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BACKGROUND

Education

Ph.D.	Computer Science, Stanford University (1985)
M.Sc.	Computer Science, Stanford University (1979)
B.Sc.	Mathematics and Computer Science, California Institute of Technology (1976)

Employment

Nov 97 – present	Professor, Dept. of Computing Science, U. Alberta (Edmonton)
Sept 02 – Sept 03	
July 06 – Dec 07	Scientific Director, Alberta Ingenuity Centre for Machine Learning, Edmonton
May 99 – Dec 03	Consultant, BioTools / ChenomX, Edmonton, AB
Jan 92 – Oct 97	(Senior) Member of Technical Staff, Siemens Corporate Research, Princeton NJ
Oct 85 – Dec 91	Research Scientist / Visiting Professor, Dept. of Computer Science, U. Toronto
Oct 77 – Sept 85	Research Assistant, Computer Science, Stanford U.
Mar 81 – Oct 81	Consultant, The Rand Corp, Santa Monica, CA

PRIZES and AWARDS

Fellow, AAAI	(Association for the Advancement of Artificial Intelligence), 2007
Faculty Research Award	UofA CS (2007)
Killam Fellowship	(Univ of Alberta), 2006
ASTech Award, 2006	Outstanding Leadership in Technology (as Member, AICML)
Distinguished Paper	Nineteenth International Joint Conference on Artificial Intelligence (IJCAI'05) "Learning Coordinate Classifiers"
McCalla Professorship	University of Alberta; 2005-06
Best Student Paper	Ninth International Conference on User Modeling (UM'2003) "Learning a Model of a Web User's Interests"
Best Paper (RunnerUp)	Fourteenth Canadian Conference on Artificial Intelligence (CSCSI'01) "Learning Bayesian Belief Network Classifiers: Algorithms and System"
Best Paper	Ninth Canadian Conference on Artificial Intelligence (CSCSI'92) "Probabilistic Hill-Climbing: Theory and Applications"

PUBLICATIONS

Refereed Journal Articles

[J1] **C-H L**, O. Zaiane, H-H. Park, J. Huang, and R. Greiner, " Clustering High Dimensional Data: A Graph-Based Relaxed Optimization Approach" Information Sciences, to appear.

[J2] **I. Levner**, H. Zhang and R. Greiner, "Heterogeneous Stacking for Classification Driven Watershed Segmentation", EURASIP Journal on Advances in Signal Processing, Jan 2008.

[J3] **T. Van Allen**, R. Greiner **A. Singh**, and P. Hooper, "Article title: Quantifying the Uncertainty of a Belief Net Response: Bayesian Error-Bars for Belief Net Inference", Artificial Intelligence, 172 (2008) 483-513.

[J4] **L. Li**, V. Bulitko and R. Greiner, "Focus of Attention in Reinforcement Learning", Journal of Universal Computer Science, 13(24), October 2007.

[J5] C. Slupsky, K. Rankin, J. Wagner, H. Fu, D. Chang, A. Weljie, E. Saude, B. Lix, D. Adamko, S. Shah, R. Greiner, B. Sykes, and T. Marrie, "Investigations of the Effects of Gender, Diurnal Variation and Age in Human Urinary Metabolomic Profiles", Analytical Chemistry, August 2007.

[J6] David S. Wishart, Dan Tzur, Craig Knox, Roman Eisner, An Chi Guo, Nelson Young, Dean Cheng, Kevin Jewell, David Arndt, Summit Sawhney, Chris Fung, Lisa Nikolai, Mike Lewis, Marie-Aude Coutouly, Ian Forsythe, Peter Tang, Savita Shrivastava, Kevin Jeroncic, Paul Stothard, Godwin Amegbey, David Block, David. D. Hau, James Wagner, Jessica Miniaci, Melisa Clements, Mulu Gebremedhin, Natalie Guo, Ying Zhang, Gavin E. Duggan, Glen D. MacInnis, Alim M. Weljie, Reza Dowlatabadi, Fiona Bamforth, Derrick Clive, Russ Greiner, Liang Li, Tom Marrie, Brian D. Sykes, Hans J. Vogel, Lori Querengesser, "HMDB: The Human Metabolome Database", *Nucleic Acids Research*, Oxford Journals Online, Volume 35, Pages D521 – D526, January 2007.

[J7] **M. Morris**, R. Greiner, J. Sander, A. Murtha and **M. Schmidt**, "Learning a Classification-based Glioma Growth Model using MRI Data", *Journal of Computers*, Academy Publisher, Volume 1(7), Oct/Nov 2006, p. 21–31.

[J8] L. Pireddu, D. Szafron, P. Lu and R. Greiner, "The Path-A metabolic pathway prediction web server", *Nucleic Acids Research*, Volume 34 (Web Server issue), July 2006, 6 ms.

[J9] S. Damaraju, D. Murray, J. Dufour, D. Carandang, S. Myrehaug, G. Fallone, C. Field, R. Greiner, J. Hanson, C. Cass and M. Parliament, "Association of DNA Repair and Steroid Metabolism Gene Polymorphisms with Clinical Late Toxicity in Patients Treated with Conformal Radiotherapy for Prostate Cancer", *Clinical Cancer Research*, 12(8) (p2545–2554), 15 April 2006.

[J10] R. Greiner, R. Hayward, **M. Jankowska** and M. Molloy, "Finding Optimal Satisficing Strategies for And-Or-Trees", *Artificial Ingelligence*, 170: 19–58, January 2006.

[J11] G. Van Domselaar, P. Stothard, S. Shrivastava, J. Cruz, A. Guo, X. Dong, P. Lu, D. Szafron, R. Greiner and D. Wishart, "BASys: a web server for automated bacterial genome annotation", *Nucleic Acids Research*, July 2005; 33(Web Server issue): W455–W459.

[J12] R. Greiner, **X. Su**, **B. Shen** and **W. Zhou**, "Structural Extension to Logistic Regression: Discriminative Parameter Learning of Belief Net Classifiers", *Machine Learning*, special issue on "Probabilistic Graphical Models for Classification" 59(3), June 2005, p. 297–322.

[J13] P. Lu, D. Szafron, R. Greiner, D. Wishart, A. Fyshe, B. Pearcy, **B. Poulin**, **R. Eisner**, D. Ngo and N. Lamb, "PA-GOSUB: A Searchable Database of Model Organism Protein Sequences With Their Predicted GO Molecular Function and Subcellular Localization", *Nucleic Acids Research*, 2005, Vol. 33 (Database issue), D147–D153.

[J14] D. Szafron, P. Lu, R. Greiner, D. S. Wishart, **B. Poulin**, **R. Eisner**, **Z. Lu**, J. Anvik, C. Macdonell, A. Fyshe, and D. Meeuwis, "Proteome Analyst: Custom Predictions with Explanations in a Web-based Tool for High-Throughput Proteome Annotations", *Nucleic Acids Research*, Volume 32, July 2004, p. W365-W371.

[J15] J. Listgarten, S. Damaraju, **B. Poulin**, L. Cook, J. Dufour, A. Driga, J. Mackey, D. Wishart, R. Greiner and B. Zanke, "Predictive Models for Breast Cancer Susceptibility from Multiple, Single Nucleotide Polymorphisms", *Clinical Cancer Research*, 10(2725–2737), 15 April 2004.

[J16] **Z. Lu**, D. Szafron, R. Greiner, P. Lu, D. Wishart, **B. Poulin**, J. Anvik, C. Macdonell, and **R. Eisner**, "Predicting Sub-cellular Localization using Machine-Learned Classifiers in Proteome Analyst", *Bioinformatics*, 2004 20: 547–556.

[J17] R. Greiner, A. Grove and D. Roth: "Learning Cost-Sensitive Active Classifiers", *Artificial Intelligence*, 139:2, pp. 137–174, Sept 2002.

[J18] **J. Cheng**, R. Greiner, J. Kelly, D. Bell and W. Liu, "Learning Bayesian Networks from Data: an Information-Theory Based Approach", *Artificial Intelligence*, 137:1-2, pp. 43–90, 2002

[J19] D. Wishart, L. Querengesser, B. Lefebvre, N. Epstein, R. Greiner, and **J. Newton**, "Medical Resonance Diagnostics — A New Technology for High Throughput Clinical Diagnostics", *Journal of Clinical Chemistry*, 47:1918–1921, October 2001.

[J20] R. Greiner, C. Darken and N. Santoso, "Efficient Reasoning", *Computing Surveys*, 33:1 (March 2001), p. 1–30.

[J21] R. Greiner: "The Complexity of Theory Revision", *Artificial Intelligence*, 107:2 (February 1999), p. 175–217.

[J22] R. Greiner: "The Complexity of Revising Logic Programs", *Journal of Logic Programming*, 40:2-3, (Aug-Sept 1999), p. 273–298.

[J23] R. Greiner, A. Grove and A. Kogan: "Knowing What Doesn't Matter: Exploiting the Omission of Irrelevant Data", *Artificial Intelligence*, 97:1–2 (December 1997), p. 345–380.

[J24] R. Greiner and **R. Isukapalli**: "Learning to Select Useful Landmarks", *IEEE Transactions on Systems, Man and Cybernetics – Part B*, Special issue on Learning Approaches to Autonomous Robots Control (ed., M. Dorigo), 26:3 (June 1996), p. 437–449.

[J25] R. Greiner: "PALO: A Probabilistic Hill-Climbing Algorithm", *Artificial Intelligence*, 84:1–2 (July 1996), p. 177–204.

[J26] R. Greiner and P. Orponen: "Probably Approximately Optimal Satisficing Strategies", *Artificial Intelligence*, 82:1–2 (Apr 1996), p. 21–44.

[J27] R. Greiner: "Finding Optimal Derivation Strategies in Redundant Knowledge Bases", *Artificial Intelligence*, 50:1 (1991) 95–115.

[J28] P.E. Caines, R. Greiner and S. Wang: "Classical and Logic-Based Dynamic Observers", *IMA Journal of Mathematical Control and Information*, 8 (45-80), 1991.

[J29] R. Greiner, B. Smith and R. Wilkerson: "A Correction to the Algorithm in Reiter's Theory of Diagnosis" (Technical Note), *Artificial Intelligence*, 41:1 (79–88), November 1989.
[Reprinted in "Readings in Model-based Diagnosis", edited by W. Hamscher, J. de Kleer and L. Console, Morgan Kaufmann, 1992.]

[J30] R. Lee, E. Milios, R. Greiner, J. Rossiter, and A. Venetsanopoulos: "On the machine analysis of radar signals for ice profiling", *Journal of Signal Processing*, 18 (371–386), December 1989.

[J31] R. Greiner: "Learning by Understanding Analogies", *Artificial Intelligence*, 35:1 (81–125), May 1988.

[J32] R. Greiner: "Against the Unjustified Use of Probabilities: A Critique of Cheeseman's *An Inquiry into Computer Understanding*", *Computational Intelligence: An International Journal*, *Taking Issue* section, IV:1 (79–83), February 1988.

Invited (then Refereed) Publications in Refereed Journals

[I1] N. Ray, A. Murtha and R. Greiner, "Abnormality Detection From Brain MRI Using Symmetry" Computer Society of India Communications, vol 31, issue 10, pp. 7-10, January 2008 (Invited).

[I2] D. Subramanian, R. Greiner and J. Pearl: "The Relevance of Relevance", *Artificial Intelligence*, 97:1–2 (December 1997), p. 1–8.

[I3] C. Elkan and R. Greiner, "Book Review of '*Building Large Knowledge-Based Systems: Representation and Inference in the CYC Project*' ", *Artificial Intelligence*, 61:1 (1993), p. 41–52.

[I4] R. Greiner, B. Silver, S. Becker and M. Grüninger: "A Review of Machine Learning papers of AAAI-87", *Machine Learning*, 3:1 (August 1988), p. 79–92,

Editor, Books and Special Issues of Refereed Journals

[E1] R. Greiner and D. Schuurmans: *Proceedings of the Twenty-First International Conference on Machine Learning*, (ISMB 1-58113-838-5) July 2004, 942 pages.
http://www.aicml.cs.ualberta.ca/banff04/icml

[E2] E. Boros, J. Franco, E. Freuder, M.C. Golumbic, R. Greiner and E. Mayoraz, Selected Papers from the Fifth International Symposium on Artificial Special Issue on "Symposium on Artificial Intelligence and Mathematics VIII", *Annals of Artificial Intelligence and Mathematics*, 24 (1998) 1–4.

[E3] R. Greiner, D. Subramanian and J. Pearl, Special Issue on "Relevance", *Artificial Intelligence*, 97:1-2 (December 1997).

[E4] R. Greiner, T. Petsche and S.J. Hanson: *Computational Learning Theory and Natural Learning Systems, Vol IV: Making Learning Systems Practical*, MIT Press (ISBN 0-262-57118-8), February 1997, 432 pp.

Refereed Conference Articles (Full paper refereed, under 1-in-3 acceptance rate)

[C1] C-H. Lee, **M. Brown**, **W. Shaojun**, A. Murtha, and R. Greiner, "Segmenting Brain Tumors using Pseudo-Conditional Random Fields", MICCAI, 2008.

[C2] I. Levner, R. Greiner and H. Zhang, "Supervised Image segmentation via Ground Truth Decomposition", IEEE International Conference on Image Processing (ICIP 2008) October 2008, San Diego.

[C3] A. Isaza, Cs. Szepesvari, V. Bulitko and R. Greiner, "Speeding Up Planning in Markov Decision Processes via Automatically Constructed Abstraction", *Uncertainty in Artificial Intelligence (UAI08)*, July 2008.

[C4] C-H. Lee, **M. Brown**, **S. Wang**, A. Murtha and R. Greiner, "Constrained Classification on Structured Data", AAAI (Student Abstract), July 2008.

X. Su, T. Khoshgoftaar and R. Greiner, "A Mixture Imputation-Boosted Collaborative Filter", Florida AI Research Symposium (FLAIRS-21), Florida, May 2008.

[C5] A. Farhangfar, R. Greiner, M. Zinkevich, "A Fast Way to Produce Optimal Fixed-Depth Decision Trees" Tenth International Symposium on Artificial Intelligence and Mathematics (ISAIM 2008), Florida, January 2008.

[C6] X. Su, T. Khoshgoftaar, X. Zhu, R. Greiner, "Imputation-Boosted Collaborative Filtering Using Machine Learning Classifiers", ACM Symposium on Applied Computing, Fortaleza, Ceara, Brazil, March 16–20, 2008; pp. 949–950.

[C7] X. Su, R. Greiner, T. Khoshgoftaar, X. Zhu, "Hybrid Collaborative Filtering Algorithms Using a Mixture of Experts", Web Intelligence, Silicon Valley, November 2007.

[C8] O. Schulte, W. Lauo and R. Greiner, "Mind Change Optimal Learning of Bayes Net Structure", *20th Annual Conference on Computational Learning Theory (COLT'07)*, San Diego, July 2007.

[C9] **Y. Guo** and R. Greiner, "Optimistic Active-Learning using Mutual Information", *20th International Joint Conference on Artificial Intelligence (IJCAI'07)*, Hyderabad, January 2007 p823-829.

[C10] **C-H. Lee**, **W. Shaojun**, F. Jiao, D. Schuurmans and R. Greiner, "Learning to Model Spatial Dependency: Semi-Supervised Discriminative Random Fields", *Neural Information Processing Systems (NIPS06)*, Vancouver, December 2006.

[C11] J. Huang, D. Schuurmans, **T. Zhu** and R. Greiner, "Information Marginalization on Subgraphs" *10th European Conference on Principals and Practices of Knowledge Discovery in Data (PKDD 2006)*, Berlin, Sept, 2006.

[C12] **C-H. Lee**, R. Greiner, O. Zaine and J. Sander, "Efficient Spatial Classification using Decoupled Conditional Random Fields", *10th European Conference on Principals and Practices of Knowledge Discovery in Data (PKDD 2006)*, Berlin, Sept, 2006.

[C13] F. Jiao, **S. Wang**, **C-H. Lee**, R. Greiner and D. Schuurmans, "Semi-Supervised Conditional Random Fields for Segmenting and Labeling Sequence Data via Entropy Regularization", *International Committee on Computational Linguistics and the Association for Computational Linguistics (COLING-ACL)*, July 2006, Sydney.

[C14] **C-H. Lee**, R. Greiner and **S. Wang**, "Using Query-Specific Variance Estimates to Combine Bayesian Classifiers", *International Conference on Machine Learning (ICML06)*, June 2006, Pittsburgh.

[C15] D. Szafron, **B. Poulin**, **R. Eisner**, P. Lu, R. Greiner, D. Wishart, A. Fyshe, B. Pearcy, C. MacDonell and J. Anvik, "Visual Explanation and Auditing of Evidence with Additive Classifiers", *Innovative Applications of Artificial Intelligence (IAAI06)*, July 2006, Boston.

[C16] **M. Morris**, R. Greiner, J. Sander, **M. Schmidt** and A. Murtha, "Classification-based Glioma Diffusion Modeling using MRI Data", *Canadian Conference on Artificial Intelligence (CdnAI06)*, May 2006.

[C17] **R. Isukapalli**, A. Elgammal and R. Greiner, "Learning Multiclass Object Detection Using Binary Classifiers", *European Conference on Computer Vision (ECCV)*, May 2006.

[C18] **B. Price**, G. Häubl, R. Greiner and **A. Flatt**, "Automatic Construction of Personalized Customer Interfaces", *International Conference on Intelligent User Interfaces (IUI06)*, January 2006, Sydney, Australia.

[C19] **M. Schmidt**, **I. Levner**, R. Greiner, A. Murtha and A. Bistritz, "Segmenting Brain Tumors using Alignment-Based Features", *Fourth International Conference on Machine Learning and Applications (ICMLA05)*, December 2005.

[C20] **R. Eisner**, **B. Poulin**, D. Szafron, P. Lu and R. Greiner, "Improving Protein Function Prediction using the Hierarchical Structure of the Gene Ontology", *Computational Intelligence in Bioinformatics and Computational Biology (CIBCB)*, November 2005.

[C21] **C-H. Lee**, R. Greiner and **M. Schmidt**, "Support Vector Random Fields for Spatial Classification", *9th European Conference on Principals and Practices of Knowledge Discovery in Data (PKDD 2005)*, Porto, Portugal, October 2005, p121–132.

[C22] **A. Kapoor** and R. Greiner, "Learning and Classifying under Hard Budgets", *European Conference on Machine Learning (ECML05)*, Porto, Portugal, October 2005, pp. 166–173.

[C23] **S. Wang**, S. Wang, R. Greiner, D. Schuurmans and L. Cheng, "Exploiting Syntactic, Semantic and Lexical Regularities in Language Modeling via Directed Markov Random Fields", *International Conference on Machine Learning (ICML05)*, Bonn, June 2005, p. 953–960.

[C24] **Y. Guo**, D. Schuurmans and R. Greiner, "Learning Coordinate Classifiers", *International Joint Conference on Artificial Intelligence (IJCAI05)*, Edinburgh, Aug 2005.
Awarded "IJCAI05 Distinguished Paper Prize"

[C25] **T. Zhu**, R. Greiner, G. Häubl, **K. Jewell** and **B. Price**, "Using Learned Browsing Behavior Models to Recommend Relevant Web Pages", *International Joint Conference on Artificial Intelligence (IJCAI05)*, August 2005, p. 1589–1594.

[C26] **Y. Guo** and R. Greiner, "Discriminative Model Selection for Belief Net Structures", *National Conference on Artificial Intelligence (AAAI05)*, Pittsburgh, July 2005, p. 770–776.

[C27] **T. Zhu**, R. Greiner, G. Häubl, K. Jewell and **B. Price**, "Goal-Directed Site-Independent Recommendations from Passive Observations", *National Conference on Artificial Intelligence (AAAI05)*, Pittsburgh, July 2005, p. 549–556.

[C28] **T. Zhu**, R. Greiner, G. Häubl, K. Jewell and **B. Price**, "Off-line Evaluation of Web User Model", *International Conference on User Modeling (UM05)*, August 2005, p. 337–341.

[C29] **O. Madani**, **D. Lizotte** and R. Greiner, "Active Model Selection", *Uncertainty in Artificial Intelligence (UAI04)* pp 357–365. Banff, 2004.

[C30] **I. Levner**, V. Bulitko, L. Li, G. Lee and R. Greiner, "Towards Automated Creation of Image Interpretation Systems", *Australian Joint Conference on Artificial Intelligence.* pp 653–665. 2003.

[C31] **B. Shen**, **X. Su**, R. Greiner, P. Musilek and C. Cheng, "Discriminative parameter learning of General Bayesian Network Classifiers", *International Conference on Tools with Artificial Intelligence (ICTAI03)*, Sacramento, 2003.

[C32] **D. Lizotte**, **O. Madani** and R. Greiner, "Budgeted Learning of Naive-Bayes Classifiers", *Uncertainty in Artificial Intelligence (UAI03)* Acapulco, August 2003.

[C33] **R. Isukapalli** and R. Greiner, "Use of Off-line Dynamic Programming for Efficient Image Interpretation", *International Joint Conference on Artificial Intelligence (IJCAI03)* Acapulco, August 2003.

[C34] V. Bulitko, **L. Li**, R. Greiner and **I. Levner**, "Lookahead Pathologies for Single Agent Search", *International Joint Conference on Artificial Intelligence (IJCAI03)* (Refereed Poster) Acapulco, August 2003.

[C35] **T. Zhu**, R. Greiner and G. Häubl, "An Effective Complete-Web Recommender System" *International World Wide Web Conference (WWW)*, Budapest, May, 2003.

[C36] **T. Zhu**, R. Greiner and G. Häubl, "Learning a Model of a Web User's Interests", *International Conference on User Modeling (UM03)*, Pittsburgh, June, p. 65–75, 2003.
"Best Student Paper Prize"

[C37] R. Greiner and **W. Zhou**, "Structural extension to logistic regression", *National Conference on Artificial Intelligence (AAAI02)*, Edmonton, August 2002.

[C38] R. Greiner, R. Hayward and M. Malloy: "Optimal Depth-First Strategies for And-Or Trees", *National Conference on Artificial Intelligence (AAAI02)*, Edmonton, August 2002.

[C39] **T. Van Allen**, R. Greiner and P. Hooper: "Bayesian Error-Bars for Belief Net Inference", *Uncertainty in Artificial Intelligence (UAI01)*, Seattle, p. 522–529, Aug 2001.

[C40] **R. Isukapalli** and R. Greiner, "Efficient Interpretation Policies", *International Joint Conference on Artificial Intelligence (IJCAI01)* Seattle, p. 1381–1387, August 2001.

[C41] **J. Cheng** and R. Greiner, "Learning Bayesian Belief Network Classifiers: Algorithms and System", *Canadian Conference on Artificial Intelligence (CdnAI01)*, p. 141–151, Ottawa, June 2001.
RunnerUp, "Best Paper Prize"

[C42] **B. Korvemaker** and R. Greiner: "Predicting Unix Command Lines: Adjusting to User Patterns", *National Conference on Artificial Intelligence (AAAI00)*, p. 230–235, Austin, July 2000.

[C43] **T. Van Allen** and R. Greiner: "Model Selection Criteria for Learning Belief Nets: An Empirical Comparison", *International Conference on Machine Learning (ICML00)*, p. 1047–1054 Stanford, June 2000.

[C44] **J. Cheng** and R. Greiner, "Comparing Bayesian Network Classifiers", *Uncertainty in Artificial Intelligence (UAI99)*, Sweden, p. 101–107, Aug 1999.

[C45] R. Greiner, A. Grove and D. Schuurmans, "Learning Bayesian Nets that Perform Well", *Conference on Uncertainty in Artificial Intelligence (UAI97)*, Providence, p. 198–207, August 1997.

[C46] T. Scheffer, R. Greiner and C. Darken, "Why Experimentation can be better than 'Perfect Guidance' ", *International Conference on Machine Learning (ICML97)*, p. 331–339, Nashville, July 1997.

[C47] R. Greiner, A. Grove and D. Roth: "Learning Active Classifiers", *International Conference on Machine Learning (ICML96)*, p. 207–215, Bari Italy, July, 1996.

[C48] R. Greiner, A. Grove and A. Kogan: "Exploiting the Omission of Irrelevant Data", *International Conference on Machine Learning (ICML96)*, p. 216–224, Bari Italy, July, 1996.

[C49] R. Greiner: "The Complexity of Theory Revision", *International Joint Conference on Artificial Intelligence (IJCAI95)*, p. 1162–1168, Montreal, August 1995.

[C50] **D. Schuurmans** and R. Greiner: "Practical PAC Learning", *International Joint Conference on Artificial Intelligence (IJCAI95)*, p. 1169–1175, Montreal, August 1995.

[C51] R. Greiner: "The Challenge of Revising an Impure Theory", *International Conference on Machine Learning (IML95)*, p. 268–277, Lake Tahoe, July 1995.

[C52] **D. Schuurmans** and R. Greiner: "Sequential PAC Learning", *Computational Learning Theory (COLT95)*, p. 277–284, Santa Cruz, July 1995.

[C53] R. Greiner and **R. Isukapalli**, "Learning to Select Useful Landmarks", *National Conference on Artificial Intelligence (AAAI94)*, p. 1251–56, Seattle, August 1994.

[C54] **D. Schuurmans** and R. Greiner: "Learning Default Concepts", *Canadian Conference on Artificial Intelligence (CdnAI94)*, p. 99–106, Banff, May 1994.

[C55] R. Greiner and **D. Schuurmans**: "Learning Useful Horn Approximations", *Knowledge Representation and Reasoning (KR92)*, p. 383–392, Boston, October 1992.

[C56] R. Greiner and **I. Jurišica**: "A Statistical Approach to Solving the EBL Utility Problem", *National Conference on Artificial Intelligence (AAAI92)*, p. 241–248, San Jose, July 1992.

[C57] R. Greiner: "Learning Efficient Query Processing Strategies", *Symposium on Principles of Database Systems (PODS92)*, p. 33–46, San Diego, June 1992.

[C58] V. Chaudhri and R. Greiner: "A Formal Analysis of Solution Caching", *Ninth Canadian Conference on Artificial Intelligence (CdnAI92)*, p. 213–220, Vancouver, May 1992.

[C59] R. Greiner: "Probabilistic Hill-Climbing: Theory and Applications", *Canadian Conference on Artificial Intelligence (CdnAI92)*, p. 60–67, Vancouver, May 1992.

Awarded "Best Paper Prize"

[C60] R. Greiner and C. Elkan: "Measuring and Improving the Effectiveness of Representations", *International Joint Conference on Artificial Intelligence (IJCAI91)*, p. 518–24, Sydney, Australia, August 1991.

[C61] R. Greiner and P. Orponen: "Probably Approximately Optimal Derivational Strategies", *Knowledge Representation and Reasoning (KR91)*, p. 277–88, Boston, April 1991.

[C62] P. Orponen and R. Greiner: "On the Sample Complexity of Finding Good Search Strategies", *Computational Learning Theory (COLT90)*, p. 352–58, Rochester, August 1990.

[C63] R. Greiner and **J. Likuski**: "Incorporating Redundant Learned Rules: A Preliminary Formal Analysis of EBL", *International Joint Conference on Artificial Intelligence (IJCAI89)*, p. 744–749, Detroit, August 1989.

[C64] P.E. Caines, R. Greiner and S. Wang: "Dynamical Logic Observers for Finite Automata", *International Symposium on the Mathematical Theory of Networks and Systems*, Amsterdam, The Netherlands, June 1989.
[Also appeared in *The* 27^{th} *IEEE Conference on Decision and Control*, p. 226–233, Austin, Texas, December 1988.]

[C65] P.E. Caines, R. Greiner and S. Wang: "On (Default) Logic Observers for Finite Automata", 22^{nd} *Conference on Information Sciences and Systems*, p. 50–56, Princeton, March 1988.

[C66] R. Greiner and M. Genesereth: "What's New? A Semantic Definition of Novelty", *International Joint Conference on Artificial Intelligence (IJCAI83)*, p. 450–54, Karlesruhe, Germany, August 1983.

[C67] R. Greiner and D.B. Lenat: "A Representational Language Language", *National Conference on Artificial Intelligence (AAAI80)*, p. 165–69, Stanford, August 1980.
[Reprinted in *The Expert Systems Conference*, La Jolla, California, August 1980.]

[C68] R.A. Brooks, R. Greiner and T. Binford: "The ACRONYM Model-Based Vision System", *International Joint Conference on Artificial Intelligence (IJCAI79)*, p. 105–13, Tokyo, Japan, August 1979.

Refereed Contributions to Books

[B1] Wishart DS and Greiner R. Computational Approaches to Metabolomics: An Introduction. Pacific Symposium on Biocomputing 12:112-114 (2007).

[B2] R. Greiner: "Explanation-Based Learning", *MIT Encyclopedia of the Cognitive Sciences (MITECS)*, MIT Press, 1999, p. 301–303. (Volume awarded: "Best Psychology Title", American Association of Publishers, 1999.)

[B3] **D. Schuurmans** and R. Greiner: "Learning to Classify Incomplete Examples", *Computational Learning Theory and Natural Learning Systems, Vol IV: Making Learning Systems Practical*, Chapter 6, p. 87–105, MIT Press, 1997.

[B4] **D. Schuurmans** and R. Greiner: "Fast Distribution-Specific Learning", *Computational Learning Theory and Natural Learning Systems, Vol IV: Making Learning Systems Practical*, Chapter 10, p. 155–167, MIT Press, 1997.

[B5] R. Greiner and **D. Schuurmans**: "Learning an Optimally Accurate Representation System", *Foundations of Knowledge Representation and Reasoning*, (ed., G. Lakemeyer and B. Nebel), p. 145–159, Springer-Verlanger LNAI, June 1994, Volume 810, "Lecture Notes in AI" series.
[Also appears in *ECAI Workshop on Theoretical Foundations of Knowledge Representation and Reasoning*, Vienna, August 1992.]

[B6] W. Cohen, R. Greiner and **D. Schuurmans**: "Probabilistic Hill-Climbing", in *Computational Learning Theory and Natural Learning Systems, Volume II: Intersection between Theory and Experiment*, ed. S. Hanson, T. Petsche, M. Kearns and R. Rivest, Chapter 11 (p. 171–181), MIT Press, 1994.

[B7] R. Greiner: "Abstraction-Based Analogical Inference", in *Analogical Reasoning: Perspectives of Artificial Intelligence, Cognitive Science, and Philosophy*, David H. Helman (ed.), p. 147–70, Kluwer Academic Publishers, Dordrecht, The Netherlands, 1988.

[B8] R. Greiner: "Learning by Understanding Analogies", in *Analogica: Proceedings of the First Workshop on Analogical Reasoning*, A. Preiditis (ed.), Chapter 1 (p. 1–36), Morgan Kaufmann Publishers, Inc., Los Altos, Calif., 1988.

[B9] R. Greiner: "Learning by Understanding Analogies", in *Machine Learning: A Guide to Current Research*, Kluwer Academic Publishers, Boston, 1986.

[B10] Contributed to Chapter 9 of *Building Expert Systems*, F. Hayes-Roth, D.A. Waterman and D.B. Lenat (ed.), Addison-Wesley Publishing Company, Inc., Massachusetts, 1983.

Other "Lightly" Refereed Contributions

[O1] **S. Wang**, R. Greiner, D. Schuurmans, L. Cheng and S. Wang, "Integrating trigram PCFG and LDA for Language Modeling via directed Markov Random Fields", NIPS Workshop on *Bayesian Methods for Natural Language Processing*, Vancouver, December 2005. (acceptance rate: 25/44 = 56.8%)

[O2] R. Greiner, "Using Value of Information to Learn and Classifier under Hard Budgets", *Value of Information in Inference, Learning and Decision-Making (NIPS Workshop)*, Vancouver, December 2005.

[O3] **S. Wang**, S. Wang, L. Cheng, R. Greiner and D. Schuurmans, "Stochastic Analysis of Lexical and Semantic Enhanced Structural Language Model", *8th International Colloquium on Grammatical Inference*, Japan, Sept 2006. (acceptance rate: 25/44 = 56.8%)

[O4] **R. Isukapalli**, A. Elgammal and R. Greiner, "Learning Policies for Efficiently Identifying Objects of Many Classes", *International Conference on Pattern Recognition (ICPR'06)*, August 2006, Hong Kong, pp 356–361.

[O5] **R. Isukapalli**, A. Elgammal and R. Greiner, " Learning to Identify Expression During Detection Using Markov Decision Process" *7th International Conference Automatic Face and Gesture Recognition (FG2006)*, April 2006, pp 305–310.

[O6] **R. Isukapalli**, A. Elgammal and R. Greiner, "Learning a Dynamic Classification Method to Detect Faces and Identify Facial Expression" *IEEE International Workshop on Analysis and Modeling of Faces and Gestures*, pp 70-84, (http://mmlab.ie.cuhk.edu.hk/iccv05/)

[O7] **C-H. Lee**, **M. Schmidt**, A. Murtha, A. Bistritz, J. Sander and R. Greiner, "Segmenting Brain Tumors using Conditional Random Fields and Support Vector Machines", *Computer Vision for Biomedical Image Applications: Current Techniques and Future Trends*, Workshop in the Tenth IEEE International Conference on Computer Vision, October 2005, Beijing, China.

[O8] **B. Price**, G. Häubl and R. Greiner, "Automatic Construction of Personalized Customer Interfaces", 2005 International Workshop on Customer Relationship Management, November 2005, New York. (http://www.stern.nyu.edu/ciio/WorkOnline/CRM%20workshop)

[O9] **R. Isukapalli**, A. Elgammal and R. Greiner, "Learning a Dynamic Classification Method to Detect Faces and Identify Facial Expressions", *IEEE International Workshop on Analysis and Modeling of Faces and Gestures* (within ICCV-2005), October 2005.

[O10] **A. Kapoor** and R. Greiner, "Reinforcement Learning for Active Model Selection", *Utility-Based Data Mining (KDD Workshop)*, Chicago, August 2005.

[O11] **A. Kapoor** and R. Greiner, "Budgeted Learning of Bounded Active Classifiers", *Utility-Based Data Mining (KDD Workshop)*, Chicago, August 2005.

[O12] **T. Zhu** and R. Greiner, "Evaluating an Adaptive Music-Clip Recommender System" *Fourth Workshop on the Evaluation of Adaptive Systems (within UM05)*, pp 69–73, July 2005.

[O13] **B. Poulin**, D. Szafron, P. Lu, R. Greiner, D. Wishart, **R. Eisner**, A. Fyshe and N. Lamb, "The Proteome Analyst Suite of Automated Function Prediction Tools", *First Automated Function Prediction SIG* at ISMB 2005, Detroit, June 2005.

[**O14**] **B. Poulin**, D. Szafron, P. Lu, R. Greiner, D. Wishart, **R. Eisner**, A. Fyshe, B. Pearcy and L. Pireddu, "The Proteome Analyst Suite of Automated Function Prediction Tools", *AAAI "Intelligence Systems Demonstration"*, Pittsburgh, 2005, p. 1698–1699.

[**O15**] B. Pearcy, P. Lu, D. Szafron, R. Greiner, D. Wishart, A. Fyshe, **B. Poulin**, **R. Eisner**, D. Ngo and N. Lamb, "PA-GOSUB: Gene Ontology Molecular Function (GO) and Subcellular Localization (SUB) Predictions for Model Organisms", *5th International Conference of the Canadian Proteomics Initiative (CPI 2005)*, Toronto, May 2005.
Prize: Second Place Poster

[**O16**] **T. Zhu**, R. Greiner, G. Häubl, **B. Price** and K. Jewell, "Behavior-based Recommender Systems for Web Content" *International Conference on Intelligent User Interfaces (IUI-2005) Workshop on the Next Stage of Recommender Systems Research (Beyond Personalization 2005)*, San Diego, CA, p. 83-88.

[**O17**] **O. Madani**, **D. Lizotte** and R. Greiner, "The Budgeted Multi-armed Bandit Problem", *The Seventeenth Annual Conference on Learning Theory (Open Problems)*, July 2004, Banff, AB, pp. 643–645. (Acceptance:50%)

[**O18**] **I. Levner**, V. Bulitko, **L. Li**, G. Lee and R. Greiner, "Automated Feature Extraction for Object Recognition", Image and Vision Computing New Zealand (IVCNZ), pp 309–313, 2003.

[**O19**] **I. Levner**, V. Bulitko, **L. Li**, G. Lee and R. Greiner, "Learning Robust Object Recognition Strategies", Australian and New Zealand Conference on Intelligent Information Systems (ANZIIS), pp 489–494, 2003.

[**O20**] I. Levner, L. Li, R. Greiner and V. Bulitko, "Improving an Adaptive Image Interpretation System by Leveraging", Australian and New Zealand Conference on Intelligent Information Systems (ANZIIS), pp 501–506, 2003.

[**O21**] **L. Li**, V. Bulitko and R. Greiner, "Focus of Attention in Sequential Decision Making", *Learning and Planning in Markov Processes – Advances and Challenges* (AAAI'04 Workshop), August 2004, p. 43–48.

[**O22**] R. Eisner, A. Fyshe, R. Greiner, P. Lu, D. Meeuwis, B. Poulin, D. Szafron, C. Upton and D. Wishart, "Proteome Analyst - Gene Ontology Protein Function Prediction". Poster, *Canadian Proteomics Initiative (CPI)*, January 2004

[**O23**] **L. Li**, V. Bulitko, and R. Greiner, "Batch Reinforcement Learning with State Importance", 15th European Conference on Machine Learning (ECML), Pisa, Italy, September 2004, p. 566-588.

[**O24**] V. Bulitko, **L. Li**, G. Lee, R. Greiner and **I. Levner**, "Adaptive Image Interpretation: A Spectrum Of Machine Learning Problems", *The Continuum from Labeled to Unlabeled Data in Machine Learning and Data Mining* (ICML Workshop), Washington, DC., 2003.

[**O25**] D. Szafron, R. Greiner, P. Lu, D. Wishart, **Z. Lu**, **B. Poulin**, **R. Eisner**, J. Anvik and C. Macdonell, "Proteome Analyst – Transparent High-throughput Protein Annotation: Function, Localization and Custom Predictors" *Machine Learning in Bioinformatics* (ICML 2003 Workshop), 2003.

[**O26**] **T. Zhu**, R. Greiner and G. Häubl, "Predicting Web Information Content", *Intelligent Techniques for Web Personalization* (IJCAI Workshop), Acalpulco, August, 2003.

[**O27**] **T. Zhu**, R. Greiner and G. Häubl, "Predicting Where a Web User Wants to Go", *Best Practices and Future Visions for Search User Interfaces*, (CHI2003 Workshop), Fort Lauderdale, April, 2003.

[**O28**] **T. Zhu**, R. Greiner and G. Häubl, "Important Page Predicting for Internet Recommendation: A Machine Learning Way", *First International Conference on Fuzzy Systems and Knowledge Discovery (FSKD'02)*, Singapore, November 2002.

[O29] V. Bulitko, **I. Levner** and R. Greiner, "Real-time Lookahead Control Policies", *Real-Time Decision Support and Diagnosis Systems* (AAAI/KDD/UAI-2002 Joint Workshop), August 2002, pp. 28 – 36.

[O30] **I. Levner**, V. Bulitko, **O. Madani** and R. Greiner: "Performance of Lookahead Control Policies in the Face of Abstractions and Approximations", *Abstraction, Reformulation and Approximation: 5th International SARA Symposium*, August, 2002. LNAI 2371, p. 299–308. http://link.springer.de/link/service/series/0558/tocs/t2371.htm

[O31] **R. Isukapalli** and R. Greiner, "Efficient Car Recognition Policies", *IEEE International Conference on Robotics and Automation*, p. 2134–2139, Seoul, May 2001,

[O32] **T. Van Allen** and R. Greiner, "Model Selection Criteria for Learning Belief Nets: An Empirical Comparison", *Selecting and Combining Models for Machine Learning*, Montreal, 2000.

[O33] **B. Korvemaker** and R. Greiner, "Predicting UNIX Command Lines", *Adaptive User Interfaces*, (AAAI 2000 Spring Symposium), pages 59–64, Stanford, March, 2000.

[O34] R. Greiner and **W. Zhou**: "Learning Accurate Belief Nets using Explicitly-Labeled Queries", *Conditional Independence Structures and Graphical Models*, Toronto, p. 39–41, September 1999.

[O35] R. Greiner and C. Darken, "Determining whether a Belief Net is Consistent with Auxiliary Information", *Conditional Independence Structures and Graphical Models*, Toronto, p. 37–38, September 1999.

[O36] **W. Zhou** and R. Greiner, "Learning Accurate Belief Nets using Implicitly-Labeled Queries", *Conditional Independence Structures and Graphical Models*, Toronto, p. 84–85, September 1999.

[O37] R. Rao, R. Greiner and T. Hancock, "Exploiting the Absence of Irrelevant Information: What You Don't Know *Can* Help You", *AAAI Symposium on "Relevance"*, New Orleans, November 1994.

[O38] P. Langley, G. Drastal, B. Rao and R. Greiner: "Theory Revision in Fault Hierarchies", *The Fifth International Workshop on Principles of Diagnosis*, New York, October 1994.

[O39] R. Greiner: "On adaptive derivation processes", *ICML93 Workshop on Knowledge Compilation and Speedup Learning (KCSL 93)*, p. 72–76, Amherst, June 1993.

[O40] R. Greiner: "Learning Near-Optimal Horn Approximations", *AAAI Spring Symposium on Knowledge Assimilation*, Stanford, March 1992.

[O41] Y. Xiao and R. Greiner: "A Distributed Plan Verifier", *UNB Artificial Intelligence Workshop*, Oct 1990.

[O42] R. Greiner: "Towards A Formal Analysis of EBL", *Sixth International Workshop on Machine Learning*, Cornell, June 1989.

[O43] R. Lee, E. Milios, R. Greiner and J. Rossiter: "An Expert System for Automated Interpretation of Ground Penetrating Radar Data", *Workshop on Ground Probing Radar*, Ottawa, Canada, May 1988.

[O44] R. Lee, E. Milios, R. Greiner, J. Rossiter: "Signal Abstractions in the Machine Analysis of Radar Signals for Ice Profiling", *International Conference on Acoustics, Speech and Signal Processing*, New York, April 1988.

[O45] R.A. Brooks, R. Greiner and T. Binford: "Progress Report on a Model Based Vision System", *Proceedings of the ARPA Image Understanding Workshop*, L. Baumann (ed.), Nov 1978, p. 145-151.
[Reprinted in *Proceedings of the NSF Workshop on the Representation of Three-Dimensional Objects*, University of Pennsylvania, May 1979, Section C.]

[O46] R.A. Brooks, R. Greiner and T. Binford: "A Model Based Vision System", *Proceedings of the ARPA Image Understanding Workshop*, L. Baumann (ed.), May 1978, p. 36-44.

[O47] R. Greiner: "An Ackerman Variable," *APL Quote Quad* (Spring 1975).

[O48] R. Greiner: "Balancing Chemical Equations," *APL Quote Quad* (Spring 1974).

Invited Publications in non-Refereed Magazines

[M1] J. van Rijswijck, J. Schaeffer and R. Greiner, "Always Shoot: Using FIFA in the Classroom", *Electronics Arts Journal*, p. 31–38, Vol. 2(1), March 2001.

[M2] R. Greiner and D. Subramanian: "Summary of 'Relevance' Fall Symposium", *AI Magazine*, No. 16, p. 10, Spring 1995.

[M3] R. Greiner: "Annual Meeting of the CIAR AIR Group", *Canadian Artificial Intelligence*, No. 14, p. 11–12, January 1988.

[M4] R. Greiner, S. Becker, J-F. Lamy, E. Milios and B. Selman: "Conference Report — AAAI-87: The Sixth National Conference on Artificial Intelligence, Seattle, Washington", *Canadian Artificial Intelligence*, No. 3, p. 17–21, October 1987.

Posters and other Non-Refereed Publications

[N1] **R. Eisner**, R. Greiner and D. Wishart, "Chemical Class Prediction in the Human Metabolome" Canadian Proteome Society Regional Meeting - Omics and Systems Biology, February 2008.

[N2] "A Novel Approach to Constructing more "Intelligent" Planning Target Volumes for Glioma Patients." September 2006.

[N3] Wishart DS, Li L, Greiner R, Sykes B, Bamforth F, Vogel H, Querengesser L, Forsythe I. "Metabolomics and the Human Metabolome Project", poster presented at CHI's Identifying and Validating Metabolic Markers for Drug Development and Clinical Studies poster session, Orlando, Florida, December 4-5, 2006.

[N4] Eisner R, Knox C, Greiner R, Wishart DS. "Predicting Chemical Properties of Small Molecules", poster presented at the Second Annual Metabolomics Symposium: Exploring the Human Metabolome poster session, Timms Centre, University of Alberta, October 12, 2006.
(Also presented at the Intelligent Systems in Molecular Biology Conference, Fortaleza, Brazil, August 4-7, 2006.)

[N5] Wagner J, Greiner R, Baracos V, Mourtzakis M, Prado C, Slupsky C, Rankin K, Chang D, McGeer A, Marrie T, Nikolai L, Lewis M, Coutouly M-A, Wishart DS. "Using Metabolomic Profiles to Diagnose Patients", poster presented at the Second Annual Metabolomics Symposium: Exploring the Human Metabolome poster session, Timms Centre, University of Alberta, October 12, 2006.

[N6] Patterson J, Pireddu L, Szafron D, Lu P, Greiner R. "Pathway Analyst - Automated Metabolic Pathway Prediction", poster presented at the Second Annual Metabolomics Symposium: Exploring the Human Metabolome poster session, Timms Centre, University of Alberta, October 12, 2006.

[N7] Patterson J, Pireddu L, Szafron D, Lu P, Greiner R. "Pathway Analyst - Automated Metabolic Pathway Prediction", poster presented at the Second Annual Metabolomics Symposium: Exploring the Human Metabolome poster session, Timms Centre, University of Alberta, October 12, 2006.

[N8] D. Wishart, L. Li, R. Greiner, T. Marrie, B. Sykes, F. Bamforth, H. Vogel and L. Querengesser: "Metabolomics and the Human Metabolome Project", *Metabolomics Society Meeting*, Boston, June 2006
(also presented at CHI's Identifying and Validating Metabolic Markers for Drug Development and Clinical Studies poster session, Harvard Medical School, Boston, Massachusetts, June 25-29, 2006.)

[N9] N. Young, K. Jewell, D. Block, C. Knox, P. Tang, R. Greiner and D. Wishart: "MetaboLIMS: A General Laboratory Information Management System for Metabolomics", *Metabolomics Society Meeting*, Boston, June 2006
(also presented at the Second Annual Metabolomics Symposium: Exploring the Human Metabolome poster session, Timms Centre, University of Alberta, October 12, 2006.)

[N10] Y. Wang, S. Damaraju, C. Cass, D. Murray, G. Fallone, M. Parliament and R. Greiner, "Analysis of Single Nucleotide Polymorphisms in Candidate Genes and Application of Machine Learning Techniques to Predict Radiation Toxicity in Prostate Cancer Patients Treated with Conformal Radiotherapy", *Alberta Cancer Board Research Retreat*, Nov 2005, Banff.
(Also at *American Association for Cancer Research (AACR)*, Washington DC, April 2006)

[N11] S. Damaraju, D. Murray, J. Dufour, D. Carandang, S. Myrehaug, G. Fallone, C. Field, R. Greiner, J. Hanson, C. Cass and M. Parliament, "A Comprehensive Genomic Approach to the Identification of Predictive Markers using DNA and Tissue Repair Gene Polymorphisms in Radiation Induced Late Toxicity in Prostate Cancer Patients Treated with Conformal Radiotherapy", *Alberta Cancer Board Research Retreat*, Nov 2005, Banff.
(Also at *American Association for Cancer Research (AACR)*, Washington DC, April 2006)

[N12] J. Dufour, Y. Wang, C. Cass, R. Greiner, J. Mackey and S. Damaraju, "Analysis of Single Nucleotide Polymorphisms in Candidate Genes and Application of Machine Learning Techniques for assessing Susceptibility to Breast Cancer in Alberta Women", *Alberta Cancer Board Research Retreat*, Nov 2005, Banff.

[N13] **R. Price**, G. Häubl and R. Greiner: "Automatic Construction of Personalized Customer Interfaces", Marketing Science Conference, Erasmus University, Rotterdam, June 25, 2004.

[N14] **Shaojun Wang** and Russell Greiner: "Identifying metabolite mentions in text via semi-supervised structured learning of conditional random fields", *Metabolomics Symposium*, Edmonton, Oct 2005.

[N15] C. Qiu, J. Li, P. Messenger, **T. Zhu**, and R. Greiner, "Investigating Online Preference Construction and Purchase Propensity under Customized Promotions", Distinguished Scholars Retreat, UofAlberta Business (poster); 6-7/May/04.

[N16] S. Shrivastava, C. Knox, P. Stothard, R. Greiner and D. Wishart: "Data Mining Tools for Curation of the Human Metabolome Database", *Metabolomics Symposium*, Edmonton, Oct 2005.

[N17] Tzur D, Jeroncic K, Jewell K, Block D, Knox C, Eisner R, Guo A, Stothard P, Forsythe I, Shrivastava S, Greiner R, Wishart DS. "The Human Metabolome Database (HMDB)", poster presented at the Metabolomics Symposium: Understanding the Human Metabolome poster session, Telus Centre, University of Alberta, Oct. 25, 2005.

[N18] Wang S, Greiner R. "Text Mining in the Human Metabolome Project: Identifying metabolite mentions in text via semi-supervised structured learning of conditional random fields", poster presented at the Metabolomics Symposium: Understanding the Human Metabolome poster session, Telus Centre, University of Alberta, Oct. 25, 2005.

[N19] **R. Eisner**, A. Fyshe, R. Greiner, P. Lu, B. Pearcy, **B. Poulin**, D. Szafron and D. Wishart, "Predicting 400 GO Functions of Proteins", Poster, *Intelligent Systems for Molecular Biology (ISMB)*, Michigan, June 2005.

[N20] D. Wishart, B. Pearcy, D. Szafron, P. Lu, A. Fyshe, **B. Poulin**, R. Greiner, **R. Eisner**, "Prediction of Protein Function Across Gene Ontology Terms" Poster, *Intelligent Systems for Molecular Biology (ISMB)*, Michigan, June 2005.

[N21] **B. Poulin**, D. Szafron, P. Lu, R. Greiner, D. Wishart, **R. Eisner**, A. Fyshe and N. Lamb: "The Proteome Analyst Suite of Automated Function Prediction Tools", *First Automated Function Prediction SIG, at ISMB 2005*, Detroit, June, 2005

[N22] B. Poulin, D. Szafron, R. Greiner, R. Eisner and P. Lu, "RAMMER: Accelerating Protein Function Prediction", *Canadian Proteomics Initiative (CPI)*, Poster, Toronto, Ontario, May 2005.

[N23] J. Listgarten, R. Greiner, A. Driga, K. Graham, S. Damaraju, J. Mackey and C. Cass, "Analysis of Molecular and Clinical Data at PolyomX", ACB Annual Research Meeting, Banff, November 8-10, 2004.

[N24] **T. Zhu**, R. Greiner, G. Häubl, and B. Price, "WebIC: An All-Web Recommendation System", Distinguished Scholars Retreat, UofAlberta Business (poster); 6-7/May/04.

[N25] Wishart DS, Sykes BD, Vogel H, Clive D, Li L, Greiner R, Ellison M, Bamforth F. "NMR and the Human Metabolome Project", abstract presented at the 9th Frontiers of NMR in Molecular Biology Keystone Symposium, Banff, AB, Jan. 29-Feb. 4, 2005.

[N26] **J. Newton** and R. Greiner, "Hierachical PRMs for Collaborative Filtering", ICML 2004 Workshop on Statistical Relational Learning and its Connections to Other Fields, July 2004.

[N27] A. Fyshe, **R. Eisner**, R. Greiner, P. Lu, D. Meeuwis, **B. Poulin**, D. Szafron, D. Wishart and C. Upton, "Proteome Analyst: An Overview". (Poster), *PENCE Annual Workshop*, January 2004.

[N28] A. Driga, R. Greiner, K. Graham, S. Damaraju, D. Wishart, J. Mackey and C. Cass, "Tumor Profile Discovery and Tumor Bank Management with DORA", Annual scientific meeting for the Alberta Cancer Board, 2003.

[N29] K. Calder, C. Cass, R. Berendt, S. Damaraju, L. Cook, J. Dufour, A. Driga, K. Graham, E. Pituskin, R. Greiner, A. Reiman, M. Sawyer, D. Wishart, and J. Mackey, "Alberta Cancer Board PolyomX Program", Annual scientific meeting for the Alberta Cancer Board, 2003.

[N30] J. Anvik, **R. Eisner**, R. Greiner, P. Lu, Z. Lu, C. MacDonell, **B. Poulin**, D. Szafron, and D. Wishart, "Custom Classifier Creation in Proteome Analyst", CPI meeting [PENCE Bioinformatics-1], May 2003.

[N31] **Z. Lu**, J. Anvik, **R. Eisner**, R. Greiner, P. Lu, C. MacDonell, **B. Poulin**, D. Szafron, and D. Wishart, "Using Proteome Analyst for Protein Sub-cellular Localization Prediction", CPI meeting [PENCE Bioinformatics-1], May 2003.

[N32] **A. Singh**, R. Greiner, V. Dorian and B. Lefebvre, "Automated diagnosis of IEMs using High-Throughput Quantitative NMR Spectroscopy", ISMB'02, Edmonton, 2002.

[N33] J. Listgarten, **B. Poulin**, R. Greiner, D. Wishart, B. Zanke, S. Damar, T. Kolacz, X. Wan, "Cancer, SNPs, and Machine Learning" ISMB'02, Edmonton, 2002.

[N34] **B. Poulin**, D. Szafron, P. Lu, R. Greiner, D. Wishart, **R. Eisner**, B. Habibi-Nazhad, "Proteome Analyst – High throughput Protein Function Prediction", ISMB'02, Edmonton, 2002.

[N35] R. Greiner and J. Schaeffer (ed.), *Proceedings of the "Effective Interactive Artificial Intellgence Resrouces" Workshop (IJCAI'01)*, AAAI Press, 2001.

[N36] R. Greiner and D. Subramanian (ed.), *Proceedings of the "Relevance" Symposium*, AAAI Press, FS-94-02, 1995.

[N37] R. Greiner, G. Meredith and R. B. Rao: "An Optimized Theory Revision Module", Learning System Department TechReport, Siemens Corporate Research, SCR-95-TR-539, Feb 1995.

[N38] G. Drastal, R. Greiner, C-N. Lee, G. Meredith, C. Mouleeswaran and R. B. Rao: "Knowledge Maintenance Environment", Learning System Department TechReport, Siemens Corporate Research, SCR-94-TR-511, June 1994.

[N39] R. B. Rao, G. Drastal and R. Greiner: "The Δ learning system for using expert advice to revise diagnostic expert system fault hierarchies", Learning System Department TechReport, Siemens Corporate Research, September 1994.

[N40] S. Hanson, S. Judd, T. Hancock, L. Lin and R. Greiner, "RatBOT: Learning in the Design of a Mobile Robot", Learning System Department TechReport SCR-94-TR-470, Siemens Corporate Research, November 1993.

[N41] N. Gupta, S. Judd and R. Greiner: "Opportunities to Apply Machine Learning Techniques to Automate Software Design", Learning System Department TechReport, Siemens Corporate Research, SCR-94-TR-464, December 1993.

[N42] R. Greiner: "Principles of Inference Processes", Department of Computer Science, University of Toronto, CSRI-193, April 1987, 52 pp.

[N43] R. Greiner: "Learning by Understanding Analogies", (PhD dissertation): Computer Science Department, Stanford University, Technical Report STAN-CS-1071, September 1985, 400 pp.

[N44] M. Genesereth, R. Greiner, M.R. Grinberg and D.E. Smith: "The MRS Dictionary", HPP Working Paper 80-24, Stanford University, revised January 1984, 47 pp.

[N45] R. Greiner and D.B. Lenat: "RLL-1: A Representational Language Language", HPP Working Paper 80-9, Stanford University, October 1980, 43 pp.

[N46] R. Greiner: "Details of RLL-1", HPP Working Paper 80-23, Stanford University, October 1980, 65 pp.

ACADEMIC HISTORY

Research Projects

Major research projects at University of Alberta

- PolyomX Project (http://www.polyomx.ca) (2002-present)
- Proteome Analyst (http://www.cs.ualberta.ca/~bioinfo/PA/) (2002–present)
- Brain Tumor Growth Prediction (http://www.cs.ualberta.ca/~btgp) (2003–present)
- The Human Metabolome Project (http://www.metabolomics.ca/) (2004–present)
- All Web Recommendation System, WebIC (http://www.web-ic.com) (2003–2005)
- Learning to Classify Patterns in Signals [BioTools/Chenomx] (1997–2000)
- Developing Effective Process and Control Systems [Syncrude] (1997–1999)
- Adaptive User Interfaces (1997–1999)
- Learning Accurate Belief Nets [Siemens] (1997–1999)

Major research projects at Siemens Corporate Research, Princeton,

- Diagnostic Support using Bayesian Nets, 1996–1997
- "The Knowledge Maintanence Environment Project", 1993–1996
- "The Electronic Eye Project", 1993–1995
- "The RatBOT Project: Building an Effective Learning Robot", 1992–1993

Major research projects at the University of Toronto

- "Building Efficient Reasoning Systems", 1988–1991

"Artificial Intelligence and Systems and Control Theory", 1985–1987

"Second Generation Expert Systems", 1985–1987

Consultant for "The Silicon Pencil" (Dr. Frederick Hayes-Roth), The Rand Corp. (1982)

Major research projects as Research Assistant at Stanford

PhD thesis on analogy

Developed the MRS System with Professor Genesereth — 1982 to 1985

Designed and implemented RLL System with Professor Lenat — 1979 to 1981.

Built "Model Matcher" for the Image Understanding Project (ACRONYM) with Professor Binford — 1977 to 1978.

Research Awards

Learning for Bio- and Medical-Informatics
Funder: NSERC Discovery Grant
Amount: $42,000/year
Duration: Apr07–Mar12

Genome-Wide Single Nucleotide Polymorphism Based Association Studies in Metastatic Breast Cancer
Funder: ACBRI [Operating]
With: S Damaraju [PI], J Tuszynski, J Mackey, C Cass, R Lai, R Berendt, R Greiner
Amount: $1,151,363
Duration: Apr07–Mar10

Identification and Validation of Pathways Associated with Failure of Standard Adjuvant Therapy in Early Stage Breast Cancer
Funder: Alberta Cancer Board [Operating Grant]
With: J. Mackey [PI], R. Lai, C. Cass, K. Graham, R. Greiner
Amount: $490,914
Duration: Apr07–Mar09

Creation of the Alberta Transplant Applied Genomics Centre (ATAGC)
Funder: CFI [New Initiative Fund]
With: P Halloran [PI] and others
Amount: $5,064,408
Duration: Jan07 – Jan10

Creation of the Alberta Transplant Applied Genomics Centre (ATAGC)
Funder: Alberta Science and Research Investment Program (ASRIP)
With: P Halloran [PI] and others
Amount: $4,134,936
Duration: Jan07 – Jan10

A Genome-Wide Search for Identification of Breast Cancer Risk Factors and Prognostic Markers using Single Nucleotide Polymorphisms

Funder: Alberta Cancer Board: Alberta Breast Cancer Research Initiative
With: S Damaraju [PI], C. Cass, J. Mackey, R. Greiner
Amount: $409,338
Duration: Jun06–May08

Candidate Gene Polymorphisms and Normal Tissue Radiation Toxicity

Funder: Alberta Cancer Board [RIP]
With: M. Parliament [PI], S. Damaraju, D. Murray, J. Wu, H. Lau, R. Scrimger, G. Fallone, R. Greiner
Amount: $225,000
Duration: Apr06 – Mar09

Identification of Clinically Occult Glioma and Characterization of Glioma Behavior

Funder: Alberta Cancer Board: Research Initiative Program
With: R Greiner [PI], J Sander, A Murtha
Amount: $40,000
Duration: Apr06–Mar08

Molecular profile of cachexia in patients with cancer

Funder: Alberta Cancer Board [RIP: Operating Grant]
With: V Baracos [PI], C. Cass, R. Greiner, S. Damaraju, J. Mackey, A. Reiman, T.L. Winti, D. Wishart
Amount: $375,000
Duration: Apr05 – Mar08

Building The Metabolic Toolbox: Enabling Rapid Disease Diagnosis Through Metabolic Profiling

Funder: Genome Canada [Applied Genomics and Proteomics Research in Human Health Application for a Large-Scale Project]
With: D Wishart [PI] and 7 others
Amount: $3.622M
Duration: Sept04–Dec07

Novel Genetic Markers of Breast Cancer Risk

Funder: Canada Breast Cancer Foundation
With: J Mackey [PI] and 6 others
Amount: $189,438
Duration: Jun04–May06

Beta Retrovirus and Breast Cancer Serologic and Genetic Markers of Infections

Funder: Canada Breast Cancer Foundation
With: J Mackey [PI] and 6 others
Amount: $163,200
Duration: Jun04–May06

Diagnostic Applications of Microarrays in Organ Transplantation

Funder: Genome Canada [Applied Genomics and Proteomics Research in Human Health Application for a Large-Scale Project]
With: P Halloran [PI] and 7 others
Amount: $5.52M
Duration: Apr04–Dec07

Exploring Genomic, Proteomic and Dosimetric Determinants of Late Toxicity after Three-Dimensional Conformal Radiotherapy for Prostate Cancer

Funder: Alberta Cancer Board [Research Initiative Program]
With: M Parliment [PI] and 6 others
Amount: $240,000
Duration: Apr03–Mar06

Training Grant

Funder: CIHR
With: C. Cass and 37 others
Amount: $300,000
Duration: Apr03

Harnessing the Web-Interaction Process for Canadian Competitiveness

Funder: Social Science and Humanities Research Council of Canada
With: P. Messinger and 10 others
Amount: $865,750
Duration: Apr03—Mar06

Intelligent Agents in Commercial Computer Games

Funder: IRIS
With: J Schaeffer, M Mueller, R. Holte
Amount: $472,000
Duration: Apr02–Mar05

PolyomX Program: Tumor Banking & Bioprofiling

Funder: ACF (Program Initiation and Infrastructure)
With: C. Cass [PI], S. Damaraju, R. Greiner, L. Li, J. Mackey, M. Sawyer, D. Wishart, R. Berendt
Amount: $1,798,400
Duration: Apr02–Mar07

Alberta Ingenuity Centre for Machine Learning

Funder: Alberta Ingenuity
With: R. Holte, R. Goebel, J. Schaeffer, + R. Sutton, D. Schuurmans, M. Bowling, C. Szepesvari
Amount: ≥$1.2M/year; $9.887M over 69 months
Duration: Sept02–Mar08

Misc funds for Conferences (Summer 2002)
Total of $33,000, in 4 individual grants

Learning and Adaptive Algorithms

Funder:	NSERC Discovery Grant
With:	
Amount:	$40,000/year
Duration:	Apr02–Mar07

Envisionment-based Modeling for Intelligent Control using Time Interval Petri Networks: Knowledge Representation and Learning

Funder:	University of Illinois (ChampaignUrbana)
With:	(for V. Bulitko)
Amount:	$19,027US
Duration:	January 2001

"AI Exploratorium" Demos

Funder:	AAAI Organization
With:	R. Greiner, J. Schaeffer
Amount:	$20,000 US
Duration:	Nov99

iCORE chair in Machine Learning Search

Funder:	iCORE ISPR funding
Amount:	$10,000
Duration:	Mar00

Experiments with Constraints and Learning

Funder:	NSERC [Equipment Grant]
With:	R. Goebel, P. van Beek, R. Greiner
Amount:	$29,000
Duration:	Apr99–Mar00

Building Effective Belief Nets

Funder:	Siemens Corporate Research
Amount:	$20,000 US
Duration:	Jan99–Sept99

Learning and Adaptive Algorithms

Funder:	NSERC Operating Grant
Amount:	$35,000/year
Duration:	Apr98–Mar01

Support for PDF

Funder:	Pacific Institute of Mathematical Sciences
With:	(for J Cheng)
Amount:	$10,000/year
Duration:	Jan99–Dec99

Efficient Reasoning

Funder:	Siemens Corporate Research
Amount:	$15,000 US [Contract]
Duration:	Apr98–Sept98

StartUp

Funder:	University of Alberta
Amount:	$50,000
Duration:	Nov97–Oct99

"Institute for Robotics and Intelligent Systems"

Funder:	Federal Centres of Excellence
With:	R. Reiter and 12 others
Amount:	$346,5000/year
Duration:	Jul90–Jun94

"Building Efficient Reasoning Systems"

Funder:	NSERC [Operating Grant]
Amount:	$16,611/year
Duration:	Apr90–Mar92

"Machine Learning: Techniques and Foundations"

Funder:	NSERC [Operating Grant]
Amount:	$15,000/year
Duration:	Apr88–Mar90

Student support, 1999-2001
Total of $56,700, in 15 individual grants

Patents

[P1] "Automatic identification of compounds in a sample mixture by means of NMR spectroscopy"
with D. Wishart, T. Rosborough, B. Lefebvre, N. Epstein, J. Newton, W. Wong; (7181348; Awarded 20 Feb 2007).

[P2] "A Method and System for Automatic Detection and Segmentation of Brain Tumors and Associated Edema (Swelling) in Magnetic Resonance Images (MRI)" with M. Schmidt and A. Murtha;
(US Provisional Patent Application filed: 29 April 2005 — 60/675,085)

[P3] "An Efficient Data-Driven Theory Revision System"
with R.B. Rao and G. Meredith;
(5787232, Awarded 28 July 1998.)

[P4] "Delta learning system for using expert advice to revise diagnostic expert system fault hierarchies" with R.B. Rao and G. Drastal;
(5987445, Awarded 16 November 1999).

[P5] "Process, apparatus, media and signals for automatically identifying compounds in a sample"
with D. Wishart, B. Lefebvre, J. Newton, N. Epstein, T. Rosborough, W. Wong
UK Patent: GB2410559
US application filed November 2001.

Professional Affiliations and Activities

Scientific (co)Director: Alberta Ingenuity Centre for Machine Learning,
Director: Oct 2002 – June 2003; July 2006 – present
CoDirector: July 2003 – June 2006

Executive Council:
Chief Information Officer, *PolyomX, Inc*, from 2002
Vice President, *The Canadian Society for Computational Studies of Intelligence*, 1998 – 2000
Steering Committee, *Pacific Institute of Mathematic Sciences*, from 1999
Technical Advisory Board, *CELCorp*, from 2000

CoEditor-in-Chief:
Computational Intelligence: An International Journal until 2006, (with R. Goebel, D. Lin)

Journal Editorial Boards:
Journal of Artificial Intelligence Research (Action Editor, from 2004 – 2008) (Advisory board, from 2008
Machine Learning Journal
Journal of Machine Learning Research

Conference chair:
General chair: Twenty-third Int'l Conference on Machine Learning (ICML'06), 2006
Program chair: Twenty-first Int'l Conference on Machine Learning (ICML'04), (with D. Schuurmans), 2004
Program chair: Fifth Int'l Symposium on Mathematics and Artificial Intelligence (with E. Boros), 1998
General co-chair: Tenth Int'l Conference on Intelligent Systems for Molecular Biology (ISMB'02) (with D. Wishart, W. Gallin), 2002
General chair: Computational Learning and 'Natural' Learning Theory Workshop, 1993
Local arrangements chair: 18th Conference on Artificial Intelligence (AAAI02)
Local arrangements chair: 18th Conference on Uncertainty in Artificial Intelligence (UAI'02)
Organizer/Program chair (with J. Schaeffer): IJCAI'01 Workshop on "Effective Interactive AI Resources", 2001
Knowledge Representation Chair, International Conference on Tools with Artificial Intelligence (ICTAI96), 1996
Organizer/Program chair (with D. Subramanian): AAAI Fall Symposium on "Relevance", 1994
Workshop chair: Machine Learning/Computational Learning Theory (ML94/COLT94), 1994
Tutorial chair: Machine Learning/Computational Learning Theory (ML94/COLT94), 1994

Panels:
SIGART/AAAI-98 Doctoral Consortium Panel

Appointments:
Associated Member of Faculty of Graduate Studies, University of Guelph, June 1988.
Associated Member of Faculty of Graduate Studies, University of Toronto, July 1988 – June 1994.

Member of Conference Programme Committee:

National Conference on Artificial Intelligence (AAAI), (Senior)
Conference on Uncertainty in Artificial Intelligence (UAI)
Discovery Science
International Symposium on Artificial Intelligence and Mathematics
International Conference on Machine Learning (ICML)
Canadian Society for Computational Studies of Intelligence Conference (CSCSI)
Computational Learning and Natural Learning Theory Conference (CLNL)
User Modeling
Computational Intelligence for Robotics and Automation

Member of Workshop/Symposium Programme Committee:

IEEE CIRA-2001: Computational Intelligence in Robotics and Automation
UAI-2000 Workshop on "Fusion of Domain Knowledge with Data for Decision Support"
ICML-2000 Workshop on "Attribute-Value and Relational Learning"
First Canadian Workshop on Soft Computing, 1999.
Student Abstract and Poster Program, AAAI-99.
Learning Complex Behaviors in Adaptive Intelligent Systems, 1996
Knowledge Compilation and Speedup Learning Workshop, 1993

Referee for:

Artificial Intelligence Journal
Computational Intelligence: An International Journal
Computational Optimization and Applications: An International Journal
European Journal of Operational Research
IEEE/ACM Transactions on Computational Biology and Bioinformatics
IEEE Transactions on Pattern Analysis and Machine Intelligence
IEEE Transactions on Systems, Man and Cybernetics

Machine Learning Journal
MIT Encyclopedia of the Cognitive Sciences (MITECS)
Journal of Artificial Intelligence Research
Journal of the ACM
Journal of Logic Programming
User Modeling and User-Adapted Interaction
The Annals of Mathematics and Artificial Intelligence
The Arabian Journal for Science and Engineering
American Control Conference (IEEE)
International Joint Conference on Artificial Intelligence
Pacific Rim International Conference on Artificial Intelligence
IFIP World Computer Congress
Neural Information Processing Systems (NIPS)
Principles of Knowledge Representation and Reasoning Conference
Symposium on Foundations of Computer Science (FOCS)

Natural Sciences and Engineering Research Council Funding Proposals
National Science Foundation Funding Proposal
ACM Distinguished Dissertation Award

PRESENTATIONS

Interviews and Articles for the Popular Press

"Research Profile: Brain Tumour Analysis Project", *UofAlberta Computing Science Webpage*, May 2007 (Interviewer: Erin Ottosen).

"Helping the World Understand Data", *Alberta Venture* (ASTech Spotlight), Feb 2007. http://www.albertaventure.com/user/File/ASTech_Feb07.pdf

"Alberta researchers first to complete the human metabolome", *Genome Alberta*, 23 Jan 2007.
http://www.newswire.ca/en/releases/archive/January2007/23/c8193.html,

"Machine learning attracting major players", *Business Edge*, Vol 7, No 1, 12 Jan 2007. (Interviewer: L Severs) http://www.businessedge.ca/article.cfm/newsID/14409.cfm

"Web IC: The Intuitive Browser", *Innovation Alberta* #203 (Radio Interview: C Chroucher), 6 June 2006; with T. Zhu, B. Price.
http://innovationalberta.com/article.php?articleid=722

"Machine Learning Breakthrough on Mapping Brain Tumours", *Innovation Alberta* #175 (Radio Interview: C Chroucher), 20 Sept 2005: with A. Murtha, M. Schmidt
http://innovationalberta.com/article.php?articleid=624

"McCalla profs focus on research", *Folio*, 16 Dec 2005.

"Alberta researchers working to map the human brain", Paragraph in "Alberta Surplus" newsletter, sent to all Albertans (Nov 2005)

"Another global first for Edmonton", *Edmontonians*, Nov 2005.
http://www.cs.ualberta.ca/~greiner/PAPERS/Edmontonians-Nov05.html

"Creation of the Alberta Ingenuity Centre for Machine Learning", (Radio Interview: C Croucher), Nov 2003
http://www.innovationalberta.com/article.php?articleid=352

Alberta Ingenuity Centre (October 2002) – on television, radio

"Launching the Alberta Ingenuity Centre for Machine Learning", *CBC Radio*, 3/Oct/2002. http://www.cbc.ca/radio1/edm-am/moreinterviews.html

"Brain drain flows the other way", *Edmonton Journal*, 2/Oct/02.

"Looking for the ghost in the machine", *Express News*, 4/Jan/2002 (Interviewer: Stephen Osadetz).

"What is Artificial Intelligence?", *Express News*, 23/Aug/01. http://www.expressnews.ualberta.ca/expressnews/articles/ideas.cfm?p_ID=881&section=Guest%20Column

Invited Presentations at Conferences

"Summary of ICML'04", *Ninteen International Joint Conference on Artificial Intelligence (IJCAI-05)*, Pittsburgh, July 2005.

"Bayesian Belief Nets for Fun and Profit", *Fourteenth Annual Royce Conference*, Edmonton, March 2000.

"Summary of KR'91", *Twelfth International Joint Conference on Artificial Intelligence (IJCAI-91)*, Sydney Austalia, August 1991.

Invited Papers presented at meetings and symposia

J. Schaeffer and R. Greiner, "The AIxploratorium: A Vision for AI and the Web", *Proceedings of the IJCAI 2001 Workshop on Interactive AI Resources*, p. 23–25, Seattle, Aug 2001.

"Using Autoencoding Networks for Tramp Metal Detection", (with V. Bulitko), *AAAI'2000 Workshop on "Learning from Imbalanced Data Sets"*, Austin, July 2000.

"Exploiting Common Relations: Learning One Bayesian Net for Many Classification Tasks", (with W. Zhou), *ICML Workshop: "Attribute-Value and Relational Learning: Crossing the Boundaries"*, July 2000.

"Adaptive User Interfaces: Predicting Unix Command Lines" (with B. Korvemaker), *CASCOM*, Toronto, October 1999.

"Learning Efficient Derivational Strategies", *TIMS XXXII International Meeting*, Anchorage Alaska, June 1994.

"Survey of Selected Technical Papers", *Sixth International Workshop on Machine Learning*, Cornell, June 1989.

"Classical and Logical Observers for Finite Automata, Part II", *Workshop on AI and Discrete Event Control Systems*, NASA-Ames Research Center, Moffett Field, California, July 1988.

"The Use of Analogy for Knowledge Acquisition", Computer Forum, Stanford University, February 1984.

"Representing Large Knowledge Bases", Computer Forum, February 1980.

Invited Technical Talks

Boston University, Brown University [Providence], Carnegie Mellon University [Pittsburgh] (7), Carleton University [Ottawa, Canada], Cornell University [Ithaca] (2), CRIM Research Seminar [Montreal, Canada], Google [Mountain View, CA], GTE Laboratory [Waltham, MA], IBM [Yorktown Heights] (2), Information Systems Institute/USC [Los Angeles] (3), Institute of Biomedical Engineering, University of Toronto, Johns Hopkins University [Baltimore], La Trobe University [Melbourne, Australia], McGill University [Montreal, Canada] (3), McMaster University [Hamilton, Canada], Microelectronic Computer Technology Corporation [Austin, Texas] (2), Princeton University (2), Massachusetts Institute of Technology [Boston] (2), New Mexico State University [Los Cruces], Overture [Pasadena], Ricoh Research [Menlo Park, CA], Rockwell Research Seminar [Palo Alto, CA], Rutgers University [New Brunswick, NJ] (6), Siemens Corporate Research [Princeton], Simon Fraser University [Canada], SRI International [Menlo Park, CA], Stanford University (4), University of Alberta at Edmonton (5), University of California at Berkeley, University of California at Los Angeles (3), University of California at Irvine (4), University of California at San Diego (2), University of Guelph [Canada], University of Illinois at Champaign-Urbana, University of Maryland at College Park, University of Michigan, University of Pennsylvania [Philadelphia], University of Pittsburgh (2), University of Texas at Austin, University of Toronto [Canada] (6), University of Waterloo [Canada] (3), University of Western Ontario [London, Canada], Xerox PARC [Palo Alto, CA], York University [Canada]

Invited Public Lectures

"Discovering similarity in high-dimensional space", Using the "Omics" Technologies to Phenotype Disease: A
"Theory and Practice of Machine Learning", ICT Forum, Oct 2003.
CBC Management Information Science Workshop [Ottawa, Canada]
Computing Insights '89 [Toronto]
Dynelectron Systems Inc. [Downsview, Canada]
High School Teacher's Symposium [Toronto]
O'Neil Collegiate [Oshawa, Canada]
Ontario Association for Mathematics Education [Toronto]
Scarborough College Association of Graduate Students Seminar Series [Toronto]
Siemens Stromberg-Carlson, Boca Rotan, Florica
Suncor Youth Symposium on Artificial Intelligence [Toronto]
Symbolics-sponsored workshop [Toronto]
Syncrude [Edmonton]
UTLAS International Lecture Series [Toronto]

COURSES TAUGHT

Undergraduate Courses

Cmput 366	Intelligent Systems [F00, F01, F02, F06, F07] (U. of A.) [designed new class]
Cmput 466 / 551	Topics in Machine Learning [W99,W00,W01, W02, W03, W05, W08] (U. of A.) [designed new class]
Cmput 325	Non-Procedural Programming Languages [W98, W99, F04] (U. of A.)
–	Artificial Intelligence Seminar [continuously from April 1998] (U. of A.)
CSC324	Principles of Programming Languages [F88, S89, F89, F90] (U. of T.)
CSC484	Applied Artificial Intelligence [S88, S89, S90, S91] (U. of T.) [designed new class, with Dr. E. Milios]
CSC118	Computer Applications [S86, S90, S91] (U. of T.)

Graduate Courses

Cmput 651	Topics in Machine Learning [F98] (U. of A.) Now "Cmput 466/551" [W00] [designed new class]
Cmput 551	Introduction to Knowledge Representation [W98] (U. of A.) [designed new class]
CSC2502	Introduction to Knowledge Representation [F88, F89, F90] (U. of T.) [designed new class]

Courses for Industry

Introduction to Artificial Intelligence — from Expert Systems to Robot Vision
(in Toronto, one week) August 1989.

STUDENTS SUPERVISED

Post-Doctoral Fellows

Matt Brown, “Brain Tumor Project”, Feb 2007 – present.

Sergey Kirchner, June 2006 to Aug 2008 (now at Purdue University).

Robert Price (with P Messinger, Business School), “Customer Profiling”, Sept 2003 to July 2006.

Shaojun Wang, “Conditional Maximum Entropy”, Sept 2003 to August 2006. (now at Wright University)

Omid Madani, “Learning and Markov Decision Processes”, Oct 2001 to June 2003 (now at Yahoo! Research).

Vadim Bulitko, “Learning and Classification”, March 2000 to Sept 2000 (now Assistant Professor, University of Alberta)

Jie Cheng, “Learning Bayesian Classifiers”, July 1998 to Oct 1999 (now Research Scientist, GMK).

Doctoral Students

Primary supervisor:

Ilya Levner (NSERC, iCORE, Alberta Ingenuity; w/H Zhang, from Sept 2004)

ChiHoon Lee (NSERC, iCORE; from Jan 2004)

Dan Lizotte (NSERC, iCORE, Killam; w/D Schuurmans, from Sept 2003)

Alireza Farhangfar (NSERC; from Sept 2006).

Graduated

Yuhong Guo (w/D Schuurmans, from Jan 2001 – Dec 2007) *Now at NICTA*

Ramana Isukapalli, “Efficient Image Interpretation”, Rutgers, May 2007 (from Sept 2000) *Now at Bell Labs*

Tingshao Zhu: “Goal-Directed Complete-Web Recommendation” University of Alberta, January 2006 (from Sept 1999)
Now starting company, “EzSeer”

Dale Schuurmans: “Effective Classification Learning”, University of Toronto (Sept 1988 – January 1996).
Now a CRC professor at the University of Alberta.

On Depth/Reading Committee:

Mohammed ElRamly (from Feb 2000)

Dmitri Gorodnichy: “Using Machine Learning Methods for Image Interpretation”, University of Alberta (Feb 1998).

Xianyi Yang: “Neural Network Approaches to Real-Time Trajectory Generation and Motion Control of Robot Systems”, University of Alberta (August 1998).

Tony Plate: “Knowledge Representation in High Level Connectionist Models”, University of Toronto (Dec 1991).

Manfred Stede: “The Search for Robustness in Natural Language Understanding”, University of Toronto (Feb 1991).

Javier A. Pinto: “Theories of Time, Actions and Plans”, University of Toronto (Dec 1990).

Michael Grüninger: “Model Theoretic Perspectives in AI”, University of Toronto (Feb 1990).

Susan W. McRoy: “Nonmonotonic Reasoning in Natural Language”, University of Toronto (Dec 1989).

Craig Boutilier: “Logical Foundations for Default Reasoning”, University of Toronto (May 1989).

Brad Myers: “Creating User Interfaces by Demonstration”, University of Toronto, (May 1987).

External Examiner:

Moninder Singh, “Learning Belief Networks”, University of Pennsylvania 1997.
Now working at IBM Research, Yorktown Heights.

Oliver Schulte: “Data-minimal Learners” Carnegie Mellon University 1997.
Now a professor in the Philosophy department at Simon Fraser University.

Nick Lewins: “Practical Solution-Caching for Prolog: An Explanation-Based Learning Approach”, University of Western Australia at Nedlands, Jan 1993.

Masters Students

Yunping (Wendy) Wang, University of Alberta (from Sept 2004).

Nasimeh Asgarian, University of Alberta (Sept 2004 to June 2007) .

Peter Wang, University of Alberta (from May 2006).

Maysam Heydari, University of Alberta (from May 2006).

Graduated

Aloak Kapoor, University of Alberta (Sept 2004–Sept 2005).

Mark Schmidt, University of Alberta (September 2002 to Aug 2005; now PhD at UBC). [nonimated “Best MSc Thesis”]

Marriane Morris (w/J. Sanders), University of Alberta (May 2002 – Oct 2005; now working as Instructor).

Dan Lizotte, University of Alberta (September 2001 – Sept 2004; now PhD student at UofAlberta).

Ajit Singh, University of Alberta (from September 2001 – Sept 2004; now PhD student at CMU).

Jack Newton University of Alberta (September 2001 – June 2003; now Chief Scientific Officer, ChenomX)

Peng Wang, University of Alberta (May 2000 – Sept 2004; now at Smart Technology, Calgary).

Zhiyong Lu (w/D. Szafron) University of Alberta (May 2002 – June 2004; now PhD student at U of Colorado, Boulder).

Lihong Li (w/V. Bulitko) University of Alberta (May 2003 – August 2004; now PhD student at Rutgers).

Xiaomeng Wu, University of Alberta (May 2002 – Aug 2004; now PhD student at UofAlberta).

Brett Poulin (w/D. Szafron) University of Alberta (May 2003 – Sept 2004; now Medical Student at UofCalgary).

Haiyan Zhang, Pharmacy, University of Alberta (joint with D. Wishart, November 2001; now working at `Cross Cancer Institute`.)

Wei Zhou, University of Alberta (October 2001; now PhD student at UofWaterloo).

Tim van Allen, "Handling Uncertainty when Handling Uncertainty", University of Alberta (Oct 2000; now works at `digiMine`.)

Yong Gao, "Threshold Phenomena in NK Landscapes", University of Alberta (on committee; student of J. Culberson, Oct 2000).
Now Assistant Professor at UBC-Okanagan.

Benjamin Korvemaker, "You Can't Always Be Right... But Sometimes It'd be Nice: Predicting Unix Command Lines", University of Alberta (Nov 2000; now PhD student at UofWaterloo.)

Ping Gu, "Learning Layout Rules for Yellow Pages", University of Alberta (on committee; student of R. Goebel, Dec 1998).

Brad Brown: "Robot Orienteering: Path Planning and Navigation with Uncertain Vision", University of Toronto, January 1991 (co-supervised with E. Milios, from April 1990).

Siu Wa Cindy Chow: "Obtaining an Efficient Derivational Strategies for a Conjunctive Search Space", University of Toronto, September 1990.

Karsten Verbeurgt: "On the Learnability of DNF Formulae", University of Toronto, May 1990 (co-supervised with A. Borodin, from January 1988).

Joseph Likuski: "Integrating Redundant Learned Rules in a Knowledge Base", University of Toronto, October 1988.

Rayan Zachariassen: “A Hypothesis Management System for Krypton”, University of Toronto October 1987.

External Examiner:

Philip Fong: “A Quantitative Study of Hypothesis Selection”, University of Waterloo, April 1995.

Undergraduates

Ryhan Arthur: “Growth Model for Brain Tumors”, Summer 2006.

James Wagner: “Relating Disease State to Metabolomic Profiles”, Summer 2006.

David Vormittag: “Evaluating Answers to Questions”, University of Toronto, May 1991.

Jeffrey Chan: “Finding Optimal Satisficing Strategies for AND-OR Trees”, University of Toronto, May 1991.

Jonathan Wong: “Improving the Accuracy of a Representational System”, University of Toronto, May 1991.

Daniel Phalp: “Derivational Efficiency: Probably Approximately Optimal Strategies and Macro Operators”, University of Toronto, May 1991.

William Munroe: “Efficiently Producing Near-Optimal Control Strategies”, University of Toronto, June 1990.

Nicholas D. Brownlow: “A Computer-Based Learning Theory for Final Segment Extrametricality”, University of Toronto (Bachelor of Arts, Honor Thesis), April 1988 (co-supervisor with E. Dresher).

Harry Amow: “Research into Computer Game Playing”, University of Toronto, April 1987.

ADMINISTRATIVE TASKS

Member, Faculty of Science Advisory Selection Committee, 2001–present.

Member, Planning Focus Groups for the Long Range Development Plan (LRDP) for the University of Alberta, 2001–present.

Faculty of Science representative on Engineering Faculty Council, 1998–present.

Coordinator, “Distinguished Lecture Series”, Department of Computing Science (University of Alberta), 1999–present.

Director, “Artificial Intelligence Laboratory”, Department of Computing Science (University of Alberta), 1999–present.

Executive Committee, Department of Computing Science (University of Alberta), 1998–00.

Coordinator, “AI Seminar Series”, Department of Computing Science (University of Alberta), 1998–present.

Graduate Committee, Department of Computing Science (University of Alberta), 1997–00.

Computing Resources Policy Committee, Department of Computing Science (University of Alberta), 1997–98.

Chair, Recruiting Committee, Siemens Corporate Research, 1996, 1997.

Summer Student Liason, Siemens Corporate Research, 1992.

MSc Breadth Requirements Committee, Department of Computer Science (University of Toronto), 1990.

PhD Admission Committee, Department of Computer Science (University of Toronto), 1988 and 1989.

United Way Campaign Coördinator for the Department of Computer Science (University of Toronto), 1987.

PERSONAL DATA

Citizenship: USA, Canada

(May 2008)