

CURRICULUM VITA

THOMAS GLEN DIETTERICH

School of Electrical Engineering and Computer Science

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Education:

A.B., Mathematics, Oberlin College (Oberlin, Ohio), 1977

with Honors in Mathematics (Probability and Statistics)

M.S., Computer Science, University of Illinois (Urbana, Illinois), 1979

Thesis supervisor: Ryszard S. Michalski

Thesis title: “The Methodology of Knowledge Layers for Inducing Descriptions of Sequentially Ordered Events”

Ph.D., Computer Science, Stanford University (Stanford, California), 1984

Dissertation supervisor: Bruce G. Buchanan

Dissertation title: “Constraint-Propagation Techniques for Theory-Driven Data Interpretation”

Positions Held:

2011-present: Chief Scientist, BigML, Corvallis, OR.

2005-present: Director of Intelligent Systems Research, School of Electrical Engineering and Computer Science, Oregon State University.

2006-2008: Chief Scientist, Smart Desktop, Inc. Seattle, WA.

2004-2005: Chief Scientist, MyStrands, Inc., Corvallis, OR.

1995-present: Professor of Computer Science, Oregon State University.

1998-1999: Visiting Senior Scientist, Institute for the Investigation of Artificial Intelligence, Barcelona, Spain. (Sabbatical leave position)

1988-1995: Associate Professor of Computer Science, Oregon State University. (50% time 9/92–12/93)

1991-1993: Senior Scientist (50% time), Arris Pharmaceutical Corporation, S. San Francisco, CA.

1985-1988: Assistant Professor of Computer Science, Oregon State University.

1979-1984: Research Assistant, Heuristic Programming Project, Department of Computer Science, Stanford University.

1979 (Summer): Member of Technical Staff, Bell Telephone Laboratories, Naperville, Illinois. Computer-to-computer file transfer and micro-code distribution to remote switching systems.

1977 (Summer): Assistant to the Director of Planning and Research, Oberlin College, Oberlin, Ohio. Developed institutional planning database.

Honors:

Fellow, American Association for the Advancement of Science, 2007
Oregon State University, College of Engineering Collaboration Award, 2004
Winner, JAIR Award for Best Paper in Previous Five Years, 2003
Fellow, Association for Computing Machinery, elected 2003
Oregon State University, College of Engineering Research Award, 1998
Fellow, Association for the Advancement of Artificial Intelligence, elected 1994
NSF Presidential Young Investigator, 1987–92
Nominated for Carter Award for Graduate Teaching, 1987, 1988
IBM Graduate Fellow, 1982, 1983
Upsilon Pi Epsilon, 1996
Sigma Xi, 1979-present
State Farm Companies Foundation Fellowship, 1978
Member, Board of Trustees, Oberlin College, 1977-1980
Graduation with Honors in Mathematics, Oberlin College, 1977
Phi Beta Kappa, 1977
National Merit Scholar, 1973

Professional Activities:**Service to Scientific Associations:**

Founding Member and First President, International Machine Learning Society, 2001-2008
Founding Member, Steering Committee of the Asian Conference on Machine Learning, 2009-2011
Founding Member, IFIP Working Group WG12.2, Machine Learning
Councilor of the Association for the Advancement of Artificial Intelligence, 1990–1993
Member, AAAI Fellows Selection Committee, 1999–2001
Member, NIPS Foundation Board, 2001–2008
Member, Joint IEEE Computer Society/ACM Task Force on Year 2001 Model Curricula for Computing (CC-2001), Intelligent Systems subgroup.

Study Groups and Advisory Boards:

Member, NAS/CSTB Committee on Computing Research for Environmental and Societal Sustainability, 2010-2011
Member, NSF Advisory Committee for Cyberinfrastructure, 2009-2011
Member, DARPA Information Science and Technology Study Group (ISAT), 2004-2007.
Chair, ISAT Study Group on Trustable Deployed Adaptive Systems, 2005-2006
Member, National Center for Ecological Analysis and Synthesis (NCEAS) Machine Learning Study Group, 2006-2008

Journals:

Advisory Board, *Journal of Machine Learning Research*, 2000–present
Advisory Board, *ACM Transactions on Intelligent Systems and Technology*, 2010–present
Action Editor, *Neural Computation*, 2000–2004
Action Editor, *Journal of Machine Learning Research*, 2000–2003
Executive Editor, *Machine Learning* journal, 1992–1998
Action Editor of *Machine Learning*, 1988–1992
Founding Member of the editorial board of *Machine Learning* 1986–2000
Founding Member, Advisory Board, *Journal of Artificial Intelligence Research* (elec-

tronic journal), 1995–97
 Member, Editorial Board, *Journal of Machine Learning Research*, 2009-2011.
 Member, Editorial Board, *Journal of Artificial Intelligence Research*, 1997–2000
 Founding Member, Advisory Board, *Neural Computing Surveys*
 Reviewer for *Adaptive Behavior*
 Reviewer for *Annals of Statistics*
 Reviewer for *Artificial Intelligence*
 Reviewer for *AI-EDAM (Artificial Intelligence in Engineering Design, and Manufacturing)*
 Reviewer for *Autonomous Agents and Multi-Agent Systems*
 Reviewer for *Behavioral and Brain Sciences*
 Reviewer for *Computer-Aided Design*
 Reviewer for *Computational Intelligence*
 Reviewer for *Computational Linguistics*
 Reviewer for *Cybernetics and Systems*
 Reviewer for *Data Mining and Knowledge Discovery*
 Reviewer for *IBM Systems Journal*
 Reviewer for *IEEE Systems, Man, and Cybernetics*
 Reviewer for *IEEE Transactions on Neural Networks*
 Reviewer for *IEEE Transactions on Knowledge and Data Engineering*
 Reviewer for *IEEE Pattern Analysis and Machine Intelligence*
 Reviewer for *IEEE Software*
 Reviewer for *Information Fusion*
 Reviewer for *Journal of Artificial Intelligence Research*
 Reviewer for *Journal of Machine Learning Research*
 Reviewer for *Mathematical and Computer Modeling*
 Reviewer for *Machine Learning*
 Reviewer for *Neural Computation*
 Reviewer for *Pattern Recognition*
 Reviewer for *Pattern Recognition Letters*
 Reviewer for *Water Resources Research*

Conferences:

Co-Chair, CompSust-2010 (Second International Conference on Computational Sustainability)
 General Chairman, NIPS-2001 (Neural Information Processing Systems)
 Technical Program Chairman, NIPS-2000
 Program Co-Chairman, AAAI-90 (National Conference on Artificial Intelligence)
 Member, Senior Program Committee, IUI-2007 (Intelligent User Interfaces)
 Member, Program Committee, NIPS-1997
 Member, Program Committee, AAAI-86, AAAI-87, AAAI-88, AAAI-90, AAAI-96, AAAI-98, AAAI-02, AAAI-2011. (Area coordinator for Machine Learning, 1986, 1988, 1996, 2002)
 Member, Program Committee, International Conference on Machine Learning, 1988, 1994, 1995, 1996, 1997, 1998, 1999, 2001, 2003, 2004, 2005, 2007, 2008
 Member, Organizing Committee, International Conference on Machine Learning, 1991-present
 Member, Advisory Board, International Joint Conference on Artificial Intelligence (IJ-

CAI), 2007-2009
Member, Awards Committee, International Joint Conference on Artificial Intelligence (IJCAI), 2009, 2011
Member, Program Committee, ACM Workshop on Computational Learning Theory (COLT), 1991, 1995
Member, Program Committee, International Conference on Autonomic Computing (ICAC-04), 2004
Reviewer for the International Joint Conference on Artificial Intelligence, 1981, 1983, 1985, 1987, 1989, 1995, 1997, 1999, 2003, 2005
Reviewer for the Neural Information Processing Systems (NIPS) conference, 1994, 1995, 1996, 1997, 1998, 2000, 2001, 2002, 2004, 2005, 2007, 2008, 2009, 2010, 2011
Reviewer for Knowledge Discovery and Data Mining Conference, 1999, 2003
Reviewer for Intelligent Data Analysis Conference, 1999
Reviewer for Catalan Conference on Artificial Intelligence, 1999
Reviewer for Workshop on Multiple Classifier Systems, 2000
Reviewer for the AI and Design Conference, 1991
Reviewer for International Joint Conference on Neural Networks, 2003
Reviewer for Mexican International Conference in Artificial Intelligence, 2002, 2004
Reviewer for IBERAMIA, 2004

Workshops:

Co-Organizer of *NIPS Workshop: Machine Learning for Sustainability*
December 2011, Granada, Spain.
Co-Organizer of *NIPS Mini-Symposium: Machine Learning for Sustainability* December 2009, Vancouver, BC.
Co-Organizer of *DARPA Workshop on Complete Intelligence*, February, 25-26, 2009, Biosphere II, AZ.
Co-Organizer of *Contemporary Approaches to Human-Level Artificial Intelligence*, an NSF planning workshop, July 12-13, 2007, Cambridge, MA.
Co-Organizer of *AAAI-2007 Workshop: Acquiring Planning Knowledge via Demonstration*, July 23, 2007.
Co-Organizer of *Probabilistic, Logical and Relational Learning: A further Synthesis*, a workshop at the International Conference Center for Computer Science, Dagstuhl, Germany, April 2007
Co-Organizer of *Probabilistic, Logical and Relational Learning – Towards a Synthesis*, a workshop at the International Conference Center for Computer Science, Dagstuhl, Germany, February 2005
Co-Organizer of *ICML-2004 Workshop: Statistical Relational Learning: Connections to Other Fields*, July 2004
Co-Organizer of *Modern AI and Human-Level AI: The Big Picture*, Asilomar, CA, March 2004
Organizer of *ICML-2001 Workshop: Spatial and Temporal Learning*
Co-Organizer of *ICML-2000 Workshop: Cost-Sensitive Learning*
Co-Organizer of *NIPS*98 Workshop: Learning from Complex and Ambiguous Examples*
Co-Organizer of *NIPS*98 Workshop: Hierarchy and Abstraction in Reinforcement Learning*
Co-Organizer of *NIPS*95 Workshop: Benchmarking of Neural Network Learning Algorithms*

Co-Organizer of *Machine Learning: Theory and Praxis*, a workshop at the International Conference Center for Computer Science, Dagstuhl, Germany, 1997

Co-Organizer of *Machine Learning: Theory and Praxis*, a workshop at the International Conference Center for Computer Science, Dagstuhl, Germany, 1994

Organizer of *NIPS*93 Workshop: Memory-Based Methods for Classification and Regression*

Organizer of *Workshop on Knowledge Compilation*, Oregon State University, September, 1986

Funding Agencies:

Reviewer for NSF 2010 (program and date withheld per NSF rules)

Reviewer for AFOSR 2008

Reviewer for NSF 2008 (program and date withheld per NSF rules)

Reviewer for NSF 2007 (program and date withheld per NSF rules)

Panel member, NSF 2005 (program and date withheld per NSF rules)

Reviewer for NSF Information Technology Research program, 2003

Panel Member, NSF 2003 (program and date withheld per NSF rules)

Panel Member, NSF Graduate Fellowships, 1994

Reviewer for NSF Information, Robotics, and Intelligent Systems Program

Reviewer for NSF Design Methodology Program

Publishers:

Editor, MIT Press Series on *Adaptive Computation and Machine Learning*

Editor, MIT Press Series on *Neural Information Processing Systems*

Editor, Morgan-Claypool “Synthesis” Series on *Artificial Intelligence and Machine Learning*, 2008-2011. Reviewer for MIT Press

Reviewer for Pitman Advanced Publishing Program, AI Series

Reviewer for Benjamin-Cummings Publishers (AI texts)

Reviewer for Academic Press

Reviewer for Morgan Kaufmann Publishers

Reviewer for Franklin, Beedle & Associates

Other:

Full Professor Review Committee, University of Helsinki, 2009

Entrepreneurial Activities:

Co-founder *Strands* (originally *MusicStrands*), Corvallis, Oregon and Barcelona, Spain. Recommendation and Social Media. Chief scientist 6/04–6/05.

Co-founder *Smart Desktop* (now part of Decho, Inc., a subsidiary of EMC), Seattle, Washington. Commercialization of TaskTracer system. Chief scientist 7/06–12/08.

Co-founder *BigML*, Corvallis, Oregon. Chief scientist 1/11–present.

Grants, Contracts, and Gifts:

6/85 to 9/85 *Knowledge Based Systems* from Tektronix, Inc., \$5,045 to support development of advanced programming tools.

9/85 to 9/87 *Toward Improved Models of the Design Process* from NSF (DMC-8514949) with Prof. D. G. Ullman, Department of Mechanical Engineering, \$310,354.

4/86 to 4/88 *Learning by Experimentation* from NSF (IST-8519926), \$85,746.

- 9/86** *Workshop on Knowledge Compilation* from Association for the Advancement of Artificial Intelligence, \$5,000 and ACM Special Interest Group in Artificial Intelligence, \$2,500.
- 10/87 to 9/93** *Presidential Young Investigator Award* from NSF (IRI-8657316), \$125,000 with matching funds of \$187,500.
- 4/87 to 7/87** *Control Techniques for FORLOG* from Tektronix, Inc. \$5,000.
- 8/87** *Hardware Gift* from Tektronix, Inc., one Xerox 1108 workstation valued at \$8,000.
- 9/87 to 8/90** *Understanding and Improving the Mechanical Design Process* (with Prof. D. G. Ullman) from NSF (DMC-87-12091), \$360,000.
- 10/87 to 9/88** *Unrestricted Gift* (with Prof. D. G. Ullman) from Schlumberger Palo Alto Research, \$20,000.
- 12/87** *CISE Research Instrumentation* (with Prof. B. D'Ambrosio) from NSF (CCR-8716748), \$25,000.
- 12/87** *PYI Matching Gift* from Tektronix, Inc., \$20,000.
- 8/88** *PYI Matching Gift* from Tektronix, Inc., \$10,000.
- 10/88 to 9/89** *Unrestricted Gift* (with Prof. D. G. Ullman) from Schlumberger Laboratory for Computer Science, \$20,000.
- 10/89 to 9/90** *Unrestricted Gift* (with Prof. D. G. Ullman) from Schlumberger Laboratory for Computer Science, \$20,000.
- 1/90 to 12/93** *Improving Search-Based AI Programs* from NASA Ames Research Center, \$227,448
- 7/93 to 6/96** *Learning from Knowledge and Data for Ecosystem Prediction* from NSF (IRI-9204129), \$239,395.
- 4/93 to 3/98** *A Laboratory for Joint Research in Artificial Intelligence and Parallel Computing* from NSF (CDA-9216172) (with Mike Quinn and Bruce D'Ambrosio). \$1,191,283 with OSU matching of \$535,000.
- 3/95 to 2/98** *Hybrid Computational Methods for Skill Acquisition* (with Prasad Tadepalli). Office of Naval Research (N00014-95-1-0557). \$379,200.
- 5/95 to 4/97** *CISE Post-Doctoral Associateship in Experimental Science* (with Eric Chown). NSF (ASC-9503976). \$46,200 over 2 years.
- 7/96 to 7/00** *Understanding and Scaling-Up Machine Learning Algorithms* NSF (IRI-9626584). \$358,240 over 4 years.
- 9/97 to 9/98** *Prediction of Economic Grasshopper Populations in Eastern Oregon* Oregon Department of Agriculture. \$23,780.
- 4/98 to 3/01** *Machine Learning for Real-Time Decision Making*. Air Force Office of Scientific Research. \$256,493.
- 1/99 to 12/01** *Instrumentation for Experimental Research in Machine Learning, Probabilistic Reasoning, Molecular Dynamics, and Software Maintenance*. NSF EIA9818414. \$86,970.
- 3/99 to 2/00** *Sabbatical Fellowship*. Spanish Government; Ministerio de Educación y Cultura – Estancias de Investigadores Extranjeros en Regimen de Año Sabatico en España. \$22,500.

- 6/00 to 11/01** *International Travel Grant. Commission for Cultural, Educational, and Scientific Exchange between Spain and the US.* \$14,800.
- 9/00 to 8/03** *Divide and Conquer Methods for Machine Learning.* NSF IIS-0083292. \$374,989.
- 9/00 to 8/03** *ITR: From Bits to Information: Statistical Learning Technologies for Digital Information Management and Search.* NSF (subcontract from MIT). \$312,850.
- 9/04 to 8/06** *Instrumentation for Experimental Research in Machine Learning, Collaborative Filtering, and Virtual Environments.* With Ron Metoyer and Jon Herlocker. NSF EIA-0423733. \$50,000 (with match of \$44,319 from Oregon State University).
- 9/03 to 8/06** *Off-the-shelf Learning Algorithms for Structural Supervised Learning.* NSF \$464,176.
- 6/03 to 3/04** *Machine Learning for the Knowledge Plane: Technology Assessment and Research Scenarios.* Air Force Research Lab (DARPA) \$114,986.
- 9/03 to 8/05** *MKIDS: Capturing, Reusing, and Leveraging Knowledge from Human Task Processes* (PI: Jon Herlocker). NSF MKIDS program. \$443,123.
- 8/03 to 7/04** *SGER: Exploiting Contextual Knowledge to Design Input Representations for Machine Learning.* NSF SGER program. \$99,393.
- 9/03 to 8/07** *ITR: Pattern Recognition for Ecological Science and Environmental Monitoring* NSF ITR program. \$1,730,000. REU Supplement \$6,000.
- 10/03 to 9/08** *IGERT: Ecosystem Informatics.* NSF program for interdisciplinary graduate stipends. \$3,913,548.
- 10/03 to 11/05** *KI-LEARN: Knowledge-Intensive Learning Methods for Knowledge-Rich/Data-Poor Domains* DARPA \$997,000.
- 7/04 to 1/09** *Machine Learning for Task Recognition and Exploitation in CALO* (co-PIs Jon Herlocker, Margaret Burnett, Prasad Tadepalli, Alan Fern) DARPA via SRI \$3,050,850.
- 1/05 to 9/05** *Feasibility Study for Cognitive Networking.* Air Force Research Lab (DARPA) \$133,280.
- 1/05 to 8/05** *Learning Generalized Task Knowledge from Demonstration and Question Answering.* Air Force Research Lab (DARPA) \$129,853.
- 10/05 to 3/09** *Effective Bayesian Transfer Learning.* DARPA via Berkeley. (co-PIs Alan Fern, Prasad Tadepalli) \$2,200,120.
- 6/06 to 12/08** *Generalized Integrated Learning Architecture (GILA)* DARPA via Lockheed Martin ATL. (co-PIs Prasad Tadepalli, Weng-Keen Wong, Ron Metoyer) \$804,818.
- 4/06 to 8/06** *Research Experiences for Undergraduates: Computer Vision for Insect Identification.* (co-PIs David Lytle and Eric Mortensen) NSF. \$12,000.
- 6/06 to 5/10** *Summer Institute in EcoInformatics.* NSF. (PI: Desiree Tullos; co-PIs: Julia Jones, Kari O'Connell, and Enrique Thomann). \$581,291.
- 9/07 to 8/10** *RI: Machine Learning for Robust Recognition of Invertebrate Specimens in Ecological Science.* NSF. (co-PIs Andrew Moldenke, David Lytle, Linda Shapiro, Robert Paasch). \$800,000.
- 4/08 to 3/09** *Quantifying and supporting multitasking for Intel knowledge workers.* Intel Corporation. \$47,996.
- 5/08 to 4/13** *MURI: A Unified Approach to Abductive Inference.* Army Research Office (subcontract from UW). \$630,000.

- 11/08 to 10/11** *HCC-Medium: End-user debugging of machine-learned programs.* NSF. (PI: Margaret Burnett; co-PIs Weng-Keen Wong, Simone Stumpf). \$890,112.
- 9/08 to 8/13** *Computational Sustainability.* NSF. (PI: Carla Gomes (Cornell); OSU co-PIs: Weng-Keen Wong, Claire Montgomery, H. Jo Albers). \$1,858,209.
- 9/08 to 12/10** *PLATO: Phased Learning Through Analyzing Teaching and Observation.* DARPA (Subcontract from SRI International). \$1,104,190.
- 7/09 to 6/14** *ERUDITE: A Machine that Reads.* DARPA (Subcontract from BBN Technologies). \$1,875,000.
- 7/10 to 6/13** *II-EN: A compute cluster and software tools for Monte-Carlo methods in artificial intelligence.* NSF. \$600,000.
- 1/11 to 12/11** *A study of automated tagging and tag propagation for contextual information access.* Google. \$64,276.
- 6/11 to 6/13** *Proactive Detection of Insider Threats with Graph Analysis at Multiple Scales (PRODIGAL)* DARPA (Subcontract from SAIC). \$979,606.
- 9/11 to 8/15** *BirdCast: Novel Machine Learning Methods for Understanding Continent-Scale Bird Migration.* NSF (Collaborative with Cornell Lab of Ornithology; Steve Kelling is PI). \$980,271.
- 10/11 to 9/13** *Computing Innovation Fellowship (Selina Chu).* NSF (Subaward from CRA). \$140,000.

Memberships:

Association for the Advancement of Artificial Intelligence (AAAI)
 Association for Computing Machinery (ACM)
 IEEE
 American Association for the Advancement of Science (AAAS)
 American Statistical Society (ASA)
 Ecological Society of America (ESA)

Students Supervised:

Nicholas S. Flann, M.S. in Computer Science, "Learning Functional Descriptions from Examples," June, 1986.

Daniel R. Corpron, M.S. in Computer Science, "Disjunctions in Forward-Chaining Logic Programming," December, 1986.

Prafulla K. Mishra, M.S. in Computer Science, "An Investigation of the Search Space of Lenat's AM Program," March, 1988.

Colin Gerety, M.S. in Computer Science, "Truth Maintenance Systems," May, 1988.

Caroline Koff, M.S. in Computer Science, "A Specialized ATMS for Equivalence Relations," May, 1988.

Ulhas Warriar, M.S. in Computer Science, "A SOAR-based Computational Model of Mechanical Design," August, 1988.

Hermann Hild, M.S. in Computer Science, "Variations on ID3 for Text-to-Speech Conversion," June, 1989.

Richard Charon, M.S. in Computer Science, "Development of a Graphical Interface to the Design History Tool," February, 1990.

Martha Chamberlin, M. S. in Computer Science. "Relationship of Pauses to Problem Solving Events in Mechanical Design Protocols," May 1990.

Dietrich Wettschereck, M. S. in Computer Science. "An Initial Test of Generalized Radial Basis Functions," June, 1990.

Ritchey Ruff, Ph.D. in Computer Science. "An Empirical Study into Learning Through Experimentation," September, 1990.

Ghulum Bakiri, Ph.D. in Computer Science. "Converting English Text to Speech: A Machine Learning Approach," January, 1991.

Nicholas S. Flann, Ph.D. in Computer Science. "Correct Abstraction in Counter-Planning: A Knowledge Compilation Approach." December, 1991.

Giuseppe Cerbone, Ph.D. in Computer Science. "Machine Learning in Engineering: Techniques to Speed Up Numerical Optimization," May, 1992.

Hussein Almuallim, Ph.D. in Computer Science. "Concept Coverage and its Application to Two Learning Tasks." May, 1992.

Varad Joshi, M.S. in Computer Science. "The Expert-Gate Algorithm," December, 1992.

William Langford, M.S. in Computer Science. "Classification Context in a Machine Learning Approach to Predicting Protein Secondary Structure," May, 1993.

Dietrich Wettschereck, Ph.D. in Computer Science. "A Study of Distance-Based Machine Learning Algorithms," June, 1994.

Eun Bae Kong, Ph.D. in Computer Science. "Understanding and Improving Error-Correcting Output Coding," February, 1995.

Wei Zhang, Ph.D. in Computer Science. "Reinforcement Learning for Job-Shop Scheduling," April, 1996.

Tony Fountain, Ph.D. in Computer Science. "Just Enough Die-Level Functional Test: Optimizing IC Test via Machine Learning and Decision Theory" August, 1998.

Waranun Bunjongsat, M.S. in Computer Science. "Grasshopper Infestation Prediction: An Application of Data Mining to Ecological Modeling" January, 2000.

Dragos Margineantu, Ph.D. in Computer Science. "Machine Learning Methods for Cost-Sensitive Classification" October, 2001.

Daniel Forrest, M.S. in Computer Science, "Shrunk Learning Rates Do Not Improve Adaboost on Benchmark Datasets" December, 2001.

William Langford, Ph.D. in Computer Science, "Evaluation Functions for Segmentation of Ecological Images" January, 2002.

Ashit Gandhi, M.S. in Computer Science, "Content-Based Image Retrieval: Plant Species Identification" September, 2002.

Diane Damon, M. S. in Computer Science, "Three Methods for Estimating Subpixel Cover Fractions in Coarse Resolution Imagery" June, 2003.

Valentina Bayer Zubek, Ph.D. in Computer Science, "Learning Cost-sensitive Diagnostic Policies from Data" July, 2003.

Bernd Michael Kelm, M. S. in Computer Science, "Demosaicking of Color Images by Means of Conditional Random Fields" October, 2003.

Saket Joshi, M. S. in Computer Science, “Calibration of Recurrent Sliding Window Classifiers for Sequential Supervised Learning,” October, 2003.

Adam Ashenfelder, M. S. in Computer Science, “Sequential Supervised Learning and Conditional Random Fields”, December, 2003.

Shriprakash Sinha, M. S. in Computer Science, “Leaf Shape Recognition via Support Vector Machines with Edit Distance Kernels”, April, 2004.

Eric Altendorf, M. S. in Computer Science, “A Qualitative Modeling Language for Knowledge Intensive Machine Learning”, May, 2005.

Dan Vega, M. S. in Computer Science, “Spatial Supervised Learning Using Recurrent Sliding Window Classifiers”, June, 2005.

Xin Wang, Ph.D. in Computer Science, “Model Based Approximation Methods for Reinforcement Learning”, May, 2006.

Rongkun Shen, M.S. in Computer Science, “Protein Secondary Structure Prediction Using Conditional Random Fields and Profiles”, May, 2006.

Ethan Dereszynski, M.S. in Computer Science, “A Probabilistic Model for Anomaly Detection in Remote Sensor Streams”, November 2007.

Michael Wynkoop, M.S. in Computer Science, “Learning MDP Action Models via Discrete Mixture Trees”, June 2008.

Wei Zhang, Ph.D. in Electrical Engineering, “Image Features and Learning Algorithms for Biological, Generic and Social Object Recognition”, March 2009.

Jianqiang Shen, Ph.D. in Computer Science, “Activity Recognition in Desktop Environments”, March 2009.

Victoria Keiser, M.S. in Computer Science, “Evaluating Online Text Classification Algorithms for Email Prediction in TaskTracer”, June 2009.

Guohua Hao, Ph.D. in Computer Science, “Efficient Training and Feature Induction in Sequential Supervised Learning”, July, 2009.

Xinlong Bao, Ph.D. in Computer Science, “Applying Machine Learning for Prediction, Recommendation, and Integration”, August, 2009.

Postdocs Supervised:

Eric Chown, Ph.D. in Computer Science (University of Michigan). Currently Full Professor of Computer Science, Bowdoin College. NSF CAREER awardee.

Francisco Martin, Ph.D. in Computer Science (Autonomous University of Barcelona). Currently CEO, BigML, Inc. Corvallis, Oregon.

Angelo Restificar, Ph.D. in Computer Science (University of Wisconsin, Milwaukee). Currently Principal Machine Learning Engineer, eBay, Inc.

Simone Stumpf, Ph.D. in Computer Science (University College London). Currently Lecturer, City University London.

Soumya Ray, Ph.D. in Computer Science (University of Wisconsin). Currently Assistant Professor of Computer Science, Case-Western Reserve University.

He Chan, Ph.D. in Computer Science (UCLA).

Gonzalo Martinez, Ph.D. in Computer Science (Autonomous University of Madrid). Fulbright Scholar.

Rebecca Hutchinson, Ph.D. in Computer Science (Carnegie Mellon University).

Daniel Sheldon, Ph.D. in Computer Science (Cornell University).

Michael Shindler, Ph.D. in Computer Science (UCLA).

Publications:

Refereed Journal Articles:

- Zhang, X., Ontanon, S., McGuinness, D., Whitaker, E., Tadepalli, P., Yoon, S., Spears, D., Ding, L., Guo, K., Lesser, V., Corkill, D., Ram, A., Trehitt, E. MacTavish, R., Kambhampati, S., Dietterich, T., Hender, J. (in press). An Ensemble Architecture for Learning Complex Problem-Solving Techniques From Demonstration. *ACM Transactions on Intelligent Systems and Technology*.
- Bao, X., Dietterich, T. G. (2011). FolderPredictor: Reducing the Cost of Reaching the Right Folder. *ACM Transactions on Intelligent Systems and Technology*, 2(1), 8:1–8:23.
- Dereszynski, E., Dietterich, T. G. (2011). Spatiotemporal Models for Anomaly Detection in Dynamic Environmental Monitoring Campaigns. *ACM Transactions on Sensor Networks*, 8(1): 3:1–3:26.
- Lytle, D. A., Martínez-Muñoz, G., Zhang, W., Larios, N., Shapiro, L., Paasch, R., Moldenke, A., Mortensen, E. A., Todorovic, S., Dietterich, T. G. (2010). Automated Processing and Identification of Benthic Invertebrate Samples. *Journal of the North American Benthological Society*, 29(3), 867–874.
- Shen, J., Dietterich, T. (2009). A Family of Large Margin Linear Classifiers and Its Application in Dynamic Environments. *Statistical Analysis and Data Mining*. 2(5-6): 328–345.
- Stumpf, S., Rajaram, V., Li, L., Wong, W-K., Burnett, M., Dietterich, T., Sullivan, E., Herlocker, J. (2009). Interacting Meaningfully with Machine Learning Systems: Three Experiments. *International Journal on Human-Computer Studies*, 67 (9): 639–662. DOI 10.1016/j.ijhcs.2009.03.004
- Natarajan, S., Tadepalli, P., Dietterich, T. and Fern, A. (2008). Learning First-Order Probabilistic Models with Combining Rules, *Annals of Mathematics and Artificial Intelligence*, Special issue on Probabilistic Relational Learning. 54 (1–3): 223–256.
- Sarpola, M.J., Paasch, R.K., Dietterich, T.G., Lytle, D.A., Mortensen, E. N., Moldenke, A.R., and Shapiro, L. (2008). An Aquatic Insect Imaging Device to Automate Insect Classification, *Transactions of the American Society of Agricultural and Biological Engineers*, 51 (6): 2217–2225.
- Dietterich, T. G., Domingos, P., Getoor, L., Muggleton, S., Tadepalli, P. (2008). Structured Machine Learning: The Next Ten Years. *Machine Learning*, 73(1), 3–23.
- Dietterich, T. G., Hao, G., Ashenfelder, A., (2008). Gradient Tree Boosting for Training Conditional Random Fields. *Journal of Machine Learning Research*, 9, 2113–2139.
- Larios, N., Deng, H., Zhang, W., Sarpola, M., Yuen, J., Paasch, R., Moldenke, A., Lytle, D., Ruiz Correa, S., Mortensen, E., Shapiro, L., Dietterich, T. (2008). Automated Insect Identification through Concatenated Histograms of Local Appearance Features. *Machine Vision and Applications*, 19 (2):105–123.

- Langford, W. T., Gergel, S. E., Dietterich, T. G., Cohen, W. (2006). Map Misclassification Can Cause Large Errors in Landscape Pattern Indices: Examples From Habitat Fragmentation. *Ecosystems*, 9 (3): 474–488.
- Bayer-Zubek, V., Dietterich, T. G. (2005). Integrating Learning from Examples into the Search for Diagnostic Policies. *Journal of Artificial Intelligence Research*, 24, 263–303.
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- Ruff, R. A., and Dietterich, T. G., (1989) What Good are Experiments? *Proceedings of the Sixth International Workshop on Machine Learning*, Ithaca, NY. San Mateo, CA: Morgan Kaufmann. 109–112.
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- Stauffer, L., Ullman, D. G., and Dietterich, T. G., (1987). Protocol Analysis of Mechanical Engineering Design, In *Proceedings of the 1987 International Conference on Engineering Design*, WDK 13, Boston, MA, 68–73.
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- Ullman, D. G., Stauffer, L. A., Dietterich, T. G. (1987). Preliminary Results of an Experimental Study of the Mechanical Design Process. In *Proceedings of the NSF Workshop on Design Theory and Methodology*, February, Oakland, CA, 145–188.
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- Dietterich, T. G., and Buchanan, B. G., (1983). The Role of Experimentation in Theory Formation. In *Proceedings of the International Machine Learning Workshop*, Allerton House, Monticello, IL. 147–155.

Dietterich, T. G., and Michalski, R. S., (1983). Discovering Patterns in Sequences of Objects. In *Proceedings of the International Workshop on Machine Learning*, Department of Computer Science, University of Illinois, 41–57.

Dietterich, T. G., (1980). Multiple-model Induction in Eleusis. In *Workshop on Current Developments in Machine Learning*, Carnegie-Mellon University, July 16-18, 1980.

Books:

Dietterich, T. G., Becker, S., and Ghahramani, Z. (Eds.) (2002) *Advances in Neural Information Processing Systems, 14*, Cambridge, MA: MIT Press.

Leen, T. K., Dietterich, T. G., and Tresp, V. (2001) *Advances in Neural Information Processing Systems, 13*, Cambridge, MA: MIT Press.

Shavlik, J., and Dietterich, T. G., (1990) *Readings in Machine Learning*. San Mateo, CA: Morgan Kaufmann.

Book Chapters:

Barford, P., Dacier, M., Dietterich, T. G., Fredrikson, M., Giffin, J., Jajodia, S., Jha, S., Li, J., Liu, P., Ning, P., Ou, X., Song, D., Strater, L., Swarup, V., Tadda, G., Wang, C., Yen., J. (2010). Cyber SA: Situational Awareness for Cyber Defense. pp. 3–13. in Jajodia, S., Liu, P., Swarup, V., Wang, C. (Eds.) *Cyber Situation Awareness*, Springer.

Dietterich, T. G., Bao, X., Keiser, V., Shen, J. (2010). Machine Learning Methods for High Level Cyber Situation Awareness. pp. 227–247. In Jajodia, S., Liu, P., Swarup, V., Wang, C. (Eds.) *Cyber Situation Awareness*, Springer.

Dietterich, T. G., Langley, P. (2007). Machine learning for cognitive networks: technology assessment and research challenges. In Qusay H. Mahmoud (Ed.) *Cognitive Networks*. 97–120. Wiley.

E. N. Mortensen, E. L. Delgado, H. Deng, D. Lytle, A. Moldenke, R. Paasch, L. Shapiro, P. Wu, W. Zhang, T. G. Dietterich (2007). Pattern Recognition for Ecological Science and Environmental Monitoring: An Initial Report. In N. MacLeod and M. O’Neill (Eds.) *Algorithmic Approaches to the Identification Problem in Systematics*.

Barto, A., Dietterich, T. G. (2004). Reinforcement learning and its relationship to supervised learning. In J. Si, A. G. Barto, W. B. Powell, D. Wunsch II (Eds.) *Handbook of Learning and Approximate Dynamic Programming*. pp. 47–64. Wiley Interscience/IEEE Press, Piscataway, NJ.

Margineantu, D. D. and Dietterich, T. G. (2002) Improved class probability estimates from decision tree models. in D. D. Denison, M. H. Hansen, C. C. Holmes, B. Mallick, and B. Yu (Eds.) *Nonlinear Estimation and Classification; Lecture Notes in Statistics, 171*, pp. 169–184. New York: Springer-Verlag.

Fountain, T., Dietterich, T., and Sudyka, B. (2002). Data mining for manufacturing control: An application in optimizing IC test. In B. Nebel and G. Lakemeyer (Eds.) *Exploring Artificial Intelligence in the New Millenium*. San Francisco: Morgan-Kaufmann.

Bakiri, G., Dietterich, T. G. (2001). Achieving High-Accuracy Text-to-Speech with Machine Learning. In Damper, R. I. (Ed.) *Data-Driven Techniques in Speech Synthesis*. pp. 41–44. Boston, MA: Kluwer Academic Press.

Nagy, R. L., Ullman, D. G., Dietterich, T. G. (1996). A Data Representation for Collaborative Mechanical Design. In M. B. Waldron and K. J. Waldron (Eds.), *Mechanical Design: Theory and Methodology*, pp. 237–253, New York, NY: Springer.

- Almuallim, H., Dietterich, T. G. (1995). A Study of Maximal-Coverage Learning Algorithms. In D. Wolpert, (Ed.) *The Mathematics of Generalization: Proceedings of the SFI/CNLS Workshop on Formal Approaches to Supervised Learning*. Reading, MA: Addison-Wesley. 279–314.
- Dietterich, T. G. (1990). Machine Learning. *Annual Review of Computer Science*, 4: 255–306.
- Dietterich, T. G., and Michalski, R. S., (1986). Learning to Predict Sequences (with R. S. Michalski), in *Machine Learning: An Artificial Intelligence Approach*, Volume II, Michalski, R. S., Carbonell, J., and Mitchell, T. M., (eds.), Palo Alto: Tioga, 63–106.
- Dietterich, T. G., and Buchanan, B. G., (1983). The Role of the Critic in Learning Systems, in Rissland, E. W., Arbib, M., and Selfridge, O., *Adaptive Control of Ill-defined Systems*, Plenum, 127–148.
- Dietterich, T. G., and Michalski, R. S., (1983). A Comparative Review of Selected Methods for Learning From Examples, Chapter 3 of *Machine Learning: An Artificial Intelligence Approach*, Michalski, R. S., Carbonell, J., and Mitchell, T. M., (eds.), Palo Alto: Tioga, 41–82.
- Dietterich, T. G., London, R. L., Clarkson, K., and Dromey, G. (1982). Learning and Inductive Inference. Chapter XIV in Cohen, P. R., and Feigenbaum, E. A., *The Handbook of Artificial Intelligence*, Vol. III, 323–512, Los Altos, CA: William Kaufmann.

Encyclopedia Articles:

- Dietterich, T. G. (2003). *Machine Learning*. In *Nature Encyclopedia of Cognitive Science*, London: Macmillan, 2003.
- Dietterich, T. G. (2002). *Ensemble Learning*. In Michael A. Arbib (Ed.) *Handbook of Brain Theory and Neural Networks, 2nd Edition*, 405–408, MIT Press.
- Dietterich, T. G. (2000). *Machine Learning*. In David Hemmendinger, Anthony Ralston and Edwin Reilly (Eds.), *The Encyclopedia of Computer Science, Fourth Edition*, Thomson Computer Press. 1056–1059.
- Dietterich, T. G. (1999). *Machine Learning*. In Rob Wilson and Frank Keil (Eds.) *The MIT Encyclopedia of the Cognitive Sciences*, MIT Press. 497–498.

Unrefereed or Lightly Refereed Conference Papers:

- Sorower, M. S., Dietterich, T. G., Doppa, J. R., Tadepalli, P., and Fern, X. (2011). Learning Rules from Incomplete Examples via a Probabilistic Mention Model. *IJCAI 2011 Workshop Learning by Reading and its Applications in Intelligence Question-Answering (FAM-LbR/KRAQ'11)*.
- Doppa, J. R., NasrEsfahani, M., Sorower, M. S., Irvine, J., Dietterich, T. G., Fern, X., Tadepalli, P. (2011). Learning Rules from Incomplete Examples via Observation Models. *IJCAI 2011 Workshop Learning by Reading and its Applications in Intelligence Question-Answering (FAM-LbR/KRAQ'11)*.
- Yu, J., Wong, W-K., Dietterich, T., Jones, J., Betts, M., Frey, S., Shirley, S. Miller, J., White, M. (2011). Multi-label Classification for Multi-Species Distribution Modeling. *ICML 2011 Workshop on Machine Learning for Global Challenges*.
- Lin, J., Larios, N., Lytle, D., Moldenke, A., Shapiro, L., Todorovic, S., Dietterich, T. (2011). Fine-Grained Recognition for Arthropod Field Surveys: Three Image Collections. *CVPR Workshop on Fine Grained Visual Classification*.

- Doppa, J. R., NasrEsfahani, M., Sorower, M. S., Dietterich, T. G., Fern, X., Tadepalli, P. (2010). Learning Rules from Incomplete Examples: A Pragmatic Approach. *NAACL Workshop on Formalisms and Methodology for Learning by Reading*, June 5-6, 2010.
- Stumpf, S., Burnett, B., Dietterich, T. (2007). Improving intelligent assistants for desktop activities. *Interaction Challenges for Intelligent Assistants Symposium*, AAAI Spring Symposium, Stanford, CA.
- Zhang, W., Dietterich, T. G. (1995). *Value Function Approximations and Job-Shop Scheduling*. In J. A. Boyan, A. W. Moore, and R. S. Sutton (Eds.) *Proceedings of the Workshop on Value Function Approximation*. Carnegie-Mellon University, School of Computer Science, Report Number CMU-CS-95-206.
- Cerbone, G., Dietterich, T. G., (1990) Inductive and Numerical Methods in Knowledge Compilation. *Proceedings of CRIB-90*. Menlo Park, CA: Price Waterhouse.
- Dietterich, T. G., and Flann, N. S., (1988). An Inductive Approach to Solving the Imperfect Theory Problem. *Proceedings of the AAAI Spring Symposium Series: Explanation-based Learning*, 42–46.
- Dietterich, T. G., (1985). The EG Project: Recent Progress, *Proceedings of the Third International Workshop on Machine Learning*, Rutgers University, 29–31.
- Dietterich, T., Ok, D., Tadepalli, P. and Zhang, W. (1993). Reinforcement Learning in Scheduling. In *Space Operations and Applications Conference*, Houston, TX.
- Flann, N. S., and Dietterich, T. G., (1985). Exploiting Functional Vocabularies to Learn Structural Descriptions, *Proceedings of the Third International Workshop on Machine Learning*, Rutgers University, 41–43.
- Dietterich, T. G., and Ullman, D. G., (1985). Artificial Intelligence Models of Design, *Proceedings of NORTHCON 85*, Portland, OR, 1985.

Technical Reports:

- de Raedt, L., Dietterich, T. G., Getoor, L., Kersting, K., Muggleton, S. (2008). *Probabilistic, Logical and Relational Learning - A Further Synthesis*, Dagstuhl-Seminar-Proceedings 07161. Internationales Begegnungs-Und Forschungszentrum Fur Informatik. <http://drops.dagstuhl.de/portals/index.php?semnr=07161>
- Busquets, D., López de Màntaras, R., Sierra, C., Dietterich, T. G. (2001). Reinforcement learning for landmark-based robot navigation. Department of Computer Science, Oregon State University.
- Margineantu, D., Dietterich, T. G. (1999) *Learning Decision Trees for Loss Minimization in Multi-Class Problems*. Technical Report. Department of Computer Science, Oregon State University.
- Dietterich, T. G., Maass, W., Simon, H-U., and Sutton, R. (Eds.) (1997). *Theory and Practice in Machine Learning*. Dagstuhl-Seminar-Report 163. Internationales Begegnungs-Und Forschungszentrum Fur Informatik.
- Dietterich, T. G. (1997). *Hierarchical Reinforcement Learning with the MAXQ Value Function Decomposition*. Technical Report, Department of Computer Science, Oregon State University, Corvallis, OR.
- Chown, E., Dietterich, T. G. (1996). *Learning in the Presence of Prior Knowledge: A Case Study Using Model Calibration*. Technical Report, Department of Computer Science, Oregon State University, Corvallis, OR. Revised in 1997.

- Cerbone, G., Dietterich, T. G. (1991). *Symbolic Methods in Numerical Optimization*. Technical Report 91-30-7, Department of Computer Science, Oregon State University, Corvallis, OR.
- Dietterich, T. G., Kong, E. B., (1995). *Machine Learning Bias, Statistical Bias, and Statistical Variance of Decision Tree Algorithms*. Technical Report, Department of Computer Science, Oregon State University, Corvallis, OR.
- Dietterich, T. G., and Bennett, J. S., (1986). *The Test Incorporation Hypothesis and the Weak Methods*, Rep. No. TR 86-30-4, Department of Computer Science, Oregon State University, Corvallis, OR.
- Dietterich, T. G., and Bennett, J. S. (1986). *The Test Incorporation Theory of Problem Solving*, In *Proceedings of the Workshop on Knowledge Compilation*, Department of Computer Science, Oregon State University, Corvallis, OR.
- Dietterich, T. G., (Ed.), (1986). *Proceedings of the Workshop on Knowledge Compilation*, Technical report, Department of Computer Science, Oregon State University, Corvallis, OR.
- Dietterich, T. G., (1984). *Constraint-Propagation Techniques for Theory-Driven Data Interpretation*, Doctoral Dissertation, Rep. No. STAN-CS-84-1030, Department of Computer Science, Stanford University, Stanford, California.
- Dietterich, T. G., (1980). *The Methodology of Knowledge Layers for Inducing Descriptions of Sequentially Ordered Events*, Master's Thesis, Rep. No. UIUCDCS-1024, Department of Computer Science, University of Illinois, Urbana, Illinois.

Patents Awarded: (3 pending)

- Herlocker, J., Dietterich, T. (2009). *Methods for Assisting Computer Users Performing Multiple Tasks*. United States Patent No. 7,565,340. Assigned to Oregon State University.
- Chapman, D., Critchlow, R., Jain, A., Lathrop, R., Lozano-Perez, T., Dietterich, T. (1996). *A Machine-Learning Approach to Modeling Biological Activity for Molecular Design and to Modeling Other Characteristics*, United States Patent No. 5,526,281. Filed October 28, 1994; Issued June 11, 1996. Assigned to Arris Pharmaceutical Corporation.

Invited Talks:

- Graphical Models and Flexible Classifiers: Bridging the Gap with Boosted Regression Trees*, Invited Speaker, 2011 Conference on Technologies and Applications of Artificial Intelligence, Chung-Li, Taiwan, November 12, 2011.
- Challenges for Machine Learning in Ecological Science and Environmental Management*, Distinguished Lecture Series, Department of Computer Science, University of British Columbia, Vancouver, BC, October 20-21, 2011.
- Learning more from end-users and teachers*, Invited talk, IJCAI 2011 Workshop on Agents Learning Interactively from Human Teachers. Barcelona, Spain, July 16, 2011.
- Challenges for Machine Learning in Ecological Science*, Invited talk, ICML 2011 Workshop on Machine Learning for Global Challenges, Bellevue, Washington, July 2, 2011.
- Machine Learning for Ecological Science and Environmental Management*, Invited Tutorial (with Rebecca Hutchinson and Dan Sheldon), International Conference on Machine Learning, Bellevue, Washington, June 28, 2011.
- Integrating Boosted Regression Trees into Ecological Latent Variable Models*, Seminar, CSAIL, MIT, Cambridge, Massachusetts, May 5, 2011.

Activity Discovery and Recognition for a Knowledge Worker Assistant, Presentation, Dagstuhl Seminar on Plan Recognition, Dagstuhl, Germany, April 7, 2011.

Machine Learning for Plan Recognition Using Inverse Reinforcement Learning, Invited Tutorial, Dagstuhl Seminar on Plan Recognition, Dagstuhl, Germany, April 6, 2011.

Machine Learning in Ecological Science and Ecosystem Management, Seminar, Environmental Science, University of Melbourne, February 21, 2011.

Machine Learning in Ecological Science and Ecosystem Management, Seminar, Arthur Rylah Institute, Heidelberg, Australia, February 18, 2011.

Machine Learning Challenges in Ecological Science and Ecosystem Management, Invited Talk, University of Waikato, Hamilton, New Zealand, February 10, 2011.

Boosted Evidence Trees for Object Recognition with Applications to Arthropod Biodiversity Studies, Perona Vision Group Talk, Caltech, Pasadena, California, January 19, 2011.

Machine Learning Challenges in Ecological Science and Ecosystem Management, Information for Lunch Bunch, Caltech, January 18, 2011, Pasadena, California.

Machine Learning Challenges in Ecological Science and Ecosystem Management, Departmental Seminar, Department of Computer Science, University of California, San Diego, October 29, 2010.

Keynote Address, First Asian Conference on Machine Learning, Nanjing, China, November 1, 2009.

Machine Learning in Ecosystem Informatics, International Joint Conference on Artificial Intelligence, Pasadena, CA. July 16, 2009.

Activity Recognition in TaskTracer and CALO, Invited Talk, Workshop on Plan, Activity, and Intent Recognition, International Joint Conference on Artificial Intelligence, Pasadena, CA, July 11, 2009.

Integrating Learning and Reasoning in CALO, Invited Talk, Next Generation Reasoning and Learning - Theory and Applications, AFRL, Vernon, NY, May 27, 2009.

Complete Intelligence: Results from CALO, Keynote Address, DARPA Workshop on Complete Intelligence, Tucson, AZ, February 25, 2009.

Machine Learning in Ecosystem Informatics, Departmental Seminar, Pomona College, October 16, 2008.

Machine Learning in Ecosystem Informatics, Departmental Seminar, Oberlin College, November 21, 2008.

TaskTracer: Toward an Activity-Oriented Desktop Interface, Seminar, Department of Computer Science, University of Alberta, June 19, 2008.

Learning in an Integrated Intelligent System: Examples from the CALO System, Keynote Address, IBM Haifa Machine Learning Workshop, Haifa, Israel, May 25, 2008.

TaskTracer: Toward an Activity-Oriented Desktop Interface, Machine Learning Seminar, University of Massachusetts, Amherst, April 23, 2008.

Machine Learning in Ecosystem Informatics, Keynote Address, Discovery Science 2007, October 1, 2007.

Applying Generic Object Recognition Methods to Environmental Monitoring and Ecological Science, INRIA Project Lear, Grenoble, France, April 24, 2007.

Experience with Markov Logic Networks in a Large AI System, Dagstuhl Seminar on Relational, Logistical, and Statistical Learning, Dagstuhl, Germany, April 16, 2007.

Survey of Planning Under Uncertainty, ISAT Study Group, Marina del Rey, CA, March 23, 2007.

TaskTracer: Toward a Task-Oriented Desktop Interface, Harvey Mudd College, March 21, 2007.

Machine Learning in the User Interface: Experience in TaskTracer and CALO, NIPS Workshop on User-Adaptive Systems, Whistler, CA, December 8, 2006.

Deployed Adaptive Systems, NIPS Workshop on Testing of Deployable Learning and Decision Systems, Whistler, CA, December, 8, 2006.

ISAT Study Briefing, Presentation to Dr. Tony Tether, Director, DARPA, Arlington, VA, September, 19, 2006.

TaskTracer: Toward an Activity-Oriented Desktop Interface, Department of Computer Science, University of Rochester, Rochester, NY, September 20, 2006.

Hierarchical Reinforcement Learning, Air Force Research Laboratory, Rome, NY, September 21, 2006.

Intelligent Systems Research at Oregon State University, Early Stage Investment Forum, Seattle, WA, April 26, 2006.

TaskTracer: Toward an Activity-Oriented Desktop Interface, School of Computing, Georgia Institute of Technology, April 6, 2006.

TaskTracer: Toward an Activity-Oriented Desktop Interface, School of Computer Science, Carnegie Mellon University, February 15, 2006.

TaskTracer: Toward an Activity-Oriented Desktop Interface, Department of Computer Science, University of New South Wales, February 4, 2006.

Transfer Learning in the CALO Project (Cognitive Assistant that Learns and Organizes), Workshop on Inductive Transfer 10 Years Later, NIPS Workshops, Whistler, BC, December 9, 2006.

Human-Level AI: Challenges for Machine Learning, Workshop on Human-Level AI, NIPS Workshops, Whistler, BC, December 9, 2006.

TaskTracer and CALO: Activity Recognition for the Desktop, Workshop on Activity Recognition and Discovery, NIPS Workshops, Whistler, BC, December 10, 2006.

TaskTracer: Toward an Activity-Oriented Desktop Interface, Department of Computer Science, University of Maryland, November 17, 2005.

TaskTracer: Toward an Activity-Oriented Desktop Interface, Department of Computer Science, Brigham Young University, November 3, 2005.

Sequential Supervised Learning, Department of Computer Science, Notre Dame University, North Bend, IN, March 17, 2005.

Three Challenges for Machine Learning Research, IBERAMIA-2004 (Iberian-American Artificial Intelligence Conference), Puebla, Mexico, November 24, 2004.

Three Challenges for Machine Learning Research, Department of Computer Sciences, UT Austin, November 19, 2004.

Fitting Conditional Random Fields via Gradient Boosting, Department of Computer Science and Engineering, Oregon Graduate Institute, May 7, 2003.

Fitting Conditional Random Fields via Gradient Boosting, Department of Computer and Information Sciences, University of Pennsylvania, April 21, 2003.

Fitting Conditional Random Fields via Gradient Boosting, ALADDIN Workshop on Graph Partitioning in Vision and Machine Learning January 9-11, 2003, Carnegie Mellon University.

Learning and Prior Knowledge, Future of AI Workshop, IBM Amagi Homestead, Japan. December 14, 2002.

Ensembles for Cost-Sensitive Learning and Bias-Variance Analysis of Ensemble Learning, Ensemble Methods for Learning Machines (International School on Neural Nets “E.R. Caianello” 7th Course). IIASS, 22-28 September 2002 Vietri sul Mare, Salerno, Italy.

Machine Learning for Sequential Data: A Review, International Workshop on Statistical Techniques in Pattern Recognition, Windsor, Ontario, Canada, August 6–9, 2002.

Making Data Active with Machine Learning. Forsythe Memorial Lecture, Department of Computer Science, Stanford University, March 18–19, 2002.

Support Vector Methods for Reinforcement Learning. Invited Speaker. Joint meeting of *Principles of Data Mining and Knowledge Discovery (PKDD-2001)* and *Twelfth European Conference on Machine Learning (ECML-2001)*. Freiburg, Germany. September 3–7, 2001.

The Divide-and-Conquer Manifesto. Invited Speaker. *Algorithmic Learning Theory (ALT-2000)*. Sydney, Australia. December, 11–13, 2000.

Sharing and Abstraction in Hierarchical Reinforcement Learning. Invited Speaker. *Symposium on Abstraction, Reformulation and Approximation (SARA-2000)*, Austin, Texas. July 26, 2000.

Why Ensemble Learning Works. Invited Speaker. *First International Workshop on Multiple Classifier Systems*, Santa Margherita di Pula, Cagliari, Italy, June 21–23, 2000.

Why Adaboost Works. Invited Speaker. *Workshop on Selecting and Combining Models with Machine Learning Algorithms*. Montreal, Canada. April 14, 2000.

Hierarchical Reinforcement Learning. Tutorial. *International Conference on Machine Learning*. Bled, Slovenia. June 26, 1999.

Learning for Sequential Decision Making. Invited Speaker. *Conference on Automated Learning and Discovery*. Carnegie Mellon University. June 11, 1998.

Recent Research in Machine Learning. Invited Speaker. *20th Symposium on the Interface*. Minneapolis, MN. May 15, 1998.

Five Topics in Machine Learning Research. Keynote Speaker. Quantitative Analysis Colloquium. AT&T Research. December 9, 1997.

Finding Good Job-Shop Schedules with Reinforcement Learning. Departmental Colloquium. Departments of Math and Computer Science, Rensselaer Polytechnic University, September 26, 1997.

Ensemble Methods in Machine Learning. Departmental Colloquium. Department of Computer Science, Cornell University, September 25, 1997.

Hierarchical Reinforcement Learning with the MAXQ Value Function Decomposition. Carnegie-Mellon University, September 24, 1997.

Current Directions in Machine Learning Research. Invited talk. The Third International Conference on Knowledge Discovery and Data Mining (KDD-97). Newport Beach, California, August 14, 1997.

Learning to Solve Combinatorial Optimization Problems. Invited talk. Ninth Conference on Computational Learning Theory (COLT-96). Desenzano del Garda, Italy, June 28, 1996.

Learning to Solve Combinatorial Optimization Problems. AT&T Bell Laboratories, May 17, 1996.

Statistical Test for Comparing Learning Algorithms. AT&T Bell Laboratories, May 16, 1996.

Finding Good Job-Shop Schedules by Reinforcement Learning. Joint OSU/UO Computer Science Colloquium, November, 1995.

Why I Like Reinforcement Learning, USC Information Sciences Institute, September, 1995.

Machine Learning and Drug Activity Prediction, Joint CS-Statistics Colloquium, UC Berkeley, November 16, 1994.

Connectionist Supervised Learning: An Engineering Approach. Tutorial (co-authored with Andreas S. Weigend), *Eleventh International Conference on Machine Learning (ML-91)*, New Brunswick, NJ, July 10, 1994.

Machine Learning and Drug Activity Prediction, Cognitive Science Colloquium, Georgia-Tech, January 7, 1994.

Calibrating Ecosystem Models by Machine Learning and Supercomputing, Invited talk *Supercomputing '93*, Portland, Oregon, November, 1993.

Solving the Multiple Instance Problem in Machine Learning, Neural Network Colloquium, Oregon Graduate Institute, October 8, 1993.

Scaling Up Machine Learning: Practical and Theoretical Issues, Invited Keynote Lecture, *Computational Learning and Natural Learning (CLNL'93)*, Provincetown, MA, September 10, 1993.

Machine Learning: Issues, Answers, and Quandaries, Invited Speech, *Ninth National Conference on Artificial Intelligence (AAAI-91)*, July, 1991.

Boosting the Performance of Inductive Learning Programs via Error Correcting Output Codes, Beckmann Distinguished Lecture, Beckmann Institute, University of Illinois, Urbana, IL, October 22, 1990.

Research in Engineering Design, Boeing Computer Services, Seattle, WA, April 29, 1990.

Introduction to Machine Learning, Stanford University, Stanford, CA, April 3, 1990.

A Comparative Study of ID3 and Backpropagation for English Text-to-Speech Mapping, Carnegie-Mellon University, Pittsburgh, PA, January 15, 1990.

Challenges for Machine Learning, Invited address, Sixth International Workshop on Machine Learning, Cornell University, Ithaca, NY. June, 29, 1989.

Limits of Inductive Learning, Naval Center for Artificial Intelligence Research, Washington D.C. May 8, 1989.

Scheduling via EBG, Simplification, and Reformulation, DARPA Workshop on Applications of Machine Learning, Snowbird, UT, April 12, 1989.

Machine Learning: Problems and Prospects, Department of Computer Science, University of Washington, Seattle, WA. February 16, 1989.

Experiments on Experimentation, Symposium on Scientific Theory Formation, Stanford University, Stanford, CA, January 8, 1989.

Experiments on Experimentation, Sandia National Laboratories, Albuquerque, NM, September 9, 1988.

How Good is Scientific Experimentation?, Tenth Annual Meeting of the Cognitive Science Society, Montreal, Canada, August, 1988.

Recent Progress in Machine Learning, AAAI-88 panel participant, St. Paul, MN, August, 1988.

Machine Learning, Tutorial (with Paul Rosenbloom), AAAI-87, Seattle, WA, July, 1987.

Problems and Methods in Machine Learning, Tutorial, Artificial Intelligence Workshop, Oregon Center for Advanced Technology Education, Rock Creek, Oregon, November, 1986.

Empirical Studies of the Mechanical Design Process, Workshop on AI and Design, AAAI-86, Philadelphia, PA, August, 1986.

Problems and Methods in Machine Learning, Tutorial, AAAI-86, Philadelphia, PA, August, 1986.

Learning at the Knowledge Level, Third International Workshop on Machine Learning, Rutgers University, June 26, 1985.

Artificial Intelligence Models of Design, NORTHCON 85, Portland, OR, October 23, 1985.

Principles and Methods of Machine Learning, MACHINE LEARNING 1985, The Knowledge-based Systems Centre, London, November 11, 1985.

Courses Developed:

CS519: Ecosystem Informatics I, II, III

CS361: Software Engineering I

CS519: Research Methods in Computer Science

CS430/530: Introduction to Artificial Intelligence

CS532: Advanced Artificial Intelligence (representation theory, planning, machine learning, natural language, vision)

CS533: Applied Artificial Intelligence for Engineers

CS533: Principles of Expert Systems

CS534: Machine Learning

CS539: Special Topics in Artificial Intelligence: Probabilistic Agents (Winter 2000)

CS539: Special Topics in Artificial Intelligence: Non-Monotonic Reasoning and Truth Maintenance Systems

CS539: Special Topics in Artificial Intelligence: AI Research Methodology

CS539: Special Topics in Artificial Intelligence: Speedup Learning

CS450/550: Computer Graphics

Other Courses Taught:

CS161: Introduction to CS I

CS162: Introduction to CS II

CS318: Data Structures

Committee Assignments:

School of EECS Business Plan Committee, 2010

College of Engineering Research Council, 2009-present

OSU Venture Fund, 2008-2010
OSU Innovation Task Force, 2007-08
Faculty Recruiting, 1985-86, 1987-90, 2003-05, 2007-08
Promotion and Tenure, 2002-2011 (chair for 3rd year reviews, 2004; chair, 2006-7)
Graduate Admissions (2002-2005), coordinator for Intelligent Systems
New ENGR Courses, 2002-2003
Post-Tenure Review Committee, 2001-2002
University Search Committee: Dean, College of Science, 2001
Faculty Recruiting (chairman), 1999-2001 (hired 5 new assistant professors)
Graduate Study (member) 1986-91, 1993-95, 1999-2000, 2001-2003 (coordinated the twice-annual Comprehensive Exam)
Graduate Study (chairman), 1997-98, 1993-96, 1986-87
Space Committee (chairman), 1989-91
Equipment, 1990-91
Graduate Programs, College of Engineering, 1990-91, 1994-98
Research Advisory Committee, College of Engineering, 1990-91