Keynote Speech at the Annual Meeting, April 2013. *Making Sense of and Trusting, Unstructured Data*.

**A COLING Workshop on Information Extraction & Entity Analytics on Social Media Data**, December 2012. A keynote speech on *Constraints Driven Information Extraction and Trustworthiness*.

**The Annual Italian Operation Research Meeting (AIRO 2012)**, Salerno, Italy, September 2012. A keynote speech on *Constrained Conditional Models Integer Linear Programming Formulations for Natural Language Understanding*.

**The 2012 Workshop on Statistical Relational AI (STAR-AI 2012)**, Catalina Island, CA, August 2012. A keynote speech on *Constrained Conditional Models Integer Linear Programming Formulations for Natural Language Understanding*.

**An NAACL'12 Workshop on "From Words to Actions"**, Montreal, Canada, June 2012. A keynote speech on *Learning from Natural Instructions*.

**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 AAAI-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 Cesarea 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)

IBM Research, White Planes, NY., September 2016. *Inducing Semantics with Minimal (or No) Supervision..*

Boston University, Boston, MA., January 2016. *Constraints Driven Learning and Inference for Natural Language Understanding*.

Peking University, Beijing, China, October 2015. *Learning and Inference for Natural Language Understanding*.

Charles University, Prague, Czech Republic, September 2015. *Learning and Inference for Natural Language Understanding*.

INRIA Lille, France, May 2015. *Learning, Inference and Supervision for Structured Prediction Tasks*.

INRIA, Paris, France, May 2015. *Learning and Inference for Natural Language Understanding*.

Wolfram Research, Champaign, IL, March 2014. *Progress in Natural Language Understanding*.

Google, Mountain View, CA., February 2015. *Top Ten Challenges in Natural Language Understanding*.

Ben-Gurion University, Beer-Sheva, Israel, December 2014. *Learning and Inference for Natural Language Understanding*.

Singapore National University, Singapore, December 2014. *Learning and Inference for Natural Language Understanding*.

Singapore University of Technology and Design, Singapore, December 2014. *Making Sense of Unstructured Data*.

Cornell University, Ithaca, NY, November 2014. *Learning and Inference for Natural Language Understanding*.

University of Rochester, Rochester, NY, October 2014. "Big Picture Series" Lecture on *Learning and Inference for Natural Language Understanding*.

Microsoft Research, Beijing, China., June 2014. *Learning and Inference for Natural Language Understanding*.

Rensselaer Polytechnic Institute (RPI), Troy, NY, April 2014. *Learning and Inference for Natural Language Understanding*.

Columbia University, NYC, NY, March 2014. *Learning and Inference for Natural Language Understanding*.

Google, Mountain View, CA., March 2014. *Learning and Inference for Natural Language Understanding*.

University of California, Santa Cruz. February, 2014. *Learning and Inference for Natural Language Understanding*.

\*SEM, The Second Joint Conference on Lexical and Computational Semantics. Atlanta, GA, June 2013. A Panel Presentation on *Extended Semantic Role Labeling*.

Google, New York, NY., August 2013. *Better Natural Language Analysis and Amortized Integer Linear Programming*.

IBM Research, White Planes, NY., February 2013. *Making Sense of and Trusting, Unstructured Data*.

West Point Military Academy, Network Science Center, West Point, NY, February 2013. *Making sense of, and Trusting Unstructured Data.*

New York City Natural Language Processing Seminar, City University of NY, NYC, NY, January 2013. *Constrained Conditional Models: Integer Linear Programming Formulations for Natural Language Understanding.*

Health Informatics Technology Center, Workshop at the University of Illinois, Champaign, IL, November 2012. *Constraints Driven Information Extraction in the Medical Domain.*

Johns Hopkins University, The Center for Language and Speech Processing, Baltimore, MD, September 2012. *Constrained Conditional Models: Integer Linear Programming Formulations for Natural Language Understanding.*

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 Universit?t 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 32 Ph.D Students, 28 M.S. students, and over 30 undergraduate research assistants.

Graduate students got offers from universities such as Cambridge, Michigan, Purdue, Univ. of Pennsylvania, Univ. of Virginia, and Utah; research labs such as Google Research, Microsoft Research and IBM, and have been post-docs at places such as MIT, Stanford, Columbia and Michigan.

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).

Served on over 60 PhD committees at UIUC and multiple other institutions, including PhD committees in Belgium, Canada, France, Israel, Italy, the Netherlands, Spain, and the UK.

## 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 Perez, Universitat Politècnica 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 Gioja, 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 – August 2012.
18. Jeff Pasternack, Post-Doctoral Researcher, May 2012 – October 2012.

19. Yao-zhong Zhang, Post-Doctoral Research, September 2012 – October 2013.
20. Angel Conde Manjon, University of the Basque Country, Ph.D. Student, Fall 2012, Fall 2013.
21. Christos Christodoulopoulos, Post-Doctoral Researcher, August 2013 – Present.
22. Yangqiu Song, Post-Doctoral Researcher, October 2013 – April 2016.
23. Parisa Kordjamshidi, Post-Doctoral Researcher, December 2013 – August 2016.
24. Michael Roth, Post-Doctoral Researcher, September 2016 – April 2017.
25. Snigdha Chaturvedi, Post-Doctoral Researcher, July 2016 – Present.

#### UNIVERSITY SERVICE

Served on a large number of Departmental and College of Engineering Committees.

Key leadership roles include:

- Chair of the Dept. of Computer Science Graduate Admission Committee 2014–2016.
- 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 Admission Committee, 2014–2015.
- 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, Co-Chair, 2008.
- Graduate College Fellowship Committee, 2012-2013
- University Scholars Committee, 2012-2014

# Publications

## BOOKS

- [1] I. Dagan, D. Roth, M. Sammons and F. Zanzotto, “Textual Entailment”, Morgan & Claypool Publishers. 2013.
- [2] W. Burgard, D. Roth, editors, Proceedings of the Twenty-Fifth AAAI Conference on Artificial Intelligence (AAAI-11), San Francisco, CA, USA, Aug. 2011.
- [3] E. Hinrichs and D. Roth, Editors, “ACL’03: 41st Annual Meeting of the Association for Computational Linguistics”, Sapporo, Japan, July 2003.
- [4] 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.

## JOURNAL ARTICLES

- [5] A. Rozovskaya, M. Sammons, and D. Roth, “Adapting to Learner Errors with Minimal Supervision”, *Computational Linguistics*. Vol. XX, April 2017. Accepted for Publication.
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