William Nick Street

Associate Dean for Research and PhD Programs
Tippie Children Professor
Business Analytics (formerly Management Sciences) Department
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Professional experience

2010–present	Professor, Business Analytics Department, University of Iowa
2009–present	Secondary appointment, Interdisciplinary Graduate Program in Informatics, University of Iowa
2003–present	Secondary appointment, Department of Computer Science, University of Iowa
2003–present	Secondary appointment, College of Nursing, University of Iowa
2002–2010	Associate Professor, Business Analytics Department, University of Iowa
1998–2002	Assistant Professor, Business Analytics Department, University of Iowa
1996–1998	Assistant Professor, Computer Science Department, Oklahoma State University
1994–1996	Postdoctoral Fellow, Departments of Surgery and Computer Sciences, University of Wisconsin-Madison
1990–1994	Research Assistant, O.L. Mangasarian, Computer Sciences Department, University of Wisconsin-Madison
1989–1990	Senior Software Engineer, Motorola Cellular, Arlington Heights, IL
1988–1989	Development Engineer, Rich, Inc., Franklin Park, IL
1985–1988	Senior Software Engineer, Northrop Corp., Defense Systems Division, Rolling Meadows, IL

Degrees

Ph.D., University of Wisconsin-Madison, August 1994, Computer Sciences

M.S., DePaul University, 1990, Computer Science. Graduated with distinction.

B.A., Drake University, 1985, Mathematics and Computer Science. Named Outstanding Computer Science Student. Graduated with honors.

Honors and awards

Tippie MSBA Core Instructor of the Year, 2022-23.

INFORMS Data Mining Prize, 2022.

Tippie Children Professor of Business Analytics, Tippie College of Business, University of Iowa, 2022-present.

Henry B. Tippie Research Professor of Business Analytics, Tippie College of Business, University of Iowa, 2014-22.

Tippie MBA Business Analytics Professor of the Year, 2017-18.

Henry B. Tippie Research Fellow, Tippie College of Business, University of Iowa, 2002-2014.

Dean's Teaching Award, Tippie College of Business, University of Iowa, 2012.

Certificate of Nomination, Outstanding Faculty Mentor Award, University of Iowa Graduate College, 2010.

Winner, *2009-2010 OMOP Cup*, Challenge 2.

Winner, *CoIL Challenge 2000: The Insurance Company Case*, description task.

Publications

Technical Journal Papers

1. S. Srivistava, Z. Xu, Y. Li, W. N. Street, and S. Gilbertson-White. Gaussian process regression and classification using international disease classification codes as covariates. *Stat* 12(1), 2023.

2. F. Cakir, B. W. Thomas, and W. N. Street. Rollout-based routing strategies with embedded prediction: A fish trawling application. *Computers & Operations Research* 150, February 2023.

3. S. Anzabi Zadeh, B. W. Thomas, and W. N. Street. Optimizing warfarin dosing using deep reinforcement learning. *Journal of Biomedical Informatics* 137, January 2023.

4. A. Vahedian Khezerlou, X. Zhou, X. Li, W. N. Street and Y. Li. DILSA+: Predicting urban dispersal events through deep survival analysis with enhanced urban features. *ACM Transactions on Intelligent Systems and Technology* 12(4), August 2021.

5. X. Wang, K. Zhao, X. Zhou, W. N. Street. Predicting user posting activities in online health communities with deep learning. *ACM Transactions on Management Information Systems* 11(3), July 2020.

6. M. T. Lash, M. Zhang, X. Zhou, W. N. Street, and C. F. Lynch. Deriving enhanced geographical representations via similarity-based spectral analysis: Predicting colorectal cancer survival curves in Iowa. *International Journal of Data Mining and Bioinformatics* 21(3), February 2019.

7. W. Wang and W. N. Street. Modeling and maximizing influence diffusion in social networks for viral marketing. *Applied Network Science* 3(6), April 2018.

8. S. Yasar Saglam and W. N. Street. Distant diversity in dynamic class prediction. *Annals of Operations Research* 263(1–2):5–19, April 2018.

9. L. Duan, Y. Liu, W. N. Street and H. Lu. Utilizing advances in correlation analysis for community structure detection. *Expert Systems with Applications* 84:74–91, October 2017.

10. X. Wang, K. Zhao and W. N. Street. Analyzing and predicting user participations in online health communities – A social support perspective. *Journal of Medical Internet Research* 19(4), April 2017.

11. W. Wang and W. N. Street. Modeling influence diffusion to uncover influence centrality and community structure in social networks. *Social Network Analysis and Mining* 5(15), April 2015.

12. L. Duan, W. N. Street, Y. Liu, S. Xu and B. Wu. Selecting the right correlation measure for binary data. *ACM Transactions on Knowledge Discovery from Data* 9(14), article 13, September 2014.

13. L. Duan and W. N. Street. Speeding up maximal fully-correlated itemsets search in large databases. *International Journal of Machine Learning and Cybernetics*, August 2014.

14. M. Rechenthin, W. N. Street and P. Srinivasan. Stock chatter: Using stock sentiment to predict price direction. *Algorithmic Finance* 2(3):169–196, January 2014.

15. M. Rechenthin and W. N. Street. Using conditional probability to identify trends in intraday high-frequency equity pricing. *Physica A: Statistical Mechanics and its Applications* 392(24):6169–6188, December 2013.

16. L. Duan and W. N. Street. Speeding up correlation search for binary data. *Pattern Recognition Letters* 34:1499–1507, 2013.

17. L. Duan, M. Khoshneshin, W. N. Street and M. Liu. Adverse drug effect detection. *IEEE Journal of Biomedical and Health Informatics* 17(2):305–311, March 2013.

18. C.-L. Chi, W. N. Street, J. G. Robinson and M. A. Crawford. Individualized patient-centered lifestyle recommendations: An expert system for communicating patient specific cardiovascular risk information and prioritizing lifestyle options. *Journal of Biomedical Informatics* 45(6):1164–1174, December 2012.

19. L. Duan, W. N. Street and E. Xu. Healthcare information systems: Data mining methods in the creation of a clinical recommender system. *Enterprise Information Systems* 5(2):169–181, May 2011.

20. C.-L. Chi, W. N. Street and D. A. Katz. A decision support system for cost-effective diagnosis. *Artificial Intelligence in Medicine* 50(3):149–161, November 2010.

21. Y. Zhang and W. N. Street. Bagging with adaptive costs. *IEEE Transactions on Knowledge and Data Engineering* 20(5):577–588, May 2008.

22. C.-L. Chi, W. N. Street and M. M. Ward. Building a hospital referral expert system with a prediction and optimization-based decision support system. *Journal of Biomedical Informatics* 41:371–386, April 2008.

23. Y. Zhang, S. Burer and W. N. Street. Ensemble pruning via semi-definite programming. *Journal of Machine Learning Research* 7:1315–1338, July 2006.

24. Y. Kim, W. N. Street and F. Menczer. Optimal ensemble construction via meta-evolutionary ensembles. *Expert Systems with Applications* 30(4):705–714, May 2006.

25. Y. Kim, W. N. Street, G. J. Russell and F. Menczer. Customer targeting: A neural network approach guided by genetic algorithms. *Management Science* 51(2):264–276, February 2005.

26. W. N. Street. Oblique multicategory decision trees using nonlinear programming. *INFORMS Journal on Computing* 17(1):25–31, Winter 2005.

27. K. Lee and W. N. Street. Cluster-driven refinement for content-based digital image retrieval. *IEEE Transactions on Multimedia* 6(6):817–827, December 2004.

28. Y. Kim and W. N. Street. An intelligent system for customer targeting: A data mining approach. *Decision Support Systems* 37(2):215–228, 2004.

29. K. Lee and W. N. Street. Iterative generalized Hough transform using multiresolution search. *Journal of Korea Information Science Society* 30(9–10):973–982, October 2003 (in Korean).

30. K. Lee and W. N. Street. An adaptive resource-allocating network for automated detection, segmentation, and classification of breast cancer nuclei. *IEEE Transactions on Neural Networks* 14(3):680–687, May 2003.

31. K. Lee and W. N. Street. Model-based detection, segmentation and classification for image analysis using on-line shape learning. *Machine Vision and Applications* 13(4):222-233, 2003.

32. F. Menczer, A. E. Monge and W. N. Street. Adaptive assistants for customized e-shopping. *IEEE Intelligent Systems* 17(6):12–19, November/December 2002.

33. Y. Kim, W. N. Street and F. Menczer. Evolutionary model selection in unsupervised learning. *Intelligent Data Analysis* 6:531–556, 2002.

34. K. Lee and W. N. Street. Incremental feature weight learning and its application to a shape-based query system. *Pattern Recognition Letters* 23(7):865–874, May 2002.

35. F. Menczer, M. Degeratu, and W. N. Street. Efficient and scalable Pareto optimization by evolutionary local selection algorithms. *Evolutionary Computation* 8(2):223–247, Summer 2000.

36. W. N. Street and O. L. Mangasarian. Improved generalization via tolerant training. *Journal of Optimization Theory and Applications* 96(2):259–270, February 1998.

37. P. S. Bradley, O. L. Mangasarian, and W. N. Street. Feature selection via mathematical programming. *INFORMS Journal on Computing* 10(2):209–217, 1998.

38. O. L. Mangasarian, W. N. Street and W. H. Wolberg. Breast cancer diagnosis and prognosis via linear programming. *Operations Research* 43(4):570–577, July-August 1995.

Healthcare Journal Papers

39. A. Albashayreh, K. Herr, W. Fan, W. N. Street, and S. Gilbertson-White. Harnessing natural language processing and high-dimensional clinical notes to detect goals-of-care and surrogate-designation conversations. *Clinical Nursing Research*, accepted.

40. S. Chae, W. N. Street, N. Ramaraju, S. Gilbertson-White. Prediction of cancer symptom trajectory using longitudinal electronic health record (EHR) data and long short-term memory neural network. *JCO Clinical Cancer Informatics* 8, 2024.

41. B. Mueller, W. N. Street, R. W. Carnahan, and S. Lee. Evaluating the performance of machine learning methods for risk estimation of delirium in patients hospitalized from the emergency department. *Acta Psychiatrica Scandinavica*, March 2023.

42. S. Chae, C. Cherwin, W. N. Street, S. A. Moorhead, G. Brown, and S. Gilbertson-White. Longitudinal subgrouping of cancer patients with similar symptom experiences: A systematic review. *Oncology Nursing Forum* 49(4):E17-E30, July 2022.

43. J. Lee, S. Lee, W. N. Street, and L. A. Polgreen. Machine learning approaches to predict the 1-year-after-initial-AMI survival of elderly patients. *BMC Medical Informatics and Decision Making* 22, April 2022.

44. M. AlZunitan, A. R. Marra, M. B. Edmond, W. N. Street, D. J. Diekema, J. L. Salinas. Predicting community-onset Candidemia in an academic medical center using machine learning. *Infection Control & Hospital Epidemiology* 41, November 2020.

45. A. R. Marra, M. Alzunitan, O. Abosi, M. B. Edmond, W. N. Street, J. W. Cromwell, and J. L. Salinas. Modest *Clostridiodes difficile* infection prediction using machine learning models in a tertiary care hospital. *Diagnostic Microbiology & Infectious Disease* 98(2), October 2020.

46. S. Lee, N. Mohr, W. N. Street, P. Nadkarni. Machine learning in relation to emergency medicine clinical and operational scenarios: A review. *Western Journal of Emergency Medicine* 20(2):219-227, March 2019.

47. J. Gee, H. Bailey, K. Kim, J. Kolesar, T. Havighurst, K. D. Tutsch, W. See, M. Cohen, W. N. Street, L. LeVan, D. Jarrard and G. Wilding. Phase II open label, multi-center clinical trial of biomarker modulation by 1α-hydroxyvitamin D2 in patients with prostate cancer and high grade PIN. *The Prostate* 73(9):970–978, June 2013

48. K. Hanrahan, A. M. McCarthy, C. Kleiber, K. Ataman, W. N. Street, M. B. Zimmerman and A. L. Ersig. Building a computer program to support children, parents and distraction during healthcare procedures. *Computers, Informatics, Nursing* 30:10:554-561, October 2012.

49. D.-F. Lu, W. N. Street, F. Currim, R. Hylock and C. Delaney. A data modeling process for decomposing healthcare patient data sets. *Online Journal of Nursing Informatics* 13(1), February 2009.

50. W. H. Wolberg and W. N. Street. Computer-generated nuclear features compared to axillary lymph node status and tumor size as indicators of breast cancer survival. *Human Pathology* 33(11):1086–1091, November 2002.

51. W. H. Wolberg, W. N. Street and O. L. Mangasarian. Importance of nuclear morphology in breast cancer prognosis. *Clinical Cancer Research* 5:3542–3548, November 1999.

52. W. H. Wolberg, W. N. Street, and O. L. Mangasarian. Computer-derived nuclear features compared with axillary lymph node status for breast carcinoma prognosis. *Cancer Cytopathology* 81(3):172–179, 1997.

53. W. H. Wolberg, W. N. Street, and O. L. Mangasarian. Computerized diagnosis of breast fine needle aspirates. *The Breast Journal* 3(2):77–80, March/April 1997.

54. M. W. Teague, W. H. Wolberg, W. N. Street, O. L. Mangasarian, S. Labremont, and D. L. Page. Indeterminate fine needle aspiration of the breast: Image analysis aided diagnosis. *Cancer Cytopathology* 81:129–135, 1997.

55. W. H. Wolberg, W. N. Street, D. M. Heisey, and O. L. Mangasarian. Computer-derived nuclear features distinguish malignant from benign breast cytology. *Human Pathology*, 26:792–796, 1995.

56. W. H. Wolberg, W. N. Street, D. M. Heisey, and O. L. Mangasarian. Computerized breast cancer diagnosis and prognosis from fine needle aspirates. *Archives of Surgery* 130:511–516, 1995.

57. W. H. Wolberg, W. N. Street, D. M. Heisey, and O. L. Mangasarian. Computer-derived nuclear "grade" and breast cancer prognosis. *Analytical and Quantitative Cytology and Histology* 17(4):257–264, August 1995.

58. W. H. Wolberg, W. N. Street, and O. L. Mangasarian. Image analysis and machine learning applied to breast cancer diagnosis and prognosis. *Analytical and Quantitative Cytology and Histology* 17(2):77–87, April 1995.

59. W. H. Wolberg, W. N. Street, and O. L. Mangasarian. Machine learning techniques to diagnose breast cancer from fine-needle aspirates. *Cancer Letters* 77:163–171, 1994.

60. J. S. Oghalai, W. N. Street, and W. S. Rhode. A neural network based spike discriminator. *Journal of Neuroscience Methods* 54(1):9–22, September 1994.

61. W. H. Wolberg, W. N. Street, and O. L. Mangasarian. Breast cytology diagnosis via digital image analysis. *Analytical and Quantitative Cytology and Histology* 15(6):396–404, December 1993.

Peer Reviewed Conference Papers

62. B. An, X. Zhou, A. Khezerlou, W. N. Street, and J. Luo. LISA: Learning-integrated space partitioning framework for traffic accident forecasting on heterogeneous spatiotemporal data. *IEEE International Conference on Data Mining*, accepted.

63. B. An, A. Vahedian, X. Zhou, W. N. Street, and Y. Li. HintNet: Hierarchical knowledge transfer networks for traffic accident forecasting on heterogeneous spatio-temporal data. *SIAM International Conference on Data Mining*, April 2022.

64. Y. Ding, W. N. Street, L. Tong, and S. Wang. An ensemble method for data imputation. *IEEE International Conference on Healthcare Informatics (ICHI)*, June 2019.

65. A. Vahedian, X. Zhou, L. Tong, W. N. Street, and Y. Li. Predicting urban dispersal events: A two-stage framework through deep survival analysis on mobility data. *AAAI Conference on Artificial Intelligence*, Honolulu, HI, January 2019.

66. W. Wang and W. N. Street. Modeling influence diffusion in social networks for viral marketing. *International Conference on Complex Networks & Their Applications* (poster paper), Lyon, France, November 2017.

67. M. T. Lash, Y. Sun, X. Zhou, C. F. Lynch and W. N. Street. Learning rich geographical representations: Predicting colorectal cancer survival in the state of Iowa. *IEEE International Conference on Bioinformatics and Biomedicine (BIBM 2017)*, Kansas City, MO, November 2017.

68. M. T. Lash, Q. Lin, W. N. Street, J. G. Robinson and J. W. Ohlmann. Generalized inverse classification. *SIAM International Conference on Data Mining (SDM 2017)*, Houston, TX, April 2017.

69. W. Wang, W. N. Street and R. E. de Matta. Topological resilience analysis of supply networks under random disruptions and targeted attacks. *IEEE/ACM International Conference on Social Networks Analysis and Mining (ASONAM 2015)*, Paris, August 2015.

70. S. Yasar Saglam and W. N. Street. Dynamic class prediction with classifier based distance measure. *The Australian Data Mining Conference (AusDM 2014)*, Gardens Point, Australia, November 2014.

71. W. Wang and W. N. Street. A novel algorithm for community detection and influence ranking in social networks. *IEEE/ACM International Conference on Social Networks Analysis and Mining (ASONAM 2014)*, Beijing, China, August 2014.

72. L. Duan, W. N. Street, Y. Liu and H. Lu. Community detection in graphs through correlation. *ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2014)*, New York, NY, August 2014. (15% acceptance rate)

73. X. Wang, K. Zhao, and W. N. Street. Social support and user engagement in online health communities. *International Conference for Smart Health (ICSH 2014)*, Beijing, China, July 2014.

74. S.-C. Chin and W. N. Street. Survival analysis on click logs. *ACM International Conference on Research and Development in Information Retrieval (SIGIR 2012)*, Portland, OR, August 2012 (poster paper).

75. S.-C. Chin, C. Madlock-Brown, W. N. Street and D. Eichmann. Firework visualization: A model for local citation analysis. *ACM SIGHIT International Health Informatics Symposium (IHI 2012)*, Miami Beach, FL, January 2012.

76. C. Yang, W. N. Street and J. G. Robinson. 10-year CVD risk prediction and minimization via inverse classification. *SIGHIT International Health Informatics Symposium (IHI 2012)*, Miami Beach, FL, January 2012.

77. M. Khoshneshin, W. N. Street and P. Srinivasan. Bayesian embedding of co-occurrence data for query-based visualization. *IEEE International Conference on Machine Learning and Applications (ICMLA 2011)*, Honolulu, HI, December 2011 (poster paper).

78. M. Khoshneshin, M. Ghazizadeh, W. N. Street and J. W. Ohlmann. A memetic heuristic for the co-clustering problem. *International ICST Conference on Bio-Inspired Models of Network, Information, and Computing Systems (Bionetics 2010)*, Cambridge, MA, December 2010.

79. C. Yang, W. N. Street, D.-F. Lu and L. Lanning. A data mining approach to MPGN type II renal survival analysis. *ACM SIGHIT International Health Informatics Symposium (IHI 2010)*, pages 454–458, Arlington, VA, November 2010.

80. M. Khoshneshin and W. N. Street. Collaborative filtering via Euclidean embedding. *ACM Conference on Recommender Systems (RecSys10)*, pages 87–94, Barcelona, Spain, October 2010. (19% acceptance rate).

81. M. Khoshneshin and W. N. Street. Incremental collaborative filtering via evolutionary co-clustering. *ACM Conference on Recommender Systems (RecSys10)*, pages 325–328, Barcelona, Spain, October 2010. (short paper; 42% acceptance rate).

82. L. Duan and W. N. Street. Finding maximal fully-correlated itemsets in large databases. *IEEE International Conference on Data Mining (ICDM 2009)*, pages 770–775, Miami, FL, December 2009.

83. C.-L. Chi and W. N. Street. The optimal diagnostic decision sequence. *American Medical Informatics Association Annual Symposium (AMIA 2008)* (poster paper), page 902, Washington, D.C., November 2008.

84. C.-L. Chi, W. N. Street and W. H. Wolberg. Application of artificial neural network-based survival analysis on two breast cancer datasets. *American Medical Informatics Association Annual Symposium (AMIA 2007)*, pages 130–134, Chicago, IL, November 2007.

85. C.-L. Chi and W. N. Street. A data mining technique for risk-stratification diagnosis. *American Medical Informatics Association Annual Symposium (AMIA 2007)* (poster paper), page 909, Chicago, IL, November 2007.

86. D. Yuan and W. N. Street. HACS: A heuristic algorithm for clustering of subsets. *SIAM International Conference on Data Mining (SDM 2007)*, Minneapolis, MN, April 2007. (25% acceptance rate)

87. X. Y. Qiu, P. Srinivasan and W. N. Street. Exploring the forecasting potential of company annual reports. *American Society for Information Science and Technology (ASIS&T 2006)*, Austin, TX, November 2006.

88. K. Ataman, W. N. Street and Y. Zhang. Learning to rank by maximizing AUC with linear programming. *IEEE International Joint Conference on Neural Networks (IJCNN 2006)*, pages 123–129, Vancouver, BC, July 2006.

89. D-F. Lu, W. N. Street and C. Delaney. Knowledge discovery: Detecting elderly patients with impaired mobility. *International Congress on Nursing Informatics (NI2006)*, pages 121–123, Seoul, Korea, June 2006.

90. Y. Zhang, W. N. Street and S. Burer. Sharing classifiers among ensembles from related problem domains. *IEEE International Conference on Data Mining (ICDM 2005)*, pages 522–529, Houston, TX, December 2005. (22% acceptance rate)

91. Y. Zhang and W. N. Street. Bagging with adaptive costs. *IEEE International Conference on Data Mining (ICDM 2005)*, pages 825–828, Houston, TX, December 2005. (22% acceptance rate)

92. K. T. Phillips and W. N. Street. Predicting outcomes of hospitalization for heart failure using logistic regression and knowledge discovery methods. *American Medical Informatics Association Annual Symposium (AMIA 2005)* (poster paper), page 1080, Washington, D.C., October 2005.

93. E. Catona, P. Srinivasan, W. N. Street. Protein annotation with GO codes. *World Congress on Medical Informatics (Medinfo 2004)* (poster paper), page 1543, September 2004.

94. Y. Kim, W. N. Street and F. Menczer. Meta-evolutionary ensembles. *IEEE International Joint Conference on Neural Networks (IJCNN 2002)*, pages 2791–2796, May 2002.

95. F. Menczer, W. N. Street, N. Vishwakarma, A. Monge and M. Jakobsson. IntelliShopper: A proactive, personal, private shopping assistant. *ACM International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS 2002)*, pages 1001–1008, July 2002. (26% acceptance rate)

96. K. Lee and W. N. Street. Intelligent image analysis using adaptive resource-allocating networks. *IEEE International Workshop on Neural Networks for Signal Processing (NNSP 2001)*, pages 363–372, Falmouth, MA, September 2001. (74% acceptance rate)

97. K. Lee and W. N. Street. Intelligent object-based image retrieval using cluster-driven personal preference learning. *ACM International Conference on Research and Development in Information Retrieval (SIGIR 2001)*, pages 436–437, New Orleans, LA, September 2001. (30% acceptance rate)

98. W. N. Street and Y. Kim. A streaming ensemble algorithm (SEA) for large-scale classification. *ACM SIGKDD International Conference on Knowledge Discovery & Data Mining (KDD-01)*, pages 377–382, San Francisco, CA, August 2001. (25% acceptance rate)

99. Y. Kim, W. N. Street and F. Menczer. An evolutionary multi-objective local selection algorithm for customer targeting. *Congress on Evolutionary Computing (CEC2001)*, pages 759–766, Seoul, Korea, May 2001. (65% acceptance rate)

100. K. Lee and W. N. Street. Automatic image segmentation and classification using on-line shape learning. In *IEEE Workshop on the Applications of Computer Vision (WACV 2000)*, pages 64–70, Palm Springs, CA, December 2000. (42% acceptance rate)

101. Y. Kim, W. N. Street, and F. Menczer. Feature selection in unsupervised learning via evolutionary search. In *ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD-00)*, pages 365–369, 2000. (20% acceptance rate)

102. K. Lee and W. N. Street. Generalized Hough transforms with flexible templates. In *International Conference on Artificial Intelligence (IC-AI 2000)*, pages 1133–1139, Las Vegas, NV, June 2000.

103. K. Lee and W. N. Street. A fast and robust approach for automated segmentation of breast cancer nuclei. In *IASTED International Conference on Computer Graphics and Imaging*, pages 42–47, Palm Springs, CA, October 1999.

104. W. N. Street. A neural network model for prognostic prediction. In J. Shavlik, ed., *International Conference on Machine Learning (ICML-98)*, pages 540–546, Morgan Kaufmann Publishers, San Francisco 1998. (35% acceptance rate)

105. P. S. Bradley, O. L. Mangasarian, and W. N. Street. Clustering via concave minimization. In M. C. Mozer, M. I. Jordan and T. Petsche, eds., *Advances in Neural Information Processing Systems*, pages 368–374, MIT Press, Cambridge, MA, 1997. (30% acceptance rate)

106. W. N. Street, O. L. Mangasarian, and W. H. Wolberg. An inductive learning approach to prognostic prediction. In A. Prieditis & S. Russell, eds., *International Conference on Machine Learning*, pages 522–530, Morgan Kaufmann Publishers, San Francisco 1995.

107. W. N. Street, W. H. Wolberg, and O. L. Mangasarian. Nuclear feature extraction for breast tumor diagnosis. In *IS&T/SPIE 1993 International Symposium on Electronic Imaging: Science and Technology*, volume 1905, pages 861–870, San Jose, California, 1993.

Book Chapters

108. Y. Kim, W. N. Street, and F. Menczer. Feature selection in data mining. In J. Wang, editor, *Data Mining: Opportunities and Challenges*, Idea Group Publishing, 2003, pages 80–105.

109. F. Menczer, W.N. Street, M. Degeratu. Evolving heterogeneous neural agents by local selection. In V. Honavar, M. Patel and K. Balakrishnan, editors, *Advances in the Evolutionary Synthesis of Intelligent Agents*, MIT Press, 2001, pages 337–366.

110. W. N. Street. Xcyt: A system for remote cytological diagnosis and prognosis of breast cancer. In L.C. Jain, editor, *Artificial Intelligence Techniques in Breast Cancer Diagnosis and Prognosis*, World Scientific Publishing, Singapore, 2000, pages 297–322.

Workshop and Other Conference Papers

111. R. Ragodos, M. Nukunu-Attachey, and W. N. Street. SRRL: Statistically Relevant Rule Lists for explanation of data generation processes. *INFORMS Workshop on Data Mining and Decision Analytics*, accepted.

112. M. T. Lash and W. N. Street. Personalized cardiovascular disease risk mitigation via longitudinal inverse classification. *IEEE BIBM Workshop in Artificial Intelligence Techniques for BioMedicine and HealthCare (AIBH)*, December 2020.

113. J. Rios, K. Zhao, W. N. Street, H. Tian and X. Zheng. A hybrid deep learning model for dynamic stock movement predictions based on supply chain networks. *Workshop on Information Technology and Systems (WITS)*, December 2020.

114. E. Pahl, W. N. Street, H. Johnson and A. Reed. A predictive model for kidney transplant graft survival using machine learning. *International Conference on Big Data & Health Informatics (BDHI)*, November 2020.

115. J. Rios, K. Zhao, and W. N. Street. Predicting stock price movements via multi-relational inter-firm networks. *INFORMS Workshop on Data Science*, Phoenix, AZ, November 2018.

116. M. T. Lash, Q. Lin, W. N. Street and J. G. Robinson. A budget-constrained inverse classification framework for smooth classifiers. *IEEE ICDM Workshop on Data Science and Big Data Analytics (DSBDA)*, New Orleans, LA, November 2017.

117. W. Wang and W. N. Street. Finding hierarchical communities in complex networks using influence-guided label propagation. *IEEE ICDM Workshop on Data Mining in Networks*, Atlantic City, NJ, November 2015.

118. S. Yasar Saglam and W. N. Street. Diversity in dynamic class prediction. *INFORMS Workshop on Data Mining and Analytics*, Philadelphia, PA, November 2015.

119. X. Wang, K. Zhao and W. N. Street. Predicting user engagement in online health communities based on social support activities. *INFORMS Workshop on Data Mining and Analytics*, San Francisco, CA, November 2014.

120. A. Gbegnon, J. Monestina, W. N. Street and J. W. Cromwell. Predicting surgical site infections in real time. *ACM SIGKDD Workshop on Health Informatics (HI-KDD 2014)*, New York, NY, August 2014.

121. M. Khoshneshin and W. N. Street. A graphical model for multi-relational social network analysis. *International Conference on Machine Learning (ICML) Workshop on Structured Learning: Inferring Graphs from Structured and Unstructured Inputs*, Atlanta, GA, June 2013.

122. H. Lu, Y. Hong, W. N. Street, F. Wang, and H. Tong. Overlapping clustering with sparseness constraints. *IEEE International Conference on Data Mining (ICDM) Workshop on Optimization Based Techniques for Emerging Data Mining*, Dallas, TX, December 2012.

123. S.-C. Chin, W. N. Street and A. Teredesai. Discovering meaningful cut-points to predict high HbA1C variation. *INFORMS Workshop on Data Mining and Health Informatics*, Phoenix, AZ, October 2012.

124. M. Khoshneshin and W. N. Street. A latent feature factor graph for cancer diagnosis using microarray gene expression data. *INFORMS Workshop on Data Mining and Health Informatics*, Charlotte, NC, November 2011.

125. S.-C. Chin and W. N. Street. Using Gaussian processes to monitor diabetes development. *INFORMS Workshop on Data Mining and Health Informatics*, Charlotte, NC, November 2011.

126. M. Khoshneshin, M. A. Basir, P. Srinivasan, W. N. Street and B. Hand. Analyzing the language evolution of a science classroom via a topic model. *KDD Workshop on Knowledge Discovery in Educational Data*, San Diego, CA, August 2011.

127. S.-C. Chin and W. N. Street. Enriching Wikipedia vandalism taxonomy via subclass discovery. *International Joint Conference on Artificial Intelligence (IJCAI) Workshop on Discovering Meaning on the Go in Large and Heterogeneous Data (LHD)*, Barcelona, Spain, July 2011.

128. S.-C. Chin and W. N. Street. Divide and transfer: An exploration of segmented transfer to detect Wikipedia vandalism. *International Conference on Machine Learning (ICML) Workshop on Unsupervised and Transfer Learning*, Bellevue, WA, July 2011. *Journal of Machine Learning: Workshop and Conference Proceedings* 27:133-144, 2012.

129. S.-C. Chin, R. DeCook, W. N. Street and D. Eichmann. Text normalization selection models for enhanced retrieval accuracy. *North American Chapter of the Association for Computational Linguistics - Human Language Technologies (NAACL-HLT) Workshop on Semantic Search*, Los Angeles, CA, June 2010.

130. S.-C. Chin, W. N. Street, P. Srinivasan, and D. Eichmann. Detecting Wikipedia vandalism with active learning and statistical language models. *Workshop on Information Credibility on the Web (WICOW 2010)*, Raleigh, NC, April 2010.

131. S. Yasar Saglam and W. N. Street. Dynamic ensemble construction via heuristic optimization. *INFORMS Workshop on Data Mining and System Informatics*, San Diego, CA, October 2009.

132. J. Wang and W. N. Street. Estimating missing attribute values using dynamically-ordered attribute trees. *INFORMS Workshop on Data Mining and System Informatics*, San Diego, CA, October 2009.

133. R. Hylock, W. N. Street, D.-F. Lu and F. Currim. NursingCareWare: Warehousing for nursing care research and knowledge discovery. *Third INFORMS Workshop on Data Mining and Health Informatics*, Washington, D.C., October 2008.

134. L. Duan, W. N. Street and D.-F. Lu. A nursing care plan recommender system using a data mining approach. *INFORMS Workshop on Data Mining and Health Informatics*, Washington, D.C., October 2008.

135. K. Ataman and W. N. Street. Hierarchical local clustering for constraint reduction in rank-optimizing linear programs. *INFORMS Workshop on Artificial Intelligence and Data Mining*, Pittsburgh, PA, November 2006.

136. K. Lee and W. N. Street. Automatic feature mining for personalized digital image retrieval. *International Workshop on Multimedia Data Mining (MDM/KDD 2001)*, pages 38–43, San Francisco, CA, August 2001.

137. Y. Kim, W. N. Street and F. Menczer. Unsupervised model selection via evolutionary local search. *International Joint Conference on Artificial Intelligence (IJCAI-01) Workshop on Wrappers for Performance Enhancement in Knowledge Discovery in Databases (KDD)*, pages 9–14, Seattle, WA, August 2001.

138. Y. Kim and W. N. Street. CoIL Challenge 2000: Choosing and explaining likely caravan insurance customers. In P. van der Putten and M. van Someren (eds), *CoIL Challenge 2000: The Insurance Company Case*. Sentient Machine Research, Amsterdam, June 2000.

139. K. Lee and W. N. Street. Dynamic learning of shape for automatic object recognition. In *Proceedings of ICML-2000 Workshop on Machine Learning of Spatial Knowledge*, pages 44–49, Stanford, CA, June–July 2000.

140. K. Lee and W. N. Street. Learning shapes for automatic image segmentation. In *Proceedings of the INFORMS-KORMS Conference*, pages 1461–1468, Seoul, Korea, June 2000.

141. D. Eichmann, M. E. Ruiz, P. Srinivasan, W. N. Street, C. Culy, and F. Menczer. A cluster-based approach to tracking, detection and segmentation of broadcast news. *DARPA Broadcast News Workshop*, Herndon, VA, Feb. 28 - Mar 3 1999.

142. O. L. Mangasarian, W. N. Street and W. H. Wolberg. Breast cancer diagnosis and prognosis via linear programming. *AAAI Spring Symposium on Artificial Intelligence in Medicine*, Stanford, CA, March 1994.

Trade Publication Articles

143. A. M. Campbell and W. N. Street. The evolution of analytics education at Tippie. *ORMS Today*, August 2021.

Editorials

144. G. Shmueli, B. M. Colosimo, D. Martens, R. Padman , M. Saar-Tsechansky, O. R. Liu Sheng, W. Nick Street, K.-L. Tsui. How can IJDS authors, reviewers, and editors use (and misuse) generative AI? *INFORMS Journal on Data Science* 2(1), April-June 2023.

Technical Reports

145. W. N. Street, O. L. Mangasarian, and W. H. Wolberg. Individual and collective prognostic prediction. Technical Report 96–01, Computer Sciences Department, University of Wisconsin, Madison, WI, January 1996.

146. W. N. Street. Toward automated cancer diagnosis: An interactive system for cell feature extraction. Technical Report 1052, Computer Sciences Department, University of Wisconsin, Madison, WI, October 1991.

Theses

147. W. N. Street. Cancer Diagnosis and Prognosis via Linear-programming-based Machine Learning. Ph.D. Thesis, Computer Sciences Department, University of Wisconsin-Madison, Madison, WI 1994.

Working Papers

148. B. R. Griffin, A. Mudireddy, B. D. Horne, M. Chonchol, S. L. Goldstein, M. Goto, M. E. Matheny, W. N. Street, M. Vaughan-Sarrazin, D. Jalal, and J. Misurac. Use of a machine learning algorithm to predict nephrotoxic acute kidney injury in adults. Journal submission, under second review.

149. L. A. Polgreen, S. Lee, W. N. Street, and B. L. Carter. Personalized optimization of post-AMI medication combinations for older patients using inverse classification. Journal submission, under review.

150. J. A. Vignato, K. Encarnacao, Y. Wang, W. N. Street, D. A. Santillan, H. A. Davis, B. A. Knosp, and M. K. Santillan. Supervised machine learning for 13 week gestational age prediction of late onset preeclampsia. Journal submission, under review.

151. B. Mueller, W. N. Street, S. Baek, Q. Lin, J. Yang, and Y. Huang. FedPAE: Peer-adaptive ensemble learning for asynchronous and model-heterogeneous federated learning. Conference submission, under review.

152. J. Rios, K. Zhao, W. N. Street, and J. Blackhurst. Leveraging inter-firm networks to predict stock price movements. Journal submission, under revision.

Students

PhD Students

Brianna Mueller, Business Analytics Department, University of Iowa, in progress.

Ronilo Ragodos, Business Analytics Department, University of Iowa, in progress (co-advised with Tong Wang).

Eric Pahl, Health Informatics Program, University of Iowa, in progress (co-advised with Hans Johnson).

Sadjad Anzabi Zadeh, *Application of Explainable Reinforcement Learning in Optimal Drug Dosing – A Case of Warfarin*, Business Analytics Department, University of Iowa, August 2023 (co-advised with Barry Thomas).

Sena Chae, *Clustering and Prediction of Cancer Symptom Trajectories using Longitudinal Nursing Documentation Data*, College of Nursing, University of Iowa, December 2020 (co-advised with Stephanie Gilbertson-White).

Michael Lash, *Optimizing Outcomes via Inverse Classification*, Computer Science Department, University of Iowa, December 2018 (co-advised with Alberto Segre).

Bhupesh Shetty, *Process Pattern Mining: Identifying Sources of Assignable Error using Event Logs*, Management Sciences Department, University of Iowa, December 2018 (co-advised with Jeff Ohlmann).

Fahrettin Cakir, *Data-centric Solution Methodologies for Vehicle Routing Problems*, Business Analytics Department, University of Iowa, August 2016 (co-advised with Barrett Thomas).

Wenjun Wang, *Modeling Influence Diffusion in Networks for Community Detection, Resilience Analysis and Viral Marketing*, Business Analytics Department, University of Iowa, August 2016.

Senay Yasar Saglam, *The Role of Confidence and Diversity in Dynamic Ensemble Class Prediction Systems*, Business Analytics Department, University of Iowa, August 2015.

Michael Rechenthin, *Machine-learning Classification Techniques for the Analysis and Prediction of High-frequency Stock Direction*, Business Analytics Department, University of Iowa, May 2014.

Si-Chi Chin, *Knowledge Transfer: What, How and Why*, Information Science Program, University of Iowa, May 2013 (co-advised with David Eichmann).

Mohammad Khoshneshin, *Latent Feature Networks for Statistical Relational Learning*, Business Analytics Department, University of Iowa, July 2012.

Lian Duan, *Effective and Efficient Correlation Analysis with Application to Market Basket Analysis and Network Community Detection*, Business Analytics Department, University of Iowa, June 2012.

Chih-Lin Chi, *Medical Decision Support Systems based on Machine Learning Methods*, Health Informatics Program, University of Iowa, July 2009.

Ding Yuan, *Heuristic Subset Clustering for Consideration Set Analysis*, Business Analytics Department, University of Iowa, December 2007.

Kaan Ataman, *Learning to Rank by Maximizing the AUC with Linear Programming for Problems with Binary Output*, Business Analytics Department, University of Iowa, July 2007.

Yi Zhang, *Constructive and Destructive Optimization Methods for Predictive Ensemble Learning*, Business Analytics Department, University of Iowa, July 2006.

Kyoung-Mi Lee, *On-line Shape Learning for Adaptive Image Segmentation, Classification and Retrieval*, Computer Science Department, University of Iowa, December 2001.

YongSeog Kim, *Feature Selection in Supervised and Unsupervised Learning via Evolutionary Search*, Business Analytics Department, University of Iowa, December 2001.

PhD Committees

Seyong Ha, Business Analytics Department, Unviersity of Iowa, in progress.

Xinyi Huang, Business Analytics Department, University of Iowa, in progress.

Ling Tong, Business Analytics Department, University of Iowa, in progress.

Yankun Huang, *Constrained Optimization Techniques for Machine Learning Under Error Bound Conditions*, Business Analytics Department, University of Iowa, August 2024.

Bang An, *Machine Learning Solutions to Urban Incident Forecasting and Understanding on Spatiotemporal Data*, Business Analytics Department, University of Iowa, August 2024.

Chengyue Huang, *Advancing Social Insights through NLP: Social Media Reactions, Mental Health and Beyond*, Business Analytics Department, Unviersity of Iowa, August 2024.

Syeda Momina Tabish, *Hidden Truths: Norms in Clinical Practice*, Computer Science Department, University of Iowa, December 2023.

Tengjia Shu, *From Return Predictability to Fund Performance Evaluation: A Machine Learning Perspective*, Finance Department, University of Iowa, August 2023.

Muhammed Sit, *Augmentation and Extrapolation of Streamflow and Rainfall Datasets Using Deep Learning*, Informatics Program, University of Iowa, August 2023.

Alaa Edden Albashayreh, *Evaluating Patient-Centered Outcomes in Palliative Care and Advanced Illness Using Natural Language Processing and Big Data Analytics*, College of Nursing, University of Iowa, August 2022.

Xiangyu Wang, *From Online Engagement to Offline Health Outcomes – Analyzing User Behaviors in Online Health Communities*, Information Science Program, University of Iowa, August 2022.

Yichen Ding, *Predicting and Understanding Road User Behaviors through Big Geo-Referenced Egocentric Video Data Analytics*, Business Analytics Department, University of Iowa, August 2022.

Zhiya Zuo, *Analyzing Collaboration with Large-scale Scholarly Data*, Information Science Program, University of Iowa, August 2019.

Amin Vahedian Khezerlou, *Mining Big Mobility Data for Large Urban Event Analytics*, Business Analytics Department, University of Iowa, August 2019.

Kristina Bigsby, *From Hashtags to Heismans: Social Media and Networks in College Football Recruiting*, Information Science Program, University of Iowa, August 2018.

Xiaoxuan Zhang, *Online Learning for Imbalanced Data: Optimizing Asymmetric Measures*, Computer Science Department, University of Iowa, August 2018.

Mrutyunjaya Parida, *Exploring and Analyzing Omics Using Bioinformatics Tools and Techniques*, Health Informatics Program, University of Iowa, May 2018.

Xi Wang, *Engagement of Users in Online Health Communities – A Social Support Perspective*, Information Science Program, University of Iowa, May 2017

Jason Fries, *Applications in Online Sexual Behavior Surveillance and Clinical Text Information Extraction*, Computer Science Department, University of Iowa, August 2015.

Mohammad Bataineh, *New Neural Network for Real-time Human Dynamic Motion Prediction*, Biomedical Engineering Department, University of Iowa, May 2015.

Alex Wagner, *Computational Methods for Identification of Disease-associated Variations in Exome Sequencing*, Genetics Program, University of Iowa, December 2014.

Sanmitra Bhattacharya, *Computational Methods for Mining Health Communications in Web 2.0*, Computer Science Department, University of Iowa, May 2014.

Dong-Jun Park, *Video Event Detection Framework on Large-scale Video Data*, Computer Science Department, University of Iowa, August 2011.

Viet Ha-Thuc, *Topic Modeling and Applications in Web 2.0*, Computer Science Department, University of Iowa, May 2011.

Brian Almquist, *Mining for Evidence in Enterprise Corpora*, Business Analytics Department, University of Iowa, May 2011.

Jieqiu Chen, *Convex Relaxations in Nonconvex and Applied Optimization*, Business Analytics Department, University of Iowa, July 2010.

Robert Arens, *Learning to Rank Documents with Support Vector Machines via Active Learning*, Computer Science Department, University of Iowa, December 2009.

Yulan Liang, *Detecting Driver Distraction*, Department of Mechanical and Industrial Engineering, University of Iowa, May 2009.

Zhe Song, *Meta-control of Combustion Performance with a Data-mining Approach*, Department of Mechanical and Industrial Engineering, University of Iowa, August 2008.

Brynja Örlygsdóttir, *Using Knowledge Discovery to Identify Potentially Useful Patterns of Health Promotion Behavior of 10-12 Year Old Icelandic Children*, College of Nursing, University of Iowa, July 2008.

Ye Xu, *Computer-aided 3-D Texture Analysis for Lung Characterization using MDCT Images*, Computer Science Department, University of Iowa, December 2007.

Xin Ying Qiu, *On Building Predictive Models with Company Annual Reports*, Business Analytics Department, University of Iowa, July 2007.

Kirk Phillips, *Design and Testing of a Knowledge-based System for the Treatment of Heart Failure Patients in a Hospital Setting*, Interdisciplinary Program in Health Informatics, University of Iowa, 2005.

Gautam Pant, *Learning to Crawl: Classifier Guided Topical Crawlers*, Business Analytics Department, University of Iowa, 2004.

Dan Hanson, *Artificial Neural Network Based Survival Analysis for Hydro-Mechanical Systems*, Department of Mechanical and Industrial Engineering, University of Iowa, 2004.

Sarapee Hirankarn, *Analysis of Clinical Pharmacokinetic Data: NONMEM, WinBUGS, and Artificial Neural Networks*, Department of Pharmacy, University of Iowa, 2000.

Masters of Science with Thesis Students

Haobo Liu, *A Bayesian Network for Medical Diagnosis*, Oklahoma State University Computer Science Department, December 1998.

Kean Giap Lim, *Reinforcement Learning in Game Playing*, Oklahoma State University Computer Science Department, December 1998.

Mohammad T. Uliniansyah, *An English-to-Indonesian Machine Translation System*, Oklahoma State University Computer Science Department, July 1998.

Syed M. M. Manzoor, *BridgeVIEW for Hybrid Control System: An Applied Case Study of Automating an Industrial Assembly Line*, Oklahoma State University Computer Science Department, July 1998.

Sree R. K. R. Mallina, *Remote Cancer Diagnosis*, Oklahoma State University Computer Science Department, July 1998.

Hyuk-Joon Oh, *Generalized Hough Transform for Cytological Image Segmentation*, Oklahoma State University Computer Science Department, December 1997.

Senior Honors Project Students

Chuck Mersch, *The Predictability Power of College Football Polls*, University of Iowa, 2007.

Research funding

Federal

Sub-award co-investigator, NIH R01. Title: Choosing Immune Suppression in Renal Transplantation by Efficacy and Morbidity 2 (CISTEM2). Total sub-award: $331,139. Period: 03/01/2024 – 01/31/2029.

Sub-award PI, NSF Convergence Accelerator Phase II. Title: Data-driven Disease Prevention and Control in Animal Health. Total sub-award: $125,716. Period: 10/01/21 – 9/30/23.

Director, Integrative Analytics Core, NINR P20. Title: Center for Advancing Mutimorbidity Science (CAMS): Profiling risk and symptom expression to develop customized therapies for adults with multiple chronic conditions. Total award: $1,905,446. Period: 9/1/18 – 8/31/23.

Sub-award Investigator, NIH SBIR via HealthTech Solutions. Title: Development of Machine Learning Composite Measures for Graft Outcome Selection in Pediatric Liver Transplantation. Total award: $16,389. Period: 5/15/22 – 11/15/22.

Co-investigator, administrative supplement to NINR P20. Title: Relationships among multiple chronic conditions, pain symptomology, healthcare utilization, and Alzheimer's disease. Total award: $250,000. Period: 8/02/20 – 7/31/22.

PI, NSF Convergence Accelerator Phase I. Title: ImagiQ: Asynchronous and Decentralized Federated Learning for Medical Imaging. Total award: $999,770. Period: 9/01/20 – 5/31/22.

Co-investigator, NINR R01. Title: Predicting Children's Responses to Distraction from Pain: Tailored Interventions. Total award: $20,234. Period: 8/1/2007 – 5/31/2011.

Co-investigator, NIH Subcontract. Title: Phase II Clinical Trial of Modulation of Intermediate Endpoint Biomarkers by 1α Hydroxy Vitamin D_2 in Patients with Clinically Localized Prostate Cancer and High Grade PIN. Total award: $118,723. Period: 9/30/99 – 3/31/07.

Consultant, NINR R01. Title: Predicting Children's Responses to Distraction from Pain. Total award: $9,579. Period: 5/15/2006 – 8/15/2006.

Co-investigator, NHLBI subcontract. Title: Data Mining Analysis of ACCESS Data. Total award: $10,806. Period: 5/15/00 – 8/15/00.

Principal Investigator, NSF CAREER Award. Title: Mathematical Optimization for Inductive Machine Learning. Total award: $206,531. Period: 6/1/97 – 5/31/01.

Principal Investigator, NIH R01 Subcontract. Title: Adjuvant Hormonal Therapy in Vietnamese Breast Cancer. Total award: $34,106. Period: 11/1/98 – 1/31/00.

Postdoctoral Fellow, NIH National Research Service Award. Title: Machine Learning for Prognostic Prediction. Total award: $52,300. Period: 12/1/95 – 7/31/97.

Private

Principal Investigator, McLeod USA. Title: Predictive Customer Churn Models. Total award: $6,870. Period: 1/15/05 – 5/15/05.

Principal Investigator, John Deere Corporation. Title: Machine Health: Data Mining. Total award: $31,000. Period: 1/1/02 – 9/30/02.

Principal Investigator, Phillips Petroleum Company. Title: Prediction of Catalytic Cracking Yields. Total award: $23,664. Period: 11/1/97 – 10/31/98.

University

Co-Principal Investigator, University of Iowa Social Science Funding Program. Title: Mining Clinical Data Sets for Nursing Dx, Outcomes and Intervention Links and EBP Validation. Total award: $28,370. Period: 5/1/08 – 6/30/09.

Co-Director, Obermann Center for Advanced Studies Spelman Rocekfeller (CASSPR) Grant, University of Iowa. Title: Operationalizing and Pilot Testing the Computerized Predictive Model for Distraction: Interventions for Needle Sticks in Children. Total award: $8,836. Period: 5/15/07 – 8/24/07.

Co-Investigator, University of Iowa Informatics Initiative. Title: Discovering Subpopulations of Human Responses to Health Care States in High-Dimensional Datasets. Total award: $29,233. Period: 1/1/04 – 12/31/04.

Co-Principal Investigator, University of Iowa Biosciences Initiative Pilot Grant. Title: Selection of Neoplastic Glial Cells for Molecular Analysis Using Computer-Assisted Image Analysis and Laser Capture Microdissection. Total award: $12,000. Period: 2/1/00 – 6/31/00.

Recipient, Old Gold Summer Fellowship, University of Iowa. Title: Ensemble Techniques for Data Mining. Total award: $8,100. Period: 5/15/99 – 8/15/99.

Recipient, College of Business Summer Research Award, University of Iowa. Title: Ensemble Techniques for Data Mining. Total award: $4,319. Period: 5/15/99 – 8/15/99.

Recipient, Dean's Incentive Grant, Oklahoma State University. Title: Remote Cytological Cancer Diagnosis. Total award: $3,000. Period: 7/1/97 – 7/30/97.

Recipient, Arts and Sciences Summer Research award, Oklahoma State University. Title: A Software Platform for Medical Image Segmentation Research. Total award: $5,400. Period: 8/1/97 – 8/30/97.

Co-investigator, College of Veterinary Medicine, Oklahoma State University. Title: Sonographic Determination of Hepatic Echogenicity in Normal Cats using Computer Aided Image Analysis. Total award: $7,413. Period: 1/1/97 – 5/15/97.

Recipient, University Surgical Associates grant, University of Wisconsin-Madison. Title: Breast Cancer Diagnosis and Prognosis via Machine Learning. Total award: $10,000. Period: 8/15/94 – 12/31/95.

Invited seminars

Making Better Medication Decisions with Machine Learning, Midwest Social and Administrative Pharmacy Conference, University of Iowa, June 2024.

Inverse Classification: Better Algorithms for Better Decision Making, Statistics Department Seminar, University of Iowa, November 2021.

From TIMS/ORSA to Analytics: A Mangasarian-Guided Journey. INFORMS National Meeting, October 2020.

Inverse Classification: Better Algorithms for Better Decision Making, 2nd Midwest Statistical Machine Learning Colloquium, Iowa State University, May 2019.

Inverse Classification: Better Algorithms for Better Decision Making, School of Informatics, Computing and Engineering, Indiana University, February 2018.

Predictive & Prescriptive Analytics for Personalized Health Care Decision Making, keynote, 2nd Annual Informatics Showcase, University of Iowa, February 2017.

From TIMS/ORSA to Analytics: What We Did, What We're Doing, and How We Pass It On, keynote, 11th INFORMS Workshop on Data Mining & Decision Analytics, Nashville, TN, November 2016.

Turning More Data into Better Outcomes: Analytics at the University of Iowa, The Way-Up: Developing Women Leaders to Enhance Iowa Higher Education. Coralville, IA, November 2016.

Predictive Analytics for Personalized Health Care Decision Making, Geographic and Sustainability Sciences Department Research Colloquium, University of Iowa, February 2016.

Predicting Surgical Site Infections in Real-Time, INFORMS Healthcare, Nashville, TN, July 2015.

Predictive Analytics for Personalized Health Care Decision Making, plenary, 29th Belgian Conference on Operations Research, Antwerp, Belgium, February 2015.

A Machine-learning Technique for the Prediction of Equity Price Direction, INFORMS Annual Meeting, San Francisco, CA, November 2014.

Large-scale Correlation Search in Binary Data, Department of Operations and Information Systems, University of Utah, October 2014.

Large-scale Correlation Search in Binary Data, Department of Statistics and Actuarial Science Research Colloquium, University of Iowa, April 2014.

Predictive Analytics for Personalized Health Care Decision Making, Center for Business Analytics, University of Cincinnati, Cincinnati, OH, February 2014.

Predictive Analytics for Personalized Health Care, plenary, American College of Preventive Medicine annual meeting, Phoenix, AZ, February 2013.

Data Mining for Personalized Health Care Decision Making, Computation and Informatics in Biology and Medicine Retreat, University of Wisconsin-Madison, October 2012.

Data Mining for Personalized Health Care Decision Making, College of Nursing Research Forum, University of Iowa, October 2012.

Large-Scale Correlation Search in Binary Data, Electrical and Computer Engineering Department seminar, University of Iowa, September 2012.

Data Mining for Personalized Health Care Decision Making, keynote, Sixth INFORMS Workshop in Data Mining and Health Informatics, Charlotte, NC, November 2011.

Machine Learning-based Health Care Decision Support Systems, Comparative Effectiveness Research Seminar, University of Iowa, April 2011.

A Machine Learning-based Healthy Lifestyle Recommender, INFORMS Annual Meeting, Austin, TX, November 2010.

Applications of Data Mining in Health Care, University of Iowa Computing Conference, February 2010.

Machine Learning-based Health Care Decision Support Systems, Biomedical Engineering / Electrical and Computer Engineering Departments joint seminar, University of Iowa, February 2010.

Machine Learning-based Health Care Decision Support Systems, Computer Science Department, University of Notre Dame, November 2009.

An Ensemble Approach to the Netflix Prize, INFORMS Annual Meeting, Seattle, WA, November 2007.

Choice Prediction with Consideration Set Clustering, INFORMS Annual Meeting, Seattle, WA, November 2007.

Learning to Rank, INFORMS Annual Meeting, Denver, CO, October 2004.

A Streaming Ensemble Method for Large-Scale Classification, Statistics Department, University of Iowa, April 2003.

Data Mining & Digital Imaging, University of Iowa Interdisciplinary Health Informatics Organization (IHIO), March 2003.

An Ensemble Method for Streaming Classification, Decision Sciences Institute meeting, San Diego, CA, November 2002.

Data Mining Applications in Breast Cancer, College of Nursing, University of Iowa, October 2002.

New Methods for Ensemble Classification, Computer Science Department, University of Iowa, April 2002.

Breast Cancer Prognosis via Linear Programming: Redux, INFORMS Annual Meeting, Miami, FL, November 2001.

Meta-Evolutionary Ensembles, INFORMS Annual Meeting, Miami, FL, November 2001.

Feature Selection in Supervised and Unsupervised Machine Learning, Industrial Engineering Graduate Student Seminar, University of Iowa, Iowa City, IA, November 2000.

Feature Selection in Unsupervised Learning via Multi-Objective Evolutionary Search, University of Texas Computer Science Department Data Mining Colloquium, Austin, TX, November 2000.

Feature Selection in Unsupervised Learning via Multi-Objective Evolutionary Search, INFORMS Annual Meeting, San Antonio, TX, November 2000.

Machine Learning for Object Detection and Segmentation, INFORMS Annual Meeting, San Antonio, TX, November 2000.

Ensembles for Large-scale Classification, INFORMS Annual Meeting, San Antonio, TX, November 2000.

Feature Selection in Unsupervised Learning via Multi-Objective Evolutionary Search, Iowa State / University of Iowa Joint Bioinformatics Workshop, Iowa City, IA, November 2000.

Feature Selection in Unsupervised Learning via Multi-Objective Evolutionary Search, International Symposium on Mathematical Programming, Atlanta, GA, August 2000.

Optimization-based Approaches to Feature Selection in Supervised and Unsupervised Machine Learning, Department of Industrial and Manufacturing Systems Engineering Research Colloquium, Iowa State University, Ames, IA, December 1999.

Feature Selection in Supervised Learning, INFORMS National Meeting, Philadelphia, PA, November 1999.

Feature Selection in Unsupervised Learning, INFORMS National Meeting, Philadelphia, PA, November 1999.

Feature Selection in Data Mining, Complex Adaptive Systems and their Business Applications seminar series, Business Analytics Department, University of Iowa, October 1999.

Nuclei Location in Cytological Images, College of Engineering Imaging Group, University of Iowa, Iowa City, IA, April 1999.

Computerized Diagnosis and Prognosis of Breast Cancer, Business Analytics Department Research Colloquium, University of Iowa, Iowa City, IA, February 1999.

Applications of Mathematical Optimization in Machine Learning, Computer Science Department, University of Iowa, Iowa City, IA, September 1998.

Oblique Multicategory Decision Trees, INFORMS National Meeting, Seattle, WA, November 1998.

Remote Cytological Cancer Diagnosis, INFORMS National Meeting, Seattle, WA, November 1998.

Mathematical Programming in Machine Learning, Management Science Department, University of Iowa, Iowa City, IA, March 1998.

Decision Trees: An Overview and a New Approach, INFORMS Computer Science Technical Section Conference, Monterey, CA, January 1998.

Prognostic Prediction using Artificial Neural Networks, INFORMS National Meeting, Dallas, TX, October 1997.

Machine Learning and Data Mining, Phillips Petroleum Company, Bartlesville, OK, July 1997.

Machine Learning in Medical Diagnosis and Prognosis, Computer Science Department, Oklahoma State University, Stillwater, OK, February 1997.

Medical Prognosis via Mathematical Programming, INFORMS National Meeting, Atlanta, GA, November 1996.

Breast Cancer Diagnosis and Prognosis via Machine Learning, Computer Science Department, Oklahoma State University, Stillwater, OK, May 1996.

Breast Cancer Diagnosis and Prognosis via Machine Learning, Business Analytics Department, University of Mississippi, Oxford, MS, February 1996.

Breast Cancer Diagnosis and Prognosis via Linear Programming, INFORMS National Meeting, New Orleans, LA, October 1995.

Improved Generalization for Machine Learning, INFORMS National Meeting, New Orleans, LA, October 1995.

Mathematical Programming in Machine Learning, Youngstown State University, Youngstown, OH, April 1995.

Breast Cancer Diagnosis and Prognosis via Linear Programming, Youngstown State University, Youngstown, OH, April, 1995.

Overfitting Avoidance by Tolerant Training, University of Wisconsin-Madison, Madison, WI, December 1994.

Cancer Diagnosis and Prognosis via Machine Learning, Drake University, Des Moines, IA, April 1994.

Machine Learning for Cancer Prognosis, University of Wisconsin-Madison, Madison, WI, October, 1993.

Toward Automated Cancer Diagnosis: An Interactive System for Cell Feature Extraction, TIMS/ORSA Joint National Meeting, Orlando, FL, April 1992.

Mathematical Association of America, Iowa Chapter, May 1985, Des Moines, IA. Chosen as Outstanding Student Paper.

Professional activities

Editor

- Senior Editor, *INFORMS Journal on Data Science*, 2020-present.

Referee

- *IEEE Transactions on Knowledge Discovery from Data*, 2024.
- *Entropy*, 2021.
- *PLOS ONE*, 2020.
- *MIS Quarterly*, 2018.
- *Multikonferenz Wirtschaftsinformatik*, 2017.
- *Neurocomputing*, 2016, 2006.
- *IEEE Transactions on Knowledge and Data Engineering*, 2015.
- *IEEE Transactions on Management Information Systems*, 2013.
- *Journal of Machine Learning Research*, 2012, 2007, 2005, 2003.
- *Machine Learning*, 2012, 2008, 2007, 2002 (2), 1996.
- *Health Systems*, 2012.
- *Annals of Operations Research*, 2011, 2007.
- ICML Workshop on Unsupervised and Transfer Learning, 2011.
- *Mathematical Programming*, 2011.
- *Artificial Intelligence*, 2010.
- *Decision Support Systems*, 2009, 2000.
- *Journal of Optimization Theory and Applications*, 2008, 2000.
- *Data Mining and Knowledge Discovery*, 2008, 2005, 2004 (2).
- *Artificial Intelligence in Medicine*, 2007.
- *IEEE Transactions on Systems, Man and Cybernetics*, 2007, 2005, 2002, 2000.
- *Computational Management Science*, 2007.
- *The International Journal on Very Large Data Bases*, 2006.
- *INFORMS Journal on Computing*, 2005, 2004, 2000.
- *European Journal on Operations Research*, 2005.
- *Computational Management Science*, 2005.
- *Information Systems Research*, 2004.
- *Discrete Applied Mathematics*, 2004.
- *Management Science*, 2003, 2001, 1998.
- *Optimization Methods and Software*, 2003, 2002.
- *Journal of Statistical Computation and Simulation*, 2002.
- Idea Group Publishing (one book chapter), 2001.
- *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 2001.
- *Fuzzy Sets and Systems*, 2000.
- ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, 2000.
- MIT Press (one book chapter), 1999.
- CRC Press (five book chapters), 1999.
- *Evolutionary Computation Journal*, 1999.

- *Computational Optimization and Applications*, 1998.
- *Health Care Management Science*, 1998 (2).
- International Conference on Neural Networks, 1996.

Funding proposal reviewer

- NSF Applied Mathematics, 2005.
- NSF Knowledge and Cognitive Systems, 1999.
- NSF Decision Risk & Management Science, 1998.
- NSF Knowledge Models and Cognitive Systems, 1997.

Program Committee

- IEEE International Conference on Data Mining (ICDM), 2024, 2011, 2010, 2009, 2005, 2004, 2003.
- ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, 2018, 2016, 2015, 2012, 2007, 2006, 2001.
- International Conference on Information Systems, 2016.
- International Conference on Smart Health, 2015.
- INFORMS Data Mining Section Student Paper Competition, 2013.
- IEEE International Conference on Health Informatics Workshop on Hospital Readmission and Clinical Risk Management (HRPCRM), 2013.
- AAAI National Conference, 2013.
- INFORMS Workshop on Data Mining and Medical Informatics, 2010.
- James F. Jakobsen Graduate Conference, University of Iowa, 2006.
- SIAM Workshop on Clustering High-Dimensional Data and its Applications, 2005, 2003, 2002.
- Midwest Artificial Intelligence and Cognitive Science Conference, 2002, 2001, 2000, 1999.
- AAAI Student Poster Program, AAAI National Conference, 2002, 2000.

Cluster Chair

- *Data Mining*, INFORMS Annual Meeting, Miami, FL, November 2001.

Session Chair

- *Machine Learning Applications in Healthcare*, INFORMS Annual Meeting, October 2022.
- *Memorial Session in Honor of Olvi Mangasarian*, INFORMS Annual Meeting, October 2020.
- *Sequential Decision Making in Healthcare*, INFORMS Annual Meeting, Seattle, WA, October 2019.
- *Health and Biomedical Informatics*, University of Iowa Informatics Initiative Informatics Showcase, Iowa City, IA, March 2018.
- *Data Mining for Personalized Health Care*, INFORMS Annual Meeting, Philadelphia, PA, November 2015.
- *Temporal Data Mining for Business Applications*, INFORMS Annual Meeting, Phoenix, AZ, October 2012.
- *Recommender Systems*, INFORMS Annual Meeting, San Diego, CA, October 2009.

- *INFORMS Data Mining Contest*, INFORMS Annual Meeting, Washington, D.C., October 2008.
- *Data Mining Techniques for Business Applications*, INFORMS Annual Meeting, Seattle, WA, November 2007.
- *New Data Mining Techniques for Business Applications*, INFORMS Annual Meeting, Pittsburgh, PA, November 2006.
- *Learning to Rank: ROC Optimization in Data Mining*, INFORMS Annual Meeting, San Francisco, CA, November 2005.
- *Unsupervised Learning Methods for Knowledge Discovery*, INFORMS Annual Meeting, San Francisco, CA, November 2005.
- *Modeling and Simulation*, Information and Health at Iowa: Breaking Boundaries & Building Bridges, Iowa City, IA, October 2004.
- *Recent Advances in Mining Business Data*, INFORMS Annual Meeting, Denver, CO, October 2004.
- *Ensemble Methods for Data Mining*, INFORMS Annual Meeting, Miami, FL, November 2001.
- *Ensemble Methods for Data Mining*, INFORMS Annual Meeting, San Antonio, TX, November 2000.
- *Multicategory Learning with Mathematical Programming*, INFORMS Annual Meeting, Seattle, WA, November 1998.

Workshop Co-organizer

- *Workshop on Wrappers for Performance Enhancement in Knowledge Discovery in Databases (KDD)*, International Joint Conference on Artificial Intelligence (IJCAI), August 2001.

External Reviewer

- Promotion and tenure: 2021, 2018, 2016, 2015, 2014, 2010, 2006, 2005, 2002.
- Internal KL2 funding: 2013

Member

- Association for the Advancement of Artificial Intelligence (AAAI)
- American Medical Informatics Association (AMIA)
- Institute For Operations Research and the Business Analytics (INFORMS) - Data Mining Section
  - Council Member, INFORMS Data Mining Section, 2007-2009.
  - Organizer, First INFORMS Data Mining Contest, 2008.
- Association for Computing Machinery (ACM) - Special Interest Group in Knowledge Discovery in Databases

University activities

University Level

Member, Vice President for Research search committee, 2024.

Member, Advisory Board, Iowa Institute of Human Genetics, 2013-present.

Member, Graduate Council, 2018-19.

Director, Graduate Program in Health Informatics, and Member, Interdisciplinary Graduate Program in Informatics Steering Committee, Univerisity of Iowa, 2009-19.

Member, UI Informatics Initiative Steering Committee, University of Iowa, 2013-19.

Member, Executive Committee, Information Science Program, University of Iowa, 2007-2008, 2014-2015.

Acting Director, Interdisciplinary Graduate Program in Information Science, 2011-2014.

Member, Institute for Clinical and Translational Science Scientific and Operational Oversight Committee, 2012-2013.

Member, Faculty Senate, University of Iowa, 2007-2010.

Member, Health Informatics Advisory Board, University of Iowa, 2008-2009.

Member, Health Informatics Core Steering Committee, University of Iowa, 2003-2006.

Member, Iowa Informatics Initiative Steering Committee, University of Iowa, 2003-2005.

College Level

Associate Dean for Research and PhD Programs, Tippie College of Business, University of Iowa, 2019-present.

Member, Graduate Committee, Tippie College of Business, University of Iowa, 2003-2012.

Chair, Elected Faculty Council, Tippie College of Business, University of Iowa, 2005-2006.

Member, Elected Faculty Council, Tippie College of Business, University of Iowa, 2004-2005.

Member, Undergraduate Programs Committee, Tippie College of Business, University of Iowa, 2002-2003.

Member, Computing Services Committee, Tippie College of Business, University of Iowa, 1998-2002.

Department Level

Departmental Executive Officer, Business Analytics Department, University of Iowa, 2012-2018.

Director of Graduate Studies and Chair, Ph.D. Committee, Business Analytics Department, University of Iowa, 2003-2012.

Member, Internal Promotions and Tenure Review Subcommittee, Business Analytics Department, University of Iowa, 2006, 2011.

Chair, Outcomes Assessment Committee, Business Analytics Department, University of Iowa, 2006-2008.

Chair, Faculty Recruiting Committee, Business Analytics Department, University of Iowa, 2003-2004.

Member, Faculty Recruiting Committee, Business Analytics Department, University of Iowa, 1999-2000, 2002-2003, 2011-2012.

Member, Ph.D. Committee, Business Analytics Department, University of Iowa, 1999-2003.

Member, Information Systems Curriculum Review Committee, Business Analytics Department, University of Iowa, 1998-99, 2002-2003.

Member, Graduate Admissions Committee, Management Sciences Department, University of Iowa, 1998-2002.

Organizer, Business Analytics Department Colloquium Series, 2000-2001.

Chair, Computing Facilities Committee, Computer Science Department, Oklahoma State University, 1997-98.

Member, Personnel Committee, Computer Science Department, Oklahoma State University, 1997-98.

Member, Ph.D. Qualifying Examination Committee, Computer Science Department, Oklahoma State University, 1996-98.

Member, Public Relations Committee, Computer Science Department, Oklahoma State University, 1996-97.

Member, Computing Facilities Committee, Computer Science Department, Oklahoma State University, 1996-97.

Faculty Advising

Advisor, Management Information Systems Association, Business Analytics Department, University of Iowa, 1999-2002.

Advisor, Stillwater Chapter of the Association for Computing Machinery, Stillwater, OK, 1997-98.

Courses taught

Graduate Courses, Business Analytics Department, University of Iowa

Data Science: spring 2024, spring 2022, spring 2021, summer 2020, spring 2020, spring 2019, summer 2018, summer 2017, summer 2016 (two sections), summer 2015 (new course).

Knowledge Discovery: fall 2023, fall 2022, fall 2021, fall 2020, fall 2019, fall 2018, fall 2017, fall 2016, fall 2015, spring 2015, fall 2013, fall 2012, fall 2011, fall 2010, fall 2009, fall 2008, fall 2007, spring 2006, spring 2004 (new course).

Intelligent Systems: fall 2006.

Data Mining in Marketing (co-taught with Gary Russell): spring 2005, spring 2003, spring 2002 (new course).

Advanced Database Analysis: fall 2003 (new course).

Machine Learning: spring 2003 (new course).

Health Informatics I (contributed one lecture): fall 2006, fall 2005, fall 2004, fall 2003, fall 2002.

Health Informatics II (contributed one lecture): spring 2005, spring 2003.

Intelligent Systems for Decision Support: spring 2001, fall 1999 (co-taught with Filippo Menczer; redesigned course).

Adaptive Systems with Applications: spring 2000.

Object-Oriented Analysis and Design: spring 1999.

Software Engineering: fall 1998.

Graduate Courses, Computer Science Department, University of Iowa

Data Mining and Machine Learning: spring 2008 (redesigned course).

Graduate Courses, Computer Science Department, Oklahoma State University

Artificial Intelligence: fall 1998, spring 1997 (redesigned course).

Data Structures and Algorithm Analysis: fall 1997, fall 1996.

MBA Courses, School of Management, University of Iowa

Data Science: spring 2018, spring 2017.

Data & Decisions: fall 2003.

Undergraduate Courses, Business Analytics Department, University of Iowa

Data Mining (previously Business Intelligence): spring 2023, spring 2016, fall 2014, spring 2014, spring 2013 (new course).

Visual Basic Programming: spring 2012, fall 2011, spring 2011, fall 2010, spring 2010, fall 2009, spring 2009, fall 2008, spring 2008, fall 2007, spring 2007, fall 2006, spring 2006, fall 2005, spring 2005, fall 2004.

Computer Analysis: spring 2002, fall 2001, spring 2001, fall 2000, spring 2000, fall 1999 (redesigned course).

Data Mining Lab: spring 1999, fall 1998 (new course).

Systems Analysis and Design: spring 1999.

Undergraduate Courses, Computer Science Department, Oklahoma State University

Computer Science I: spring 1998 (redesigned course).

Computer Science III: fall 1997, spring 1997 (redesigned course).