Craig A. Knoblock

Contact Information

University of Southern California
Information Sciences Institute
4676 Admiralty Way
Marina del Rey, CA 90292
knoblock@isi.edu
http://www.isi.edu/~knoblock
Phone: (310) 822-448-8786
Fax: (310)-822-0751

Education

Carnegie Mellon University, Pittsburgh, PA, 1984-1991
Ph.D., Computer Science, May 1991
Thesis Title: Automatically Generating Abstractions for Problem Solving
Advisor: Jaime G. Carbonell

Carnegie Mellon University, Pittsburgh, PA, 1984-1988
M.S., Computer Science, May 1988

Syracuse University, Syracuse, NY, 1980–1984
B.S., Computer Science with Honors, May 1984

Research Positions

Director of Information Integration, June, 2010 – present
Senior Project Leader, May, 2001 – June, 2010
Project Leader, May, 1997 – May, 2001
Senior Research Scientist, Aug 1991 – May 1997
Information Sciences Institute
University of Southern California

Research Professor, April, 2006 – present
Research Associate Professor, November, 1998 – March, 2006
Research Assistant Professor, September, 1991 – November 1998
Computer Science Department
University of Southern California

Affiliated Faculty Member, 2010 – present
Spatial Sciences Institute
University of Southern California

Key Investigator, September, 1996 – September, 2007
Integrated Media Systems Center
University of Southern California

Cofounder & Chief Scientist, November, 1999 – December, 2010
Fetch Technologies, Inc.
Acquired by Connotate, Inc. in December, 2011.

Cofounder & Chief Scientist, November, 2004 – June, 2012
Geosemble Technologies, Inc.
Acquired by TerraGo Technologies in June, 2012.

Research Interests

Research: Techniques for rapid and efficient information integration: Semantic Web, linked data, machine learning, constraint reasoning, information extraction, information mediators, structured source extraction, source modeling, schema alignment, record linkage, and mashup construction.

Applications: geospatial, biological, and cultural heritage information integration.

Teaching Experience

- **CSCI 548: Information Integration on the Web**
  Taught jointly with Professor Pedro Szekely, University of Southern California, Spring 2013.

- **CSCI 548: Information Integration on the Web**
  Taught jointly with Professors Pedro Szekely and Jose Luis Ambite, University of Southern California, Spring 2012.

- **Geospatial Data Integration**
  University of Southern California, Spring 2011.

- **Geospatial Data Integration**
  University of Trento, Italy, July 2010.

- **CSCI 548: Information Integration on the Web**
  Taught jointly with Professor Kristina Lerman, University of Southern California, Spring 2010.

- **CSCI 548: Information Integration on the Web**
  Taught jointly with Professor Kristina Lerman, University of Southern California, Spring 2009.

- **CSCI 548: Information Integration on the Web**
  University of Southern California, Spring 2008.

- **CSCI 548: Information Integration on the Web**
  University of Southern California, Fall 2006.

- **CSCI 548: Information Integration on the Web**
  University of Southern California, Spring 2005.

- **CSCI 548: Information Integration on the Web**
  University of Southern California, Spring 2004.

- **CSCI 599: Information Integration on the Web**
  University of Southern California, Spring 2003.

- **CSCI 599: Information Integration on the Web**
  University of Southern California, Spring 2002.

- **CSCI 541: Artificial Intelligence Planning**
  Taught jointly with Dr. James Blythe, University of Southern California, Fall 1998.

- **CSCI 541: Artificial Intelligence Planning**
  Taught jointly with Dr. Yolanda Gil, University of Southern California, Fall 1996.

- **CSCI 599: AI Planning Systems**
  Taught jointly with Dr. Steve Chien, University of Southern California, Fall 1992.

Honors and Awards

- **Best Research Paper Award**, International Semantic Web Conference (ISWC), 2012.
- **Distinguished Scientist**, Association of Computing Machinery (ACM), 2008.
- **Fellow**, Association for the Advancement of Artificial Intelligence (AAAI), 2004.
- **Best Paper Award**, IEEE/WIC International Conference on Web Intelligence (WI 2003).
- **Meritorious Service Award**, Information Sciences Institute, 1999.
- **Teaching Fellowship**, Information Sciences Institute, Fall, 1996.
- **Best Paper Award**, Canadian Artificial Intelligence Conference, 1994.
- **Graduate Fellowship**, Air Force Laboratory, 1987-1991.
- **Class Scholar**, Syracuse University, 1984.
- **Upper Division Honors**, Syracuse University, 1984.
- **Lower Division Honors**, Syracuse University, 1982.
- **Regents Scholarship**, New York State, 1980-1984.

Invited Talks

- **Challenges to the Success of Linked Open Data** Invited talk at the PlanetData Roadmapping Workshop at the 2012 Extended Semantic Web Conference, May 30, 2012.
- **Harvesting Named Geographic Features from Raster Maps**
  Invited talk at GeoINT 2011 Symposium Interoperability Tech Talks, San Antonio, TX, Oct 18, 2011.
- **Interactive Information Integration for Network Extraction, Discovery, and Analysis**
  Invited talk at the Technology Visions for Network Extraction, Discovery, and Analysis Workshop, Vernon, NY, Sept 21, 2011.
- **A General Approach to Discovering, Registering, and Extracting Features from Raster Maps**
  Invited talk at the University of California, Santa Barbara, CA, February 3, 2011
  Invited talk at Syracuse University, Syracuse, NY, October 6, 2010
  Invited talk at Google, Inc., Mountain View, CA, August 25, 2010
- **A Reference-Set Approach to Information Extraction from Unstructured, Ungrammatical Data Sources**
  Invited talk at the University of Washington, Seattle, WA, January 21, 2011
  Invited talk at the University of Lugano, Lugano, Switzerland, July 12, 2010
- **Building Semantic Descriptions of Linked Data**
  Invited talk at the 1st International Workshop on Consuming Linked Data (COLD 2010) at the International Semantic Web Conference, 2010.
  Shanghai, China, November 8, 2010
- **Interactively Building Geospatial Mashups**
  Keynote talk at the 2nd International Workshop on New Trends in Information Integration
  Long Beach, CA, March 5, 2010
- **A General Approach to Discovering, Registering, and Extracting Features from Raster Maps**
  Invited talk at the Conference on Document Recognition and Retrieval of the IS&T/SPIE 19th Annual Symposium International Symposium on Electronic Imaging
  San Jose, CA, January 20, 2010

- **Geospatial Data Integration for High-level Fusion**
  Invited talk at the ONR Workshop Panel on Directions for Higher-Level Fusion Research: Needs and Capabilities
  Seattle, WA, July 6, 2009

- **Discovering and Building Semantic Models of Web Sources**
  Keynote address at 6th Annual European Semantic Web Conference (ESWC2009)
  Heraklion, Greece, June 3, 2009

- **Web-based Learning**
  Invited talk at the AFRL Next Generation Reasoning and Learning: Theory and Applications Workshop
  Vernon, NY, May 27, 2009

- **Exploiting Open Source Data for Imagery Understanding**
  Invited talk at NRO Tech Seminar
  Chantilly, VA, February 20, 2009

- **Automatically Discovering, Extracting and Modeling Web Sources for Information Integration**
  Invited talk at Universita degli Studi di Genova
  Genoa, Italy, December 15, 2008

- **Building Mashups by Example**
  Invited talk at Microsoft Research
  Bellevue, WA, August 1, 2008

- **Finding, Extracting, and Integrating Data from Maps**
  Invited talk at University of Nebraska
  Lincoln CSE Colloquium Series, November 29, 2007.

- **Beyond the Elves: Making Intelligent Agents Intelligent**
  Invited talk at AAAI Spring Symposium on What Went Wrong and Why
  Palo Alto, CA, March 28, 2006

- **Learning to Optimize Plan Execution in Information Agents**
  Plenary talk at the 6th International Conference on Case-Based Reasoning (ICCBR 2005)
  Chicago, IL, USA, August 25, 2005

- **Mining Data from Online and Geospatial Information Sources**
  Invited talk at National Geospatial Intelligence Agency (Oct 19, 2004), Central Intelligence Agency (Oct 19, 2004), National Security Agency (Oct 20, 2004)

- **Building Software Agents for Planning, Monitoring, and Optimizing Travel**
  Plenary talk at the Eleventh International Conference On Information Technology and Travel &Tourism
  Cairo, Egypt, January, 26, 2004

- **Deploying Information Agents on the Web**
  Plenary talk at the International Joint Conference on Artificial Intelligence (IJCAI-03)
  Acapulco, Mexico, August 15, 2003

- **Integrating Online and Geospatial Information Sources**
  Plenary talk at the Summer Assembly of the University Consoritum for Geographic Information Science
  Monterey, CA, June 17, 2003

- **Information Integration on the Web**
  Invited talk at the Planet 2002 Summer School on Planning on the Web, September 2002

- **Exploring Real World Planning**
  Invited talk at the AIPS 2002 Workshop, April, 2002

- **Electronic Commerce in the Information Industries**
  Invited talk at The 36th Annual Graduate School of Library and Information Science Clinic, April 2-4, 2000

- **Abstraction and Hierarchy in Reinforcement Learning**
  Invited talk at NIPS-98 workshop, 1998

Professional Activities

Elected Positions

- **President**, International Joint Conferences on Artificial Intelligence, 2011-2013.
- **Trustee**, International Joint Conference on Artificial Intelligence, 2007-2017.
- **President**, International Conference on Automated Planning and Scheduling, 2006-2008.
- **President-Elect**, International Conference on Automated Planning and Scheduling, 2004-2006.
- **Treasurer**, Executive Council of the International Conference on Automated Planning and Scheduling, 2002-2004.
- **Executive Council Member**, AAAI, 2001-2004.

2012

- **Conference Chair**, ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, 2012.
- **Workshop Chair**, Workshop at the Extended Semantic Web Conference on Linked APIs, 2012.
- **Area Chair**, Twenty-Sixth Conference on Artificial Intelligence, 2012.
- **Organizing Committee**, Computing Community Consortium Workshop on Spatial Computing, 2012
- **Steering Committee**, AAAI 2012 Workshop on Semantic Cities.
- **Organizing Committee**, Ninth International Workshop on Information Integration on the Web (IIWeb 2012).
- **Program Committee**, Extended Semantic Web Conference, 2012.
- **Program Committee**, International Semantic Web Conference, 2012.
- **Program Committee**, Workshop on Knowledge Discovery and Data Mining Meets Linked Open Data, 2012.
- **Associate Editor**, *Artificial Intelligence*, 2009-2012
- **Editorial Board Member**, *Journal of Web Semantics*, 2010-2013.
- **Editorial Board Member**, *ACM Transactions on Intelligent Systems and Technology*, 2012.
- **Editorial Board Member**, *Journal on Foundations and Trends in Web Science*, 2012.
- **Editorial Board Member**, *AAAI Press*, 2012.

2011

- **Conference Chair**, International Joint Conference on Artificial Intelligence, 2011
- **Associate Editor**, *Artificial Intelligence*, 2009-2012
- **Editorial Board Member**, *Journal of Web Semantics*, 2010-2013.
- **Editorial Board Member**, *ACM Transactions on Intelligent Systems and Technology*, 2011.
- **Editorial Board Member**, *Journal on Foundations and Trends in Web Science*, 2011.
- **Editorial Board Member**, *AAAI Press*, 2011.

- **Special Issue Editor**, *Journal of Web Semantics* on Dealing with the Messiness of the Web of Data, 2011.
- **Program Committee Member**, ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, 2011.
- **Steering Committee**, IIWeb 2011 : Eighth International Workshop on Information Integration on the Web, 2011.

2010

- **Conference Chair**, International Joint Conference on Artificial Intelligence, 2011
- **Associate Editor**, *Artificial Intelligence*, 2009-2012
- **Editorial Board Member**, *ACM Transactions on Intelligent Systems and Technology*, 2010.
- **Editorial Board Member**, *Journal of Web Semantics*, 2010-2013.
- **Editorial Board Member**, *Journal on Foundations and Trends in Web Science*, 2010.
- **Editorial Board Member**, *AAAI Press*, 2010.
- **Senior Program Committee Member**, Twenty-Fourth Conference on Artificial Intelligence, AI & the Web Special Track, 2010.
- **Program Committee Member**, ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, 2010.

2009

- **Conference Chair**, International Joint Conference on Artificial Intelligence, 2011
- **Co-organizer**, Workshop on Information Integration on the Web, 2009.
- **Associate Editor**, *Artificial Intelligence*, 2009-2012
- **Editorial Board Member**, *Journal on Foundations and Trends in Web Science*, 2009.
- **Editorial Board Member**, *AAAI Press*, 2009.
- **Senior Program Committee Member**, Conference on Intelligent User Interfaces, 2009.
- **Program Committee Member**, Twenty-Third Conference on Artificial Intelligence, AI & the Web Special Track, 2009.
- **Program Committee Member**, International Conference on GeoSpatial Semantics, 2009.
- **Program Committee Member**, ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, 2009.

2008

- **Conference Chair**, International Joint Conference on Artificial Intelligence, 2011
- **Conference Co-Chair**, Twenty-Second Conference on Artificial Intelligence, AI & the Web Special Track, 2008.
- **Vice Chair**, International Semantic Web Conference, 2008.
- **Editorial Board Member**, *Journal on Foundations and Trends in Web Science*, 2008.
- **Editorial Board Member**, *AAAI Press*, 2008.
- **Senior Program Committee**, Conference on Intelligent User Interfaces, 2008.
- **Program Committee Member**, International Conference on Advances in Geographic Information Systems, 2008.

- **Program Committee Member**, Second Workshop on Analytics for Noisy Unstructured Text Data, 2008
- **Panel Member**, National Geospatial-Intelligence Agency Multi-Source, Multi-INT Fusion Panel, State College, PA, December 2-3, 2008.

2007

- **Conference Chair**, International Joint Conference on Artificial Intelligence, 2011
- **Senior Program Committee Member**, National Conference on Artificial Intelligence, 2007.
- **Editorial Board Member**, *Computational Intelligence*, 2005-2007.
- **Editorial Board Member**, *Journal on Foundations and Trends in Web Science*, 2007.
- **Editorial Board Member**, *AAAI Press*, 2005-2007.
- **Program Committee Member**, Workshop on Information Integration on the Web, 2007.

2006

- **Senior Program Committee Member**, International Joint Conference on Artificial Intelligence, 2007.
- **Senior Program Committee Member**, National Conference on Artificial Intelligence, 2006.
- **Co-organizer**, IJCAI 2007 Workshop on Analytics for Noisy Unstructured Text Data
- **Review Panel Member**, Marine Geosciences External Review of NRL's Battlespace Environments Technology S&T Program, Stennis, September 19-20, 2006.
- **Editorial Board Member**, *Computational Intelligence*, 2005-2007.
- **Editorial Board Member**, *Journal on Foundations and Trends in Web Science*, 2006.
- **Editorial Board Member**, *AAAI Press*, 2005-2007.
- **Program Committee Member**, Workshop on Information Integration on the Web, 2006.

2005

- **Participant.** National Academy of Sciences Workshop on Using Information Technology to Enhance Disaster Management, Washington, D.C., June 22-23, 2005.
- **Editorial Board Member**, *Computational Intelligence*, 2005-2007.
- **Founding Member**, Editorial Board for the *Journal on Foundations and Trends in Web Science*, 2005.
- **Editorial Board Member**, *AAAI Press*, 2005-2007.
- **Program Committee Member**, ACM Conference on Geospatial Information Science (ACM GIS), 2005.
- **Program Committee Member**, International Conference on Geospatial Semantics (GeoS), 2005.
- **Program Committee Member**, Workshop on Representation and Analysis of Web Space (RAWS-05), 2005.
- **Program Committee Member**, International Joint Conference on Artificial Intelligence, 2005.
- **Program Committee Member**, National Conference on Artificial Intelligence, 2005.
- **Program Committee Member**, International Conference on Automated Planning and Scheduling, 2005.
- **Editorial Board Member**, *IEEE Intelligent Systems*, 2005.

2004

- **Guest Editor**, Special issue of *IEEE Intelligent Systems* on Mining the Web, 19((6), November/December, 2004.
- **Senior Program Committee Member**, Semantic Web Conference, 2004
- **Senior Program Committee Member**, National Conference on Artificial Intelligence, 2004.
- **Program Committee Member**, International Conference on Automated Planning and Scheduling, 2004.
- **Program Committee Member**, 17th International FLAIRS Conference Special Track on AI and the Web, 2004.
- **Editorial Board Member**, *IEEE Intelligent Systems*, 2004.

2003

- **Guest Editor**, Special issue of *IEEE Intelligent Systems* on Information Integration on the Web, September, 2003.
- **Co-Chair**, IJCAI'03 Workshop on Information Integration on the Web, 2003.
- **Program Committee Member**, International Conference on Service Oriented Computing, 2003.
- **Program Committee Member**, KDD'03 Workshop on Data Cleaning, Record Linkage and Object Consolidation, 2003.
- **Program Committee Member**, ISWC'03 Semantic Integration Workshop.
- **Program Committee Member**, Conference on AI Planning and Scheduling, 2003.
- **Program Committee Member**, Conference on Innovative Applications of Artificial Intellgience, 2003
- **Editorial Board Member**, *IEEE Intelligent Systems*, 2003.

2002

- **Member**, Joint European-US Working Group on Information Extraction from Digital Libraries, 2002.
- **Member**, DARPA IXO panel study on Information Integration, 2002.
- **Panel Member**, Robotic, Intelligent and Information Systems Evaluation, Science and Technology Foundation, Ministry of Science and Technology, Portugal, February, 2002.
- **Program Committee Member**, Conference on Innovative Applications of Artificial Intellgience, 2002.
- **Program Committee Member**, Conference on AI Planning and Scheduling, 2002.
- **Program Committee Member**, National Conference on Artificial Intelligence, 2002.
- **Program Committee Member**, AIPS 2002 Workshop on Exploring Real-World Planning, 2002.
- **Editorial Board Member**, *IEEE Intelligent Systems*, 2002.

2001

- **Co-Chair**, NASA RIACS Panel on Information Management Requirements, 2001-2002.
- **Program Committee Member**, Conference on Innovation Applications of Artificial Intelligence, 2001.
- **Editorial Board Member**, *IEEE Intelligent Systems*, 2001.

2000

- **Program Co-Chair**, International Conference on AI Planning and Scheduling, 2000.
- **Senior Program Committee Member**, National Conference on Artificial Intelligence, 2000.
- **Editorial Board Member**, *IEEE Intelligent Systems*, 2000.

1999

- **Review Board Member**, Jet Propulsion Laboratory Annual Technology Program Review of the Telecommunications and Mission Operations Directorate (TMOD), 1999.
- **Reviewer**, International Joint Conference on Artificial Intelligence, 1999.
- **Publicity Chair**, Autonomous Agents, 1999.
- **Editorial Board Member**, *IEEE Intelligent Systems*, 1999.

1998

- **Senior Program Committee Member**, National Conference on Artificial Intelligence, 1998.
- **Co-organizer**, AAAI Workshop on AI and Information Integration at the Fourteenth National Conference on Artificial Intelligence, 1998.
- **Program Committee Member**, International Conference on Artificial Intelligence Planning Systems, 1998.
- **Program Committee Member**, International Conference on Autonomous Agents, 1998.
- **Editorial Board Member**, *IEEE Intelligent Systems*, 1998.

1997

- **Senior Program Committee Member**, National Conference on Artificial Intelligence, 1997.
- **Editor**, Department on Trends and Controversies for *IEEE Expert*, 1997.
- **Program Committee Member**, International Conference on Autonomous Agents, 1997.
- **Reviewer**, European Conference on Planning, 1997.
- **Editorial Board Member**, *IEEE Intelligent Systems*, 1997.
- **Editorial Board Member**, *Journal of Artificial Intelligence Research*, 1997.

1996

- **Editorial Board Member**, *Journal of Artificial Intelligence Research*, 1996.
- **Editor**, Department on Trends and Controversies for *IEEE Expert*, 1996.
- **Program Committee Member**, National Conference on Artificial Intelligence, 1996.
- **Reviewer**, International Conference on Artificial Intelligence Planning Systems, 1996.

1995

- **Editorial Board Member**, *Journal of Artificial Intelligence Research*, 1995.
- **Program Committee Member**, Conference on Artificial Intelligence Applications, 1995.
- **Program Committee Member**, Conference on Cooperative Information Systems, 1995.
- **Reviewer**, International Joint Conference on Artificial Intelligence, 1995.
- **Co-organizer**, AAAI Spring Symposium on Information Gathering from Distributed, Heterogeneous Environments, 1995.
- **Panel Member**, National Science Foundation proposal review panel, 1995.

1993

- **Reviewer**, International Joint Conference on Artificial Intelligence, 1993.

1992

- **Associate Chair**, Tenth National Conference on Artificial Intelligence, 1992.
- **Program Committee Member**, Conference on Principles of Knowledge Representation and Reasoning, 1992.

Journal Reviewer

- *Artificial Intelligence*
- *Constraints, An International Journal*
- *Machine Learning*
- *Journal of Artificial Intelligence Research*
- *Journal of the ACM*
- *Journal of Experimental and Theoretical Artificial Intelligence*
- *Journal of Web Semantics*
- *IEEE Transactions on Knowledge and Data Engineering*
- *IEEE Transactions on Pattern Analysis and Machine Intelligence*
- *IEEE Intelligent Systems*
- *International Journal of Cooperative Information Systems*
- *Theory and Practice of Object Systems*
- *World Wide Web Journal*

Graduated Students

- **Daniel W. Goldberg, 2010**
  Spatial Approaches to Reducing Error in Geocoded Data
  Ph.D., Department of Computer Science, University of Southern California, 2010
  Jointly advised with Professor John Wilson
  Current position: Assistant Professor, Texas A&M University, College Station

- **Yao-Yi Chiang, 2010**
  Harvesting Geographic Features from Heterogeneous Raster Maps
  Ph.D., Department of Computer Science, University of Southern California, 2010
  Current position: Post-doc, University of Southern California

- **Matthew Michelson, 2009**
  A Reference-set Approach to Information Extraction from Unstructured, Ungrammatical Data Sources
  Ph.D., Department of Computer Science, University of Southern California, 2009
  Current position: Associate, First Quadrant

- **Martin Michalowski, 2008**
  A General Approach to Using Problem Instance Data for Model Refinement in Constraint Satisfaction Problems
  Ph.D., Department of Computer Science, University of Southern California, 2008
  Current position: Adventium Labs

- **Rattapoom Tuchinda, 2008**
  Building Mashups by Example
  Ph.D., Department of Computer Science, University of Southern California, 2008
  Current position: National Electronics and Computer Technology Center, Thailand

- **Snehal Thakkar, 2007**
  A Data Integration Approach to Dynamically Fusing Geospatial Sources
  Ph.D., Department of Computer Science, University of Southern California, 2005
  Current position: Google, Inc.

- **Mark James Carman, 2006**
  Learning Semantic Definitions of Information Sources on the Internet
  Ph.D. Thesis, Department of Information and Communication Technology, University of Trento, 2006
  Current position: Lecturer, Caulfield School of Information Technology, Monash University

- **Ching-Chien Chen, 2005**
  Automatically and Accurately Conflating Road Vector Data, Street Maps and Orthoimagery
  Ph.D., Department of Computer Science, University of Southern California, 2005
  Jointly advised with Professor Cyrus Shahabi
  Current position: Director of Research and Development, TerraGo Technologies

- **Matthew Michelson, 2005**
  Building Queryable Datasets from Ungrammatical and Unstructured Sources
  M.S., Department of Computer Science, University of Southern California, 2005
  Current position: Associate, First Quadrant

- **Rahul Bakshi, 2004**
  Integrating and reasoning about online sources to accurately geocode addresses
  M.S., Department of Computer Science, University of Southern California, 2004
  Current position: Software Engineer, SiRF Technology

- **Greg Barish, 2003**
  Speculative Plan execution for information agents
  Ph.D., Department of Computer Science, University of Southern California, 2003
  Current position: Chief Technology Officer, InferLink

- **Sheila Tejada, 2002**
  Learning object identification rules for information integration
  Ph.D., Department of Computer Science, University of Southern California, 2002
  Current position: Lecturer, University of Southern California

- **Ion Alexandru Muslea, 2002**
  Active Learning with Multiple Views
  Ph.D., Department of Computer Science, University of Southern California, 2002
  Current position: Research Scientist, Language Weaver

- **Naveen Ashish, 2000**
  Optimizing information mediators by selectively materializing data
  Ph.D., Department of Computer Science, University of Southern California, 2000
  Current Position: Research Scientist, CALIT2, University of California, Irvine

- **Jose Luis Ambite, 1998**
  Planning by rewriting
  Ph.D., Department of Computer Science, University of Southern California, 1998
  Current Position: Research Scientist and Research Assistant Professor, Informations Sciences Institute, University of Southern California

- **Chun-Nan Hsu, 1996**
  Learning effective and robust semantic knowledge for database query optimization
  Ph.D., Department of Computer Science, University of Southern California, 1996
  Current Position: Research Scientist, Information Sciences Institute, University of Southern California

Publications

Journal Articles

1. Yao-Yi Chiang and Craig A. Knoblock. A general approach for extracting road vector data from raster maps. *International Journal on Document Analysis and Recognition*, 2011.

2. Rattapoom Tuchinda, Craig A. Knoblock, and Pedro Szekely. Building mashups by demonstration. *ACM Transactions on the Web (TWEB)*, 5(3), July 2011. http://dx.doi.org/10.1145/1993053.1993058.

3. Aman Goel, Matthew Michelson, and Craig A. Knoblock. Harvesting maps on the web. *International Journal on Document Analysis and Recognition*, 2010. http://dx.doi.org/10.1007/s10032-010-0136-2.

4. Matthew Michelson and Craig A. Knoblock. Constructing reference sets from unstructured, ungrammatical text. *Journal of Artificial Intelligence Research*, 38:189–221, 2010.

5. Daniel W. Goldberg, John P. Wilson, and Craig A. Knoblock. Extracting geographic features from the internet to automatically build detailed regional gazetteers. *International Journal of Geographic Information Science*, 2009.

6. Yao-Yi Chiang, Craig A. Knoblock, Cyrus Shahabi, and Ching-Chien Chen. Automatic and accurate extraction of road intersections from raster maps. *Geoinformatica*, 2008. http://dx.doi.org/10.1007/s10707-008-0046-3.

7. Ching-Chien Chen, Craig A. Knoblock, and Cyrus Shahabi. Automatically and accurately conflating raster maps with orthoimagery. *Geoinformatica*, 12(3):377–410, 2008. http://dx.doi.org/10.1007/s10707-007-0033-0.

8. Jim Blythe, Dipsy Kapoor, Craig A. Knoblock, Kristina Lerman, and Steven Minton. Information integration for the masses. *Journal of Universal Computer Science*, 14(11):1811–1837, 2008.

9. Daniel W. Goldberg, John P. Wilson, Craig A. Knoblock, Beate Ritz, and Myles G Cockburn. An effective and efficient approach for manually improving geocoded data. *International Journal of Health Geographics*, 7(60), 2008. doi:10.1186/1476-072X-7-60.

10. Matthew Michelson and Craig A. Knoblock. Creating relational data from unstructured and ungrammatical data sources. *Journal of Artificial Intelligence Research (JAIR)*, 31:543–590, 2008.

11. Greg Barish and Craig A. Knoblock. Speculative plan execution for information gathering. *Artificial Intelligence*, 172(4-5):413–453, 2008. http://dx.doi.org/10.1016/j.artint.2007.08.002.

12. Craig A. Knoblock, Jos Luis Ambite, Kavita Ganesan, Maria Muslea, Steven Minton, Greg Barish, Evan Gamble, Claude Nanjo, Kane See, Cyrus Shahabi, , and Ching-Chien Chen. Entitybases: Compiling, organizing and querying massive entity repositories. In *International Conference on Artificial Intelligence (ICAI'07)*, Las Vegas, Nevada, USA, June 2007.

13. Matthew Michelson and Craig A. Knoblock. Unsupervised information extraction from unstructured, ungrammatical data sources on the world wide web. *International Journal of Document Analysis and Recognition (IJDAR), Special Issue on Noisy Text Analytics*, 10(3-4):211–226, 2007.

14. Mark Carman and Craig A. Knoblock. Learning semantic definitions of online information sources. *Journal of Artificial Intelligence Research (JAIR)*, 30:1–50, 2007.

15. Kristina Lerman, Anon Plangprasopchok, and Craig A. Knoblock. Semantic labeling of online information sources. *International Journal on Semantic Web and Information Systems*, 3(3):36–56, 2007.

16. Daniel W. Goldberg, John P. Wilson, and Craig A. Knoblock. From text to geographic coordinates: The current state of geocoding. *Journal of the Urban and Regional Information Systems Association*, 19(1):33–46, 2007. http://urisa.org/goldberg.

17. Ching-Chien Chen, Craig A. Knoblock, and Cyrus Shahabi. Automatically conflating road vector data with orthoimagery. *Geoinformatica*, 10(4):495–530, December 2006.

18. Ion Muslea, Steve Minton, and Craig A. Knoblock. Active learning with multiple views. *Journal of Artificial Intelligence Research*, 27:203–233, 2006.

19. Shou de Lin and Craig A. Knoblock. Sergeant: A framework for building more flexible web agents by exploiting a search engine. *Web Intelligence and Agent Systems*, 3(1):1–15, 2005.

20. Greg Barish and Craig A. Knoblock. An expressive language and efficient execution system for software agents. *Journal of Artificial Intelligence Research*, 23:625–666, 2005.

21. Snehal Thakkar, Jose Luis Ambite, and Craig A. Knoblock. Composing, optimizing, and executing plans for bioinformatics web services. *VLDB Journal, Special Issue on Data Management, Analysis and Mining for Life Sciences*, 14(3):330–353, Sep 2005.

22. Kristina Lerman, Steven N. Minton, and Craig A. Knoblock. Wrapper maintenance: A machine learning approach. *Journal of Artificial Intelligence Research*, 18:149–181, 2003.

23. Naveen Ashish, Craig A. Knoblock, and Cyrus Shahabi. Selectively materializing data in mediators by analyzing user queries. *International Journal of Cooperative Information Systems*, 11(1), March, 2002.

24. Jose Luis Ambite and Craig A. Knoblock. Planning by rewriting. *Journal of Artificial Intelligence Research*, 15:207–261, 2001.

25. Sheila Tejada, Craig A. Knoblock, and Steven Minton. Learning object identification rules for information integration. *Information Systems*, 26(8), 2001.

26. Jose Luis Ambite, Craig A. Knoblock, Ion Muslea, and Andrew Philpot. Compiling source descriptions for efficient and flexible information integration. *Journal of Intelligent Information Systems*, 16(2):149–187, March 2001.

27. Craig A. Knoblock, Steven Minton, Jose Luis Ambite, Naveen Ashish, Ion Muslea, Andrew G. Philpot, and Sheila Tejada. The ariadne approach to web-based information integration. *International Journal of Cooperative Information Systems (IJCIS), Special Issue on Intelligent Information Agents: Theory and Applications*, 10(1/2):145–169, 2001.

28. Ion Muslea, Steven Minton, and Craig A. Knoblock. Hierarchical wrapper induction for semistructured information sources. *Autonomous Agents and Multi-Agent Systems*, 4(1/2), March 2001.

29. José Luis Ambite and Craig A. Knoblock. Flexible and scalable cost-based query planning in mediators: A transformational approach. *Artificial Intelligence Journal*, 118(1-2):115–161, April 2000.

30. Chun-Nan Hsu and Craig A. Knoblock. Semantic query optimization for query plans of heterogeneous multi-database systems. *IEEE Transactions on Knowledge and Data Engineering*, 12(6):959–978, November/December 2000.

31. Chun-Nan Hsu and Craig A. Knoblock. Discovering robust knowledge from databases that change. *Data Mining and Knowledge Discovery*, 2(1), 1997.

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Selected Technical Reports

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3. Steven Minton, Craig A. Knoblock, Daniel R. Kuokka, Yolanda Gil, Robert L. Joseph, and Jaime G. Carbonell. PRODIGY 2.0: The manual and tutorial. Technical Report CMU-CS-89-146, School of Computer Science, Carnegie Mellon University, Pittsburgh, PA, 1989.

Tutorials

1. ***Information Integration on the Web***
Craig Knoblock and Subbarao Kambhampati
Tutorial Program, Twenty-Second National Conference on Artificial Intelligence
July 22, 2007

2. ***Planning on the Web***
Craig Knoblock and Jose Luis Ambite
Tutorial Program, Fourteenth International Conference on Automated Planning and Scheduling
June 3, 2004

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Craig Knoblock and Subbarao Kambhampati
Tutorial Program, Eighteenth National Conference on Artificial Intelligence
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5. ***Recent Advances in AI Planning***
Co-taught with Subbarao Kambhampati
Tutorial Program, Fifteenth National Conference on Artificial Intelligence, 1998.

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Grants and Contracts

1. **Principal Investigator**, *Integrating Heterogeneous Sources in a Geospatial Framework to Support Oil Field Operations*, Chevron, $110,000, January 2012.

2. **Principal Investigator**, *Organizing and Linking Art Museum Information*, Smithsonian American Art Museum, $200,000, April 2012.

3. **Principal Investigator**, *Integrating Heterogeneous Sources in a Geospatial Framework to Support Oil Field Operations*, Chevron, $145,000, January 2012.

4. **Co-Principal Investigator**, *Geospatial Analysis of Motion-Based Intelligence Tracking*, Office of Naval Research, $2,520,000, December 2011.

5. **Principal Investigator**,*Building Linked Open Services from Online Sources*, NSF, $500,000, October 2011.

6. **Principal Investigator**, *Integrating Heterogeneous Sources in a Geospatial Framework to Support Oil Field Operations*, Chevron, $96,000, January 2011.

7. **Principal Investigator**, *DOmain Vocabulary from Extraction, Transduction, and Auto Induction of Layout (DOVETAIL)*, IARPA, (subcontract from SRI), $2,307,822, October 2010.

8. **Principal Investigator**, *An Integrated Framework for Geospatial Data Fusion*, DOD, $300K, August 2010.

9. **Principal Investigator**, **Building Mashups for Decision Making**, DARPA, $150,000, April 2010.

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11. **Principal Investigator**, *Harvesting Named Geographic Features from Raster Maps*, DOD, $300,000, October 2009.

12. **Co-Principal Investigator**, *Automation of Technical Reachback for PMESII Best Practices*, OSD STTR Phase I Project (subcontract from Securboration), $100,000, February 2009.

13. **Co-Principal Investigator**, *Trend Analysis and Data Mining for Finding Suspicious Entities*, AFRL STTR Phase II Project (subcontract from Fetch Technologies), $750,000, November 2008.

14. **Co-Principal Investigator**, *Rapid engagement of humanitarian assistance social networks for ad hoc geospatial data sharing*, National Science Foundation, $450,000, September 2008.

15. **Principal Investigator**, Sapling Effort on Information Integration, DARPA, $500,000, November 2007.

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37. **Co-Principal Investigator**, *Agents for Plan Management*, DARPA Cooperative Agent-Based Systems Program, $2,102,000, July 1998.

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40. **Co-Principal Investigator**, *Information Integration for Battlefield Awareness*, DARPA Battlefield Awareness and Data Dissemination Program, 750,000, June 1997.

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43. **Principal Investigator**, *Learning and Reformulation for Efficient Multidatabase Retrieval*, National Science Foundation Database and Expert Systems Program, $259,000, September 1993.

44. **Principal Investigator**, *Building Information Servers*, DARPA Augmentation Award for Science and Engineering Research Training, $139,000, March 1993.

Patents

- **System and Method for Fusing Geospatial Data**
  Ching-Chien Chen, Craig A. Knoblock, Cyrus Shahabi, and Yao-Yi Chiang
  US Patent No. 7,660,441, 2011

- **Performing Predictive Pricing Based on Historical Data**
  Oren Etzioni, Alexander Yates, Craig A. Knoblock, and Rattapoom Tuchinda
  US Patent No. 7,974,863, 2011
  US Patent No. 7,346,520, 2008
  US Patent No. 7,010,494, 2006

- **Wrapper Induction by Hierarchical Data Analysis**
  Ion Muslea, Steven Minton, and Craig A. Knoblock
  US Patent No. 6,606,625, 2003

Patents Pending

- Processing Time-based Geospatial Data
  US Patent Application Number: 20110142347
- Dynamically Linking Relevant Documents to Regions of Interest
  US Patent Application Number: 20110119265
- Precisely Locating Features on Geospatial Imagery
  US Patent Application Number: 20110007941
- Systems and methods for linking content to individual image features
  US Patent Application Number: 20090285487