

Robert P. Schumaker

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PRIMARY TEACHING / RESEARCH INTEREST

Business Analytics, Database, eCommerce, Knowledge Management, Networking,
Telecommunications and Security

RESEARCH INTERESTS

- Business Analytics and Data Mining
- Healthcare Analytics
- Knowledge Management
- Sports Analytics
- Textual/Financial Prediction

TEACHING INTERESTS

- Business Information Systems
- Data Science (Analytics, Statistics, Data Mining)
- Internet Applications
- Networking
- Security

ACADEMIC PREPARATION

Doctor of Philosophy (Ph.D.)

The Eller College of Business, University of Arizona, 2007

Major: Management of Information Systems

Minor: Computational Linguistics

Dissertation Title: Knowledge Acquisition, Delivery and Prediction through Text Mining

Advisor: Hsinchun Chen

Masters of Business Administration (MBA)

College of Business Administration, University of Akron, 2001

Major: Management

Minor: International Business

Bachelor of Science (B.S.)

College of Engineering, University of Cincinnati, 1997

Major: Civil Engineering

Concentration: Transportation Engineering

PROFESSIONAL EXPERIENCE

University of Texas at Tyler

Associate Professor – Computer Science University of Texas at Tyler, Fall 2015 – Present

Director – Data Analytics Lab, Fall 2015 – Present

George W. and Robert Pirtle Endowed Professorship in Business, Fall 2016 – Spring 2019

Research:

- ◆ Healthcare Analytics – In this domain of study we mine the FDA's Adverse Effects Reporting System (FAERS) using machine learning tools to determine previously unknown drug interactions and categorize them by predicted health severity. This work is unique by examining all possible drug combinations as well as focus on specific drug disease interactions.
- ◆ Sports Analytics – Mining relevant data from Sports-related sources and producing predictions can provide an edge to sports organizations and gamblers alike. In this series of studies we create a system to collect and analyze the sentiment content of tweets to use as a predictive mechanism for game outcomes in English Premier League soccer, the NFL, MLB, NBA, NHL and Major League Soccer.
- ◆ Textual/Financial Prediction – In this series of studies we extend the Textual/Financial Prediction work. With our system we investigate the 1. role of sentiment position within financial text, how it relates to market psychology and ultimately data-mined price prediction, 2. how to leverage the machine-learned relationships of financial news articles to stock price movement and present a new financial tool of Press Release Manipulation whereby firms can manage their stock price via choosing when to release press releases, careful term selection based on historical price movements and selection of media outlets that have historically had the most positive price impact and 3. investigate textual consumer feedback and how it relates to stock price.

Teaching:

- Business Intelligence and Analytics
 - Capstone
 - Database
 - Data Communications and Computer Networks
 - Design of Modern Information Systems
 - eCommerce
 - ERP Architecture Using SAP
 - Programming
 - Sports Data Analytics
 - Systems Analysis and Design
-
- Responsible to challenge students with interesting and active materials relevant to business
 - Provided invaluable peer insight into continuing efforts to improve student curriculum
 - Anticipated areas of student difficulty and adjusts dynamic lectures accordingly

Central Connecticut State University

Associate Professor – Management Information Systems, Fall 2012 – Summer 2015

Research:

- ◆ Textual/Financial Prediction – In this study we created the CentralFinance system, the next-generation and radical transformation of the successful AZFinText textual/financial prediction engine. With CentralFinance we investigated a new financial tool of Press Release Manipulation whereby firms can manage their stock price via choosing when to release press releases, careful term selection based on historical price movements and selection of media outlets that have historically had the most positive price impact.

- ◆ Sports Analytics – In this series of studies we created the CentralSport system to analyze sentiment content of tweets to use as a predictive proxy for fixture outcomes in English Premier League soccer.

Teaching:

- Business Information Systems
- eCommerce
- Managing the IT Value Proposition

Cleveland State University

Visiting Assistant Professor – Computer and Information Systems, Fall 2010 – Summer 2012

Research:

- ◆ Textual/Financial Prediction – A further continuation of prior textual financial research, this project utilizes the Arizona Financial Text System (AZFinText) to represent financial news articles and make trades based on the terms contained within them. This variation of the project examines different linguistic representational models and evaluates their predictive results to market trading activity.

- ◆ Sports Analytics – Mining relevant data from Sports-related sources and producing accurate predictions can provide a competitive advantage to sports organizations and gamblers alike. Using the Moneyball style philosophy, this project analyzes the use of different machine learning techniques to predict outcomes of sporting events.

Teaching:

- Business Information Systems
- Database
- Programming
- Microsoft Office
- Security

Iona College

Assistant Professor – Information Systems, Fall 2007 – Summer 2010

Research:

- ◆ Textual/Financial Prediction – A continuation of the AZFinText studies, this project examines the relationship between financial news articles and their impact on stock market prices. Prediction is made utilizing various textual representation schemes, price prediction models and machine learning techniques to accomplish profitability in extreme near-term trading. Based on the premise that unexpected news events can shape the price of a stock, we capitalize on automatically identifying the relevant keywords in the news article and then execute a trade well-before human traders have a chance to read the news article.

Teaching:

- Business Information Systems
- Data Mining
- Internet Applications
- Network Construction
- Quantitative Investment
- Telecommunications

University of Arizona

Research Associate – Artificial Intelligence Lab, Fall 2003 – Spring 2007

Instructor – Management of Information Systems, Summer 2004

Research:

- ◆ Textual/Financial Prediction – Known as AZFinText, this project examines the relationship between financial news articles and their impact on stock market prices. Prediction is made utilizing various textual representation schemes, price prediction models and machine learning techniques to accomplish profitability in extreme near-term trading. Based on the premise that unexpected news events can shape the price of a stock, we capitalize on automatically identifying the relevant keywords in the news article and then execute a trade well-before human traders have a chance to read the news article.
- ◆ Question Answer Systems – The AZ-ALICE and TARA chatterbot experiments were an exploration into the potential of using natural language chatterbots as conversational entities. These two studies, AZ-ALICE in Fall 2003 and TARA in Spring/Summer 2004, were built on the proven ALICE chatterbot engine (www.alicebots.org). In the AZ-ALICE experiment we tested a limited telecommunications knowledge set to see how well the chatterbot could respond to telecommunications-related questions. The TARA studies went one step further and analyzed a substantial terrorism knowledge base that was automatically gathered from the Internet. From our experiments we found several interesting facets. The most important of which was the discovery that adding more knowledge to the system actually harmed the quality of responses.

Teaching:

- Business Information Systems

University of Akron

Instructor – Dept. of Accountancy, Fall 2000 – Summer 2003

Teaching:

- Business Information Systems
- Microsoft Office

PUBLICATIONS (October 16, 2017: 1,125 citations, g-index = 34, h-index = 13)

Journal Articles

- (1) Schumaker, R., Labeledz Jr., C., Jarmoszko, A. T. and Brown, L., (2017). Prediction from Regional Angst - A Study of NFL Sentiment in Twitter Using Stock Market Charting. *Decision Support Systems*. 98(6):80-88.
SJR Impact Factor: 2.59, UT Tyler Journal List: A+
- (2) Schumaker, R., Jarmoszko and A. T., Labeledz Jr., C., (2016). Predicting Wins and Spread in the Premier League Using a Sentiment Analysis of Twitter. *Decision Support Systems*. 88(8):76-84.
SJR Impact Factor: 2.59, UT Tyler Journal List: A+
- (3) Schumaker, R. and Reganti, R., (2014). Implementation of Electronic Health Record (EHR) System in the Healthcare Industry. *International Journal of Privacy and Health Information Management*. 2(2):57-71.
- (4) Grenier, E., Fair, C. and Schumaker, R., (2014). Social Media – Is it a Valid Source for Creating New Business? *Journal of Creative Communications*. 9(2):147-159.
- (5) Schumaker, R., (2013). Data Mining the Harness Track and Predicting Outcomes. *Journal of International Technology and Information Management*. 22(2):103-107.
- (6) Schumaker, R., (2013). Machine Learning the Harness Track: Crowdsourcing and Varying Race History. *Decision Support Systems*, 54(3): 1370-1379.
SJR Impact Factor: 2.59, UT Tyler Journal List: A+
- (7) Schumaker, R., Zhang, Y., Huang, C., & Chen, H., (2012). Evaluating Sentiment in Financial News Articles. *Decision Support Systems*, 53(3): 458-464.
SJR Impact Factor: 2.59, UT Tyler Journal List: A+
- (8) Schumaker, R., (2011). From Data to Wisdom: The Progression of Computational Learning in Text Mining. *Communications of the International Information Management Association*, 11(1): 39-48.
- (9) Schumaker, R., (2010). Analyzing Parts of Speech and their Impact on Stock Price. *Communications of the International Information Management Association*, 10(3): 1-10.
- (10) Schumaker, R., & Chen, H., (2010). Interaction Analysis of the ALICE Chatterbot: A Two Study Investigation of Dialog and Domain Questioning. *IEEE Transactions on Systems, Man & Cybernetics Part A*, 40(1): 40-51.
SJR Impact Factor: 1.60, UT Tyler Journal List: A+
- (11) Schumaker, R., & Chen, H., (2010). A Discrete Stock Price Prediction Engine Based on Financial News. *IEEE Computer*, 43(1): 51-56.

- (12) Schumaker, R., Solieman, O., & Chen, H., (2009). Sports Knowledge Management and Data Mining. *Annual Review of Information Science and Technology*, 44.
SJR Impact Factor: 0.88, UT Tyler Journal List: A
- (13) Schumaker, R., & Chen, H., (2009). A Quantitative Stock Prediction System based on Financial News. *Information Processing and Management*, 45(5): 571-583.
SJR Impact Factor: 0.75, UT Tyler Journal List: A
- (14) Schumaker, R., & Chen, H., (2009). Textual Analysis of Stock Market Prediction Using Breaking Financial News: The AZFinText System. *Association for Computing Machinery Transactions on Information Systems*, 27(2).
SJR Impact Factor: 0.81, UT Tyler Journal List: A
- (15) Schumaker, R., & Johnson, J., (2008). An Investigation of SVM Regression to Predict Longshot Greyhound Races. *Communications of the International Information Management Association*, 8(2): 67-82.
- (16) Schumaker, R., & Chen, H., (2008). Evaluating a News-Aware Quantitative Trader: The Effects of Momentum and Contrarian Stock Selection Strategies. *Journal of the American Society for Information Science and Technology*, 59(2): 247-255.
SJR Impact Factor: 1.40, UT Tyler Journal List: A+
- (17) Schumaker, R., & Chen, H., (2007). Leveraging Question Answer Technology to Address Terrorism Inquiry. *Decision Support Systems*, 43(4): 1419-1430.
SJR Impact Factor: 2.59, UT Tyler Journal List: A+
- (18) Schumaker, R., Liu, Y., Ginsburg, M., & Chen, H., (2007). Evaluating the Efficacy of a Terrorism Question Answer System: The TARA Project. *Communications of the ACM*, 50(7): 74-80. SJR Impact Factor: 1.82, UT Tyler Journal List: A+
- (19) Schumaker, R., Ginsburg, M., Chen, H., & Liu, Y., (2007). An Evaluation of the Chat and Knowledge Delivery Components of a Low-Level Dialog System: The AZ-ALICE Experiment. *Decision Support Systems*, 42(4): 2236-2246.
SJR Impact Factor: 2.59, UT Tyler Journal List: A+
- (20) Schumaker, R., Liu, Y., Ginsburg, M., & Chen, H., (2006). Evaluating Mass Knowledge Acquisition using the ALICE Chatterbot. *International Journal of Human-Computer Studies*, 64(11): 1132-1140.
SJR Impact Factor: 0.90, UT Tyler Journal List: A

Papers Under Review

- (1) Schumaker, R., Machine Learning the Harness Track: A Temporal Investigation of Race History on Prediction. *Journal of Information Technology and Information Management*.
- (2) Veronin, M., Schumaker, R., Dixit, R., Dhake, P., Mason, D. and Ogwo, M., A Systematic Process to Cleaning of Drug Name Records Data in the FAERS Database. *Methods of Information in Medicine*.
- (3) Schumaker, R., and Maida, N., Analysis of Stock Price Movement Following Financial News Article Release. *Decision Support Systems*.

Conference Proceedings

- (1) Schumaker, R., Veronin, M., Dixit, R., Dhake, P. and Mason, D., (2017). Calculating a Severity Score of an Adverse Drug Event Using Machine Learning on the FAERS Database. *28th Annual Conference of the International Information Management Association (IIMA-2017)*. September 2017. Glasgow, Scotland
- (2) Spillman, J., Bustamante, G., Hopkins, T. and Schumaker, R., (2016). Predicting the Outcomes of the 2016 NCAA March Madness Men's Tournament Brackets: A Study of Fan Twitter Sentiment. *27th Annual Conference of the International Information Management Association (IIMA-2016)*, September 2016. Taipei, Taiwan
- (3) Lopez, H., Perkins, M., Odin, K., Webb, D. and Schumaker, R., (2016). Prediction from Fanbase Opinions: A Study of the League of Legends Community on Twitter. *27th Annual Conference of the International Information Management Association (IIMA-2016)*, September 2016. Taipei, Taiwan
- (4) Nail, M., Ugone, C., King, C., Schumaker, R. and Conn, M.E., (2016). Predicting Opening Weekend Box Office Success: Using Social Media Sentiment and YouTube Data. *27th Annual Conference of the International Information Management Association (IIMA-2016)*, September 2016. Taipei, Taiwan
- (5) Maida, N. and Schumaker, R., (2015). Press Release Engineering- Managing Stock Price through Press Release Manipulation. *26th Annual Conference of the International Information Management Association (IIMA-2015)*, October 2015. Chattanooga, TN
- (6) Labeledz Jr., C., Schumaker, R., Jarmoszko, A.T. and Freeman, D., (2015). Two Subsystems of Eleven Elements: System Dynamics and Other Approaches in Modeling Association Football. *International Conference of the Systems Dynamics Society*, July 2015. Cambridge, MA
- (7) Schumaker, R., (2010). Analyzing Parts of Speech and their Impact on Stock Price. *21st Annual Conference of the International Information Management Association (IIMA-2010)*, October 2010. Utrecht, Netherlands
- (8) Schumaker, R., (2010). An Analysis of Verbs in Financial News Articles and their Impact on Stock Price. *NAACL Workshop on Social Media (#Social Media-2010)*, June 2010. Los Angeles, CA
- (9) Schumaker, R., & Chen, H., (2006). Textual Analysis of Stock Market Prediction Using Financial News Articles. *Americas Conference on Information Systems (AMCIS-2006)*, Aug 2006. Acapulco, Mexico
- (10) McDonald, D., Chen, H., & Schumaker, R., (2005). Transforming Open-Source Documents to Terror Networks: The Arizona TerrorNet. *American Association for Artificial Intelligence Conference Spring Symposia (AAAI-2005)*, March 2005. Stanford, CA
- (11) Reid, E., Qin, J., Chung, W., Xu, J., Zhou, Y., Schumaker, R., Sageman, M., & Chen, H., (2004). Terrorism Knowledge Discovery Project: A Knowledge Discovery Approach to Addressing the Threats of Terrorism. *IEEE International Conference on Intelligence and Security Informatics (ISI-2004)*, June 2004. Tucson, AZ

Conference Presentations

- (1) Schumaker, R., Brown, L., Labeledz Jr., C. and Jarmoszko, A.T., (2017). Using Financial Analysis Techniques on Twitter Sentiment to Improve NFL Predictions. *Discourse Approaches to Financial Communication (DAFC-2017)*, July 2017. Lugano, Switzerland
- (2) Genest, D., Daley, A. and Schumaker, R., (2013). Teachers vs Students – Investigating Middle School Students and their Teachers’ Technical Abilities. *24th Annual Conference of the International Information Management Association (IIMA-2013)*, October 2013. New Rochelle, NY
- (3) Fields, A., Shorthouse, A. and Schumaker, R., (2013). Everything has its Price: Privacy Concerns and Rewards for using Mobile Location. *24th Annual Conference of the International Information Management Association (IIMA-2013)*, October 2013. New Rochelle, NY
- (4) Gagnon, J., Gray, S., Khalaf, L. and Schumaker, R., (2013). How Universities Can Use Social Media as an Informational Tool. *24th Annual Conference of the International Information Management Association (IIMA-2013)*, October 2013. New Rochelle, NY
- (5) Schumaker, R., (2011). From Data to Wisdom: The Progression of Computational Learning in Text Mining. *22nd Annual Conference of the International Information Management Association (IIMA-2011)*, October 2011. New Orleans, LA
- (6) Schumaker, R., (2011). Using SVM Regression to Predict Harness Races: A One Year Study on Northfield Park. *Midwest Decision Sciences Institute Conference (Midwest DSI)*, May 2011. Indianapolis, IN
- (7) Schumaker, R., Zhang, Y., & Huang, C., (2009). Sentiment Analysis of Financial News Articles. *20th Annual Conference of the International Information Management Association (IIMA-2009)*, October 2009. Houston, TX
- (8) Schumaker, R., (2009). Analyzing Representational Schemes of Financial News Articles. *The Third China Summer Workshop on Information Systems (CSWIM-2009)*, June 2009. Guangzhou, China
- (9) Schumaker, R., & Johnson, J., (2008). An Investigation of SVM Regression to Predict Longshot Greyhound Races. *19th Annual Conference of the International Information Management Association (IIMA-2008)*, October 2008. San Diego, CA

Books

- (1) Schumaker, R., Solieman, O., & Chen, H., (2010). Sports Data Mining: Uncovering New Knowledge and Performance Measures, New York: Springer

Book Chapters

- (1) Schumaker, R., & Chen H., (2011). "Predicting Stock Price Movement from Financial News Articles," in Yap, Alex, IS for Global Financial Markets, pp 96-128 New York: IGI Global
- (2) Schumaker, R., & Chen, H., (2006). "Case Study 17: A Dialog System for Terrorism Resources," in Chen, Hsinchun, Intelligence and Security Informatics for International Security: Information Sharing and Data Mining, pp 136-139 New York: Springer

Posters and Demonstrations

- (1) Mason, D., Schumaker, R., Veronin, M., Dixit, R., Dhake, P., Elath, H. and Scoggins, A., Standardizing the FDA Adverse Reporting System (FAERS) Database. *52nd National Collegiate Honors Council Annual Conference (NCHC-2017)*. November 2017. Atlanta, GA
- (2) Jarmoszko, A. T., Labeledz Jr., C. and Schumaker, R., Toward a Model of Collective Intelligence of Sporting Teams: Examining Data from the 2014 Soccer World Cup. *Collective Intelligence Conference*, June 2016. New York, NY
- (3) Schumaker, R., Jarmoszko, A. T., Labeledz Jr., C. and Freeman, D., (2015). Predicting Premier League Soccer Using Sentiment Analysis of Twitter. *MIT Sloan Sports Analytics Conference*, February 2015. Boston, MA
- (4) Schumaker, R., Chen, H., Wang, T., & Wilkerson, J., (2005). Terror Tracker System: A Web Portal for Terrorism Research. *Joint Conference on Digital Libraries (JCDL-2005)*, June 2005. Denver, CO
- (5) Schumaker, R., & Chen, H., (2005) Question Answer TARA: A Terrorism Activity Resource Application. *IEEE International Conference on Intelligence and Security Informatics (ISI-2005)*, May 2005. Atlanta, GA

Working Papers

- (1) Schumaker, R., Veronin, M. and Dixit, R., Machine Learning the FAERS Database to Predict Unknown Deadly Drug Combinations. *ACM Transactions on Information Systems*.
- (2) Schumaker, R., Veronin, M. and Dixit, R., An Automatic System to Identify Adverse Drug Reaction Severity for n-Drug Combinations. *Data Mining and Knowledge Discovery*.
- (3) Schumaker, R., Veronin, M. and Dixit, R., Predicting Adverse n-Drug Reactions in Cardiovascular Events: A Machine Learning Investigation of the FDA FAERS Database. *Journal of Biomedical Informatics*.
- (4) Labeledz Jr., J. and Schumaker, R., RXIM: The “Right Eleven” Roster Model of Association Football. *International Conference of the System Dynamics Society*.
- (5) Schumaker, R., Labeledz Jr., C. and Jarmoszko, A. T., Factors of Soccer Success: An Analysis of World Cup 2014 Goals. *TBD*.
- (6) Labeledz Jr., C. and Schumaker, R., Role of Contingency Analysis in Tactical Team Structure and Competition in Soccer. *TBD*.

THESIS & DISSERTATION ADVISING

- (1) Maida, N., (2015). Press Release Engineering: Leveraging the Power of Press Releases to Manage Stock Price. *Central Connecticut State University Honors Thesis*.

GRANTS: FUNDED, PROPOSED AND UNDER REVIEW

- (1) Sanofi Innovation iAwards, “A Machine Learning Approach to Predict Cardiac-Related Adverse Drug Reactions of Multiple Prescriptions Using the FAERS Database,” 2017, \$125,000. *Declined.*
- (2) Texas Advanced Computing Center (TACC), “TylerADE and Prescription Drug Safety,” 2017, Stampede Supercomputer Access – 150,000 node hours. *Funded.*
- (3) Amazon Web Services Educate, “COSC 4309 – Design of MIS course,” 2017, \$75. *Funded.*
- (4) American Heart Association AIREA Grant, “A Machine Learning Approach to Predict Cardiac-Related Adverse Drug Reactions of Multiple Prescriptions Using the FAERS Database,” 2017, \$153,917. *Declined.*
- (5) AP Healthcare Research Grant, “Calculating a Severity Score of an Adverse Drug Reaction Using SVR on the FAERS Database,” 2017, \$10,000. *Declined.*
- (6) Texas Advanced Computing Center (TACC), “Sentiment Content Analysis of Media,” 2015, Wrangler Supercomputer Access – 1,000 node hours and 100GB storage. *Funded.*
- (7) IBM BlueMix Academic Initiative for Cloud, 2015, IBM BlueMix Cloud Access. *Funded.*
- (8) Microsoft Azure Educator Grant Award, “COSC 4309 – Design of MIS course,” 2015, \$18,000. *Funded.*
- (9) CCSU AAUP, “Sentiment Analysis of Twitter on English Premier League Soccer,” 2014, \$4,530. *Declined.*
- (10) CCSU AAUP, “Central’s Financial Sentiment Project,” 2013, \$9,253. *Declined.*
- (11) CCSU AAUP, “Sentiment Analysis of Twitter on English Premier League Soccer” 2013, \$4,530. *Declined.*
- (12) CELTIC Excellence in Teaching Awards, “Exploring the Link between Internet Applications and Robotics,” 2009, \$1,500. *Funded.*
- (13) Price Waterhouse Coopers Inquires, “Leveraging XBRL for Continuous Auditing,” 2007, \$152,838. *Declined.*
- (14) National Science Foundation – The National Science Digital Library, “Knowledge Creation and Integration for NSDL: Learning Support for Digital Libraries,” 2005, \$499,865. *Declined.*

NOTABLE PUBLICITY AND INTERVIEWS

- (1) Levine, S., (Sept 27, 2017). AI is Getting a Tryout in Pro Sports. *Axios*. Retrieved Sept 27, 2017 from <https://www.axios.com/ai-is-getting-a-tryout-in-pro-sports-2488893312.html>
- (2) Buchanan, H., (May 2, 2017). The University of Texas at Tyler Conducts Innovative Research with Advanced Data Analytics Lab. *UT Tyler Office of Marketing and Communications*. Retrieved Oct 2, 2017 from <http://www.uttyler.edu/news/pressrelease/2017/04022017.php>

- (3) Howarth, M., (Sept 4, 2016). Profs Get in Fluff Over Twitter Betting Result. *Daily Star*.
- (4) Delfosse, A., (2014). La Data Revolution. *L'Equipe Explore*. Retrieved Feb 12, 2015 from <http://www.lequipe.fr/explore/la-data-revolution>
- (5) Anonymous, (2014). Phi Taus Under 40: More than Just an Award. *The Laurel of Phi Kappa Tau*. 101(2):20-21.
- (6) Anonymous, (Oct 9, 2014). 'Compute-2014' Begins Today. *The Times of India*. Retrieved Oct 17, 2014 from <http://timesofindia.indiatimes.com/city/nagpur/Compute-2014-begins-today/articleshow/44725071.cms>
- (7) Jeric, S., (June 14, 2012). Podatkovno Rudarjenje v Sportu (Data Mining in Sport). *RTV Slovenia Radio Broadcast*. Retrieved June 16, 2012 from <http://tvslo.si/predvajaj/podatkovno-rudarjenje-v-sportu-prof-rob-schumaker/ava2.138840428/>
- (8) Anonymous, (Nov 1, 2011). Measuring Social Networks for Real-Time Competitive Advantage. *Singapore Management University*. Retrieved January 23, 2015 from <http://www.smu.edu.sg/perspectives/2012/06/26/measuring-social-networks-real-time-competitive-advantage>
- (9) Brown, J. (2010). The Verbs that Move Stocks. *The Faster Times*. Retrieved July 18, 2012 from <http://www.thefastertimes.com/wallstreet/2010/06/12/the-verbs-that-move-stocks/>
- (10) Ogrinz, M., (2010). Stock Picker Shows the Potential of Leading Indicator Pattern. *Mashup Patterns: Designs and Strategies for using Mashups in Enterprise Environments*. Retrieved January 23, 2015 from <http://mashuppatterns.com/2010/06/stock-picker-shows-the-potential-of-leading-indicator-pattern/>
- (11) Ingebretsen, M., (2010). AI on the Team Bench. *IEEE Intelligent Systems* 25(6):10-11
- (12) Rosenberger, J., (2010). Computer Scientists Beat U.S. Stock Market. *Communications of the ACM*. 53(8):20
- (13) Pireu, M., (2010). StreetDogs: Who Says You Cannot Beat the Markets by Reading the News? *Business Day*. Retrieved August 5, 2010 from <http://www.businessday.co.za/articles/Content.aspx?id=117141>
- (14) Pangburn, J., (2010). Using Artificial Intelligence to Predict Short-term Stock Market Performance. *Inside Tucson Business*. Retrieved July 2, 2010 from <http://www.azbiz.com/articles/2010/07/02/news/doc4c2cedf634290474040635.txt>
- (15) Valentino-DeVries, J., (2010). Using Artificial Intelligence to Digest News, Trade Stocks. *Wall Street Journal*. Retrieved June 21, 2010 from <http://blogs.wsj.com/digits/2010/06/21/using-artificial-intelligence-to-digest-financial-news/>
- (16) Aronson, D., (2010). Algos Better than Mere Humans. *Daily Speculations*. Retrieved June 13, 2010 from <http://www.dailyspeculations.com/wordpress/?p=4883>
- (17) Rowley, B., (2010). US Plays Brilliant Match, Stocks Repairing. *T3 Live*. Retrieved June 13, 2010 from <http://blog.t3live.com/2010/06/us-plays-brilliant-match-stocks.html>

- (18) Anonymous, (2010). Quant AI Picks Stocks Better than Humans. *Slashdot*. Retrieved June 12, 2010 from <http://tech.slashdot.org/story/10/06/12/1341212/Quant-AI-Picks-Stocks-Better-Than-Humans>
- (19) Brown, J., (2010). The Most Stock-Moving Verbs. *The Reformed Broker*. Retrieved June 12, 2010 from <http://www.thereformedbroker.com/2010/06/12/the-most-stock-moving-verbs/>
- (20) Anonymous, (2010). AI Stocks Outperformed Professional Traders. *Solidot*. Retrieved June 12, 2010 from <http://science.solidot.org/article.pl?sid=10/06/12/0851223&from=rss>
- (21) Anonymous, (2010). Strangest Mechanical System. *The Motley Fool*. Retrieved June 11, 2010 from <http://boards.fool.com/Message.asp?mid=28567980&sort=postdate>
- (22) Elfenbein, E., (2010). Another Defeat for Humans. *Crossing Wall Street*. Retrieved June 10, 2010 from http://www.crossingwallstreet.com/archives/2010/06/another_defeat_1.html
- (23) Byrne, M., (2010). Beating the Market with Artificial Intelligence. *Motherboard TV*. Retrieved June 10, 2010 from <http://www.motherboard.tv/2010/6/10/beating-the-market-with-artificial-intelligence--2>
- (24) WBIR, (2010). AI that Picks Stocks Better than the Pros. *WBIR-TV Channel 10 Knoxville, TN*, Retrieved June 10, 2010 from <http://sec.wbir.com/article/04qZ54Ac87eF1?q=Yahoo!>
- (25) Mims, C., (2010). AI that Picks Stocks Better than the Pros. *MIT's Technology Review*, Retrieved June 10, 2010 from <http://www.technologyreview.com/blog/guest/25308/>
- (26) Subsin, N., (2009). Algorithmic and Trading Products Newsletter. *Dow Jones Newswire*, Retrieved November 24, 2010 from http://solutions.dowjones.com/nl/pal/pdfs/DJ_Alpha_Print-May09.pdf
- (27) Ingebretsen, M., (2009). Intelligent Handicapping. *IEEE Intelligent Systems*, 24(2):6-7

KEYNOTE ADDRESS INVITATIONS

- (1) “Predicting Wins and Spread in the Premier League Using a Sentiment Analysis of Twitter,” *ABES Engineering College*, Ghaziabad, India, TBD.
- (2) Invitation to *IEEE International Conference on Advances in Big Data, Computing and Data Communication Systems (IABCD-2018)*, Durban, South Africa, August 6-7, 2018.
- (3) Invitation to World Congress of Biomedical Engineering, Xian, China, November 9-11, 2017. *Declined*.
- (4) Invitation to 4th International Conference on Big Data Analysis and Data Mining, Paris, France, September 7-8, 2017. *Declined*.
- (5) “Predicting Wins and Losses in Team Sports – Approaches and Examples,” *11th International Symposium on Computer Science in Sport (IACSS-2017)*, Konstanz, Germany, September 7, 2017.

- (6) Invitation to ACM India Student Chapters Technology Festival, BITS-Pilani, IIT-Roorkee and Chitkara University, India, March 23-27, 2017. *Declined.*
- (7) Invitation to 3rd International Conference on Big Data Analysis and Data Mining, London, UK, September 26-27, 2016. *Declined.*
- (8) Invitation to 2016 International Conference on Mechanical, Electronic and Information Technology (MEIT 2016), Phuket, Thailand, August 28-29, 2016. *Declined.*
- (9) Invitation to 2nd International Conference on Big Data Analysis and Data Mining, San Antonio, TX, November 30 - December 2, 2015. *Declined.*
- (10) “Evaluating Sentiment in Financial News Articles,” *ACM Compute (Compute-2014)*, Nagpur, India, October 9, 2014.
- (11) Invitation to Global Congress of Knowledge Economy (GCKE 2014), Qingdao, China, September 21-23, 2014. *Declined.*
- (12) “Evaluating Sentiment in Financial News Articles,” *Discourse Approaches to Financial Communication (DAFC-2014)*, Ascona, Switzerland, February 6, 2014.
- (13) “Financial Text Analysis: The Past, Present and Future,” *Discourse Approaches to Financial Communication (DAFC-2014)*, Ascona, Switzerland, February 4, 2014.
- (14) Invitation to 2nd International Conference on Information Technology (ICIT 2014), Dubai, UAE, January 14-16, 2014. *Declined.*

PANEL INVITATIONS

- (1) “What Effect Does a Financial News Article Have on Stock Price,” in *The Language of Numbers: Understanding Financial Communication from an Applied Linguistics Perspective, The 18th World Congress of Applied Linguistics (AILA-2017)*, Rio de Janeiro, Brazil, July 23-28, 2017.

SEMINARS, INVITED TALKS AND PRESENTATIONS

- (1) “Prediction from Regional Angst - A Study of NFL Sentiment in Twitter Using Stock Market Charting,” *ACM Student Chapter – University of Texas at Tyler*, Tyler, TX, November 17, 2016
- (2) “Sentiment Analysis of Twitter on English Premier League Soccer Games,” *University of Texas at Tyler*, Tyler, TX, May 21, 2015
- (3) “Sentiment Analysis of Twitter on English Premier League Soccer Games,” *Wesleyan University’s Digital and Computational Knowledge Initiative*, Middletown, CT, April 24, 2015
- (4) “Evaluating Sentiment in Financial News Articles,” *Greater Hartford ACM Chapter*, Hartford, CT, February 26, 2014
- (5) “Machine Learning the Harness Track: Crowdsourcing and Varying Race History,” *SUNY Fredonia*, Fredonia, NY, Mar. 26, 2012
- (6) “Business Intelligence,” *Central Connecticut State University*, New Britain, CT, Mar. 14, 2012

- (7) “Machine Learning the Harness Track: Crowdsourcing and Varying Race History,” *Central Connecticut State University*, New Britain, CT, Mar. 14, 2012
- (8) “Machine Learning the Harness Track: Crowdsourcing and Varying Race History,” *East Tennessee State University*, Johnson City, TN, Feb. 20, 2012
- (9) “IT Strategy: Tools and Techniques for Successful Global Deployment,” *Indiana State University East*, Richmond, IN, Feb. 17, 2012
- (10) “Machine Learning the Harness Track - The Complete Effect of Race History on Prediction,” *Eastern Connecticut State University*, Willimantic, CT, Dec. 12, 2011
- (11) “Creating a Multi-table Query in MS Access,” *Eastern Connecticut State University*, Willimantic, CT, Dec. 12, 2011
- (12) “From Data to Wisdom: The Progression of Computational Learning in Text Mining,” *22nd Annual Conference of the International Information Management Association (IIMA-2011)*, New Orleans, LA, Oct. 11, 2011
- (13) “Machine Learning the Harness Track: Crowdsourcing and Varying Race History,” *Research Presentation – Cleveland State University*, Cleveland, OH, Sept. 19, 2011
- (14) “Using SVM Regression to Predict Harness Races: A One Year Study on Northfield Park,” *Midwest Decision Sciences Institute Conference (Midwest DSI)*, Indianapolis, IN, May 14, 2011
- (15) “Applying Machine Learning to Exotic Wagers at the Harness Track,” *ACM Student Chapter at Cleveland State University*, Cleveland, OH, Apr. 14, 2011
- (16) “Applying Machine Learning to Exotic Wagers at the Harness Track,” *University of Illinois - Springfield*, Springfield, IL, Feb. 10, 2011
- (17) “Applying Machine Learning to Exotic Wagers at the Harness Track,” *Oregon State University*, Corvallis, OR, Feb. 1, 2011
- (18) “Using SVM Regression to Predict Harness Races: A One Year Study on Northfield Park,” *Northeast Ohio Artificial Intelligence Group*, Cleveland, OH, Nov. 13, 2010
- (19) “Using SVM Regression to Predict Harness Races: A One Year Study on Northfield Park,” *ACM Student Chapter at Cleveland State University*, Cleveland, OH, Oct. 27, 2010
- (20) “Computer Security,” *USF St. Petersburg*, St. Petersburg, FL, May 27, 2010
- (21) “Evaluating Sentiment in Financial News Articles,” *USF St. Petersburg*, St. Petersburg, FL, May 27, 2010
- (22) “An Investigation of SVM Regression to Predict Longshot Greyhound Races,” *Minot State University*, Minot, ND, Apr. 15, 2010
- (23) “Artificial Intelligence,” *Minot State University*, Minot, ND, Apr. 14, 2010
- (24) “Evaluating Sentiment in Financial News Articles,” *Cleveland State University*, Cleveland, OH, Apr. 1, 2010

- (25) “An Investigation of SVM Regression to Predict Longshot Greyhound Races,” *Augsburg College*, Minneapolis MN, Mar. 12, 2010
- (26) “Evaluating Sentiment in Financial News Articles,” *International Information Management Association Conference (IIMA-2009)*, Houston, TX, Oct. 13, 2009
- (27) “Analyzing Representational Schemes of Financial News Articles,” *The Third China Summer Workshop on Information Systems (CSWIM-2009)*, Guangzhou China, June 27, 2009
- (28) “An Investigation of SVM Regression to Predict Longshot Greyhound Races,” *International Information Management Association Conference (IIMA-2008)*, San Diego CA, Oct. 13, 2008
- (29) “Sports Knowledge Management and Data Mining,” *Information Systems Dept. Research Seminar*, New Rochelle NY, Mar. 25, 2008
- (30) “Using SVM Regression to Predict Greyhound Races,” *Information Systems Dept. Research Seminar*, New Rochelle NY, Oct. 22, 2007
- (31) “Textual Analysis of Stock Market Prediction Using Financial News Articles,” *SAS 10th Annual Data Mining Conference*, Las Vegas NV, Oct. 2, 2007
- (32) “Knowledge Acquisition, Delivery and Prediction through Text Mining,” *Graduate College – Final Defense*, Tucson AZ, Apr. 19, 2007
- (33) “Evaluating a News-Aware Quantitative Trader: The Effect of Momentum and Contrarian Stock Selection Strategies,” *Iona College*, New Rochelle NY, Apr. 13, 2007
- (34) “Using SVM Regression to Predict Greyhound Races,” *Artificial Intelligence Lab – PhD Seminar*, Tucson AZ, Mar. 30, 2007
- (35) “Evaluating a News-Aware Quantitative Trader: The Effects of Momentum and Contrarian Stock Selection Strategies,” *Artificial Intelligence Lab – PhD Seminar*, Tucson AZ, Feb. 16, 2007
- (36) “Stock Prediction with Financial News Articles: The Effect of Industry Classification,” *MIS Dept. Brown Bag Lecture Series*, Tucson AZ, Sept. 1, 2006
- (37) “Stock Prediction with Financial News Articles: The Effect of Industry Classification,” *Artificial Intelligence Lab – PhD Seminar*, Tucson AZ, Aug. 18, 2006
- (38) “Textual Analysis of Stock Market Prediction Using Financial News Articles,” *Americas Conference on Information Systems (AMCIS-2006)*, Acapulco Mexico, Aug. 4, 2006
- (39) “Knowledge Acquisition, Delivery and Prediction through Text Mining,” *Graduate College – Oral Examination*, Tucson AZ, May 10, 2006
- (40) “Knowledge Acquisition, Delivery and Prediction through Text Mining,” *Artificial Intelligence Lab – PhD Seminar*, Tucson AZ, Apr. 28, 2006
- (41) “Textual Analysis of Stock Market Prediction Using Breaking Financial News,” *Artificial Intelligence Lab – PhD Seminar*, Tucson AZ, Nov. 4, 2005
- (42) “Interaction Analysis of the ALICE Chatterbot,” *MIS Department – Written Prelim*, Tucson AZ, Oct. 6, 2005

- (43) “Textual Analysis of Stock Market Prediction Using Breaking Financial News,” *Artificial Intelligence Lab – PhD Seminar*, Tucson AZ, July 1, 2005
- (44) “Evaluating the Efficacy of a Terrorism Question Answer System: The TARA Project,” *Artificial Intelligence Lab – PhD Seminar*, Tucson AZ, Sept. 17, 2004
- (45) “Evaluating Mass Knowledge Acquisition using the ALICE Chatterbot,” *Artificial Intelligence Lab – PhD Seminar*, Tucson AZ, Jan. 23, 2004

EXPERT WITNESS AND TESTIMONIES

- (1) Askeladden LLC v. Fred Herz Patents, LLC (2016). *Declined*.

EDITORIAL BOARDS, EDITORSHIPS AND JOURNAL MINUTIAE

Communications of the International Information Management Association

Editor, 2010 – 2015

Guest Editor, 2009 – 2010

Decision Support Systems

Associate Editor, 2014 – Present

Information Systems for Global Financial Markets (book)

Editorial Board Member, 2010 – 2012

Journal Reviewer

- *ACM Transactions on Computer-Human Interaction*
- *ACM Transactions on Information Systems*
- *ACM Transactions on Management Information Systems*
- *Advances in Artificial Neural Systems*
- *Algorithmic Finance*
- *Communications of the ACM*
- *Computer Science and Information Systems*
- *Decision Support Systems*
- *Egyptian Informatics Journal*
- *European Sport Management Quarterly*
- *IEEE Intelligent Systems*
- *IEEE Transactions on Knowledge and Data Engineering*
- *IEEE Transactions on Systems, Man & Cybernetics, Part A*
- *Information and Management*
- *Information Systems Frontiers*
- *International Journal of Agricultural Science Research*
- *International Journal of Business Continuity and Risk Management*
- *International Journal of Production Research*
- *Information Systems Research*
- *Journal of the American Society for Information Science and Technology*
- *Journal of the Brazilian Computer Society*

- *Journal of Economics and International Finance*
- *Journal of Electronic Commerce Research*
- *Journal of Physical Education and Sport Management*
- *MISQ*
- *Pacific Asia Journal of AIS*
- *Perceptual and Motor Skills*
- *Sky Journal of Business Administration*

GRANT BOARDS AND MINUTIAE

Israel Science Foundation

Reviewer, 2013

National Science Foundation (NSF)

Reviewer, 2007

CONFERENCE BOARDS, CHAIRS AND MINUTIAE

Discourse Analysis for Financial Communications

Scientific Committee, 2016–2017

IEEE International Conference on Intelligence and Security Informatics

Program Committee, 2013

International Information Management Association

Past President, Sept 2017 - Present

President, Sept 2016 – Sept 2017

President-Elect, Sept 2015 – Sept 2016

Program Chair, Oct 2014 – Sept 2015

Executive Committee Member, 2010 – Present

Track Chair, 2010, 2011, 2013, 2016

Joint Intelligence and Security Informatics Conference

Program Committee, 2014

Midwest Decision Sciences Institute

Program Committee, 2011

Track Chair, 2011

Pacific Asia Conference on Information Systems

Program Committee for Business Intelligence, 2018

Workshop on Social Media and Computational Linguistics

Program Committee, 2010

Conference Reviewer

- *#SocialMedia – NAACL Workshop on Social Media, 2010*
- *AAAI – American Association for Artificial Intelligence, 2005*
- *AMCIS – Americas Conference on Information Systems, 2006, 2014*
- *BPM – Business Process Management, 2010, 2012*

- *CIKM – Conference on Information Knowledge and Management, 2006*
- *DAFC – Discourse Approaches to Financial Communication, 2014, 2017*
- *DELOS – Workshop on User Interfaces in Digital Libraries, 2005*
- *DESRIST – International Conference on Design Science, 2006*
- *DGO – International Conference on Digital Government Research, 2006*
- *ECDL – European Conf. on Research & Advanced Technology for Digital Libraries, 2007*
- *HICSS – Hawaii International Conference on System Sciences, 2013*
- *ICADL – International Conference of Asian Digital Libraries, 2005, 2006*
- *ICCCS – International Conference on Computer and Computational Sciences, 2015*
- *ICEB – International Conference on Electronic Business, 2010*
- *ICIS – International Conference on Information Systems, 2006, 2011 – 2013, 2016*
- *IIMA – International Information Management Association, 2008 – 2010*
- *ISI – IEEE International Conference on Intelligence and Security Informatics, 2005, 2006, 2013*
- *JCDL – Joint Conference on Digital Libraries, 2005*
- *PSB – Pacific Symposium on BioComputing, 2006*
- *SISC – San Diego International Systems Conference, 2005*
- *WeB – Workshop on e-Business, 2005, 2011*
- *WISI – Workshop on Security and Intelligence Informatics, 2006*
- *WSA – Workshop on Sciences of the Artificial, 2005*

MEMBERSHIP IN PROFESSIONAL SOCIETIES

American Heart Association / American Stroke Association (AHA/ASA)

America’s SAP Users Group (ASUG)

Association for Computer Machinery (ACM), Senior Member

Association for Information Systems (AIS)

Institute of Electrical and Electronics Engineers (IEEE), Senior Member

International Information Management Association (IIMA), Fellow

Society of Sports Knowledge Engineering (SSKE)

TEACHING EXPERIENCE ($\mu = 4.21$, $\sigma = 0.48$, $n = 116$)

Scale: Excellent (5.0), Above Average (4.0), Average (3.0), Below Average (2.0), Failing (1.0)

Business Information Systems ($\mu = 4.19$ on a 5.0 scale, $\sigma = 0.44$, $n = 38$)

Central Connecticut State University ($\mu = 4.49$, $\sigma = 0.38$, $n = 13$)

MIS 201-1	Spring 2015	Teacher Rating of 4.87 on a 5.0 scale
MIS 201-6	Spring 2015	Teacher Rating of 4.73 on a 5.0 scale
MIS 201-C01	Winter 2015	No Results (no evaluation)
MIS 201-6	Fall 2014	Teacher Rating of 4.80 on a 5.0 scale
MIS 201-F38	Fall 2014	Teacher Rating of 4.79 on a 5.0 scale
MIS 201-5	Spring 2014	Teacher Rating of 4.60 on a 5.0 scale
MIS 201-2	Spring 2014	Teacher Rating of 4.63 on a 5.0 scale
MIS 201-1	Fall 2013	Teacher Rating of 4.31 on a 5.0 scale
MIS 201-2	Fall 2013	Teacher Rating of 4.53 on a 5.0 scale
MIS 201-1	Summer 2013	Teacher Rating of 4.80 on a 5.0 scale
MIS 201-3	Spring 2013	Teacher Rating of 3.67 on a 5.0 scale
MIS 201-2	Fall 2012	Teacher Rating of 3.89 on a 5.0 scale
MIS 201-70	Fall 2012	Teacher Rating of 4.33 on a 5.0 scale

Cleveland State University ($\mu = 4.32, \sigma = 0.45, n = 4$)

IST 305-1	Spring 2011	Teacher Rating of 4.74 on a 5.0 scale
IST 305-502	Spring 2011	Teacher Rating of 4.27 on a 5.0 scale
IST 305-1	Fall 2010	Teacher Rating of 4.54 on a 5.0 scale
IST 305-2	Fall 2010	Teacher Rating of 3.71 on a 5.0 scale

Iona College ($\mu = 4.01, \sigma = 0.30, n = 19$)

BUS 150B	Fall 2009	Teacher Rating of 4.38 on a 5.0 scale
BUS 150C	Fall 2009	Teacher Rating of 3.75 on a 5.0 scale
BUS 150D	Fall 2009	Teacher Rating of 4.44 on a 5.0 scale
BUS 150F	Fall 2009	No Results (partial semester for a colleague)
BUS 150EA	Summer 2009	Teacher Rating of 3.75 on a 5.0 scale
MBA 580	Summer 2009	No Results (no evaluation mechanism)
BUS 150C	Spring 2009	Teacher Rating of 4.34 on a 5.0 scale
BUS 150D	Spring 2009	Teacher Rating of 4.25 on a 5.0 scale
BUS 150E	Spring 2009	Teacher Rating of 3.96 on a 5.0 scale
BUS 150C	Fall 2008	Teacher Rating of 3.63 on a 5.0 scale
BUS 150D	Fall 2008	Teacher Rating of 3.59 on a 5.0 scale
BUS 150EA	Summer 2008	Teacher Rating of 4.38 on a 5.0 scale
BUS 150EB	Summer 2008	Teacher Rating of 3.75 on a 5.0 scale
BUS 150C	Spring 2008	Teacher Rating of 3.91 on a 5.0 scale
BUS 150M	Spring 2008	Teacher Rating of 3.81 on a 5.0 scale
BUS 150D	Spring 2008	Teacher Rating of 4.03 on a 5.0 scale
BUS 150D	Fall 2007	Teacher Rating of 3.96 on a 5.0 scale
BUS 150E	Fall 2007	Teacher Rating of 3.75 on a 5.0 scale
BUS 150F	Fall 2007	Teacher Rating of 4.48 on a 5.0 scale

University of Arizona

MIS 304	Summer 2004	Teacher Rating of 4.20 on a 5.0 scale
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University of Akron

6500:310-080	Fall 2001	Teacher Rating of 3.07 on a 5.0 scale
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Business Intelligence ($\mu = 3.56$ on a 5.0 scale, $\sigma = 0.34, n = 4$)

University of Texas at Tyler

COSC 4347	Spring 2018	Scheduled
COSC 5347	Spring 2018	Scheduled
COSC 4390	Summer 2016	Teacher Rating of 3.80 on a 5.0 scale
COSC 5390	Summer 2016	Teacher Rating of 3.32 on a 5.0 scale

Capstone Project ($\mu = 3.74$ on a 5.0 scale, $\sigma = 0.65, n = 6$)

University of Texas at Tyler

COSC 4375	Spring 2018	Scheduled
COSC 4395	Spring 2018	Scheduled
COSC 4375	Spring 2017	Teacher Rating of 2.97 on a 5.0 scale
COSC 4395	Spring 2017	Teacher Rating of 3.54 on a 5.0 scale
COSC 4375	Spring 2016	Teacher Rating of 3.97 on a 5.0 scale
COSC 4395	Spring 2016	Teacher Rating of 4.50 on a 5.0 scale

Continuing Education

University of Akron

7677 Spring 2002 Teacher Rating of 4.20 on a 5.0 scale

Database

University of Texas at Tyler

COSC 3385 Spring 2018 Scheduled
COSC 3385 Spring 2017 Teacher Rating of 3.34 on a 5.0 scale

Cleveland State University

IST 331-50 Spring 2012 Teacher Rating of 4.07 on a 5.0 scale
IST 604-50 Spring 2012 Cross-taught with IST 331-50

Data Mining

Iona College

IS 685 Fall 2009 No Results (no evaluation)
IS 685 Fall 2008 Teacher Rating of 2.75 on a 5.0 scale

Design of Modern Information Systems ($\mu = 4.51$ on a 5.0 scale, $\sigma = 0.12$, $n = 3$)

University of Texas at Tyler

COSC 4309 Fall 2017 In Progress
COSC 4309 Fall 2016 Teacher Rating of 4.43 on a 5.0 scale
COSC 4309 Fall 2015 Teacher Rating of 4.59 on a 5.0 scale

eCommerce ($\mu = 4.37$ on a 5.0 scale, $\sigma = 0.40$, $n = 7$)

University of Texas at Tyler

COSC 3331 Fall 2017 In Progress
COSC 3331 Fall 2016 Teacher Rating of 4.75 on a 5.0 scale

Central Connecticut State University ($\mu = 4.29$, $\sigma = 0.40$, $n = 5$)

MIS 305-70 Fall 2014 Teacher Rating of 4.86 on a 5.0 scale
MIS 305-70 Spring 2014 Teacher Rating of 4.55 on a 5.0 scale
MIS 305-70 Fall 2013 Teacher Rating of 3.96 on a 5.0 scale
MIS 305-70 Spring 2013 Teacher Rating of 3.98 on a 5.0 scale
MIS 305-70 Fall 2012 Teacher Rating of 4.10 on a 5.0 scale

ERP Architecture

University of Texas at Tyler

COSC 4312 Fall 2017 In Progress
COSC 5334 Fall 2017 In Progress
COSC 4312 Fall 2016 Cross-taught with COSC 5334
COSC 5334 Fall 2016 Teacher Rating of 4.54 on a 5.0 scale

First Year Experience

Central Connecticut State University

FYE 101-F38 Fall 2014 Cross taught with MIS 201-F38

Independent Study

University of Texas at Tyler

COSC 4399	Fall 2017	In Progress
COSC 4399	Spring 2017	No Results (no evaluation)
COSC 4399	Fall 2016	No Results (taught for a colleague)
COSC 5399	Spring 2016	No Results (taught for a colleague)

Internet Applications in Business

Iona College

IS 355	Spring 2009	Teacher Rating of 4.69 on a 5.0 scale
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Managing the IT Value Proposition ($\mu = 4.38$ on a 5.0 scale, $\sigma = 0.61$, $n = 2$)

Central Connecticut State University

MIS 501	Spring 2015	Teacher Rating of 4.81 on a 5.0 scale
MIS 501	Spring 2013	Teacher Rating of 3.95 on a 5.0 scale

Microsoft Office ($\mu = 4.33$ on a 5.0 scale, $\sigma = 0.32$, $n = 25$)

Cleveland State University ($\mu = 4.32$, $\sigma = 0.38$, $n = 9$)

IST 203-300	Summer 2012	No Results (no evaluation)
IST 203-4	Spring 2012	Teacher Rating of 4.65 on a 5.0 scale
IST 203-5	Spring 2012	Teacher Rating of 4.59 on a 5.0 scale
IST 203-6	Spring 2012	Teacher Rating of 4.61 on a 5.0 scale
IST 203-4	Fall 2011	Teacher Rating of 4.47 on a 5.0 scale
IST 203-504	Fall 2011	Teacher Rating of 4.03 on a 5.0 scale
IST 203-1	Spring 2011	Teacher Rating of 4.62 on a 5.0 scale
IST 203-1	Fall 2010	Teacher Rating of 3.57 on a 5.0 scale
IST 203-4	Fall 2010	Teacher Rating of 4.53 on a 5.0 scale

University of Akron ($\mu = 4.31$, $\sigma = 0.29$, $n = 16$)

6200:250-007	Spring 2003	Teacher Rating of 3.91 on a 5.0 scale
6200:250-006	Spring 2003	Teacher Rating of 4.34 on a 5.0 scale
6200:250-005	Spring 2003	Teacher Rating of 3.59 on a 5.0 scale
6200:250-003	Spring 2003	Teacher Rating of 4.27 on a 5.0 scale
6200:250-008	Fall 2002	Teacher Rating of 4.50 on a 5.0 scale
6200:250-007	Fall 2002	Teacher Rating of 4.49 on a 5.0 scale
6200:250-003	Fall 2002	Teacher Rating of 4.27 on a 5.0 scale
6200:250-002	Fall 2002	Teacher Rating of 4.52 on a 5.0 scale
6200:250-488	Summer 2002	Teacher Rating of 4.60 on a 5.0 scale
6200:250-403	Summer 2002	Teacher Rating of 4.14 on a 5.0 scale
6200:250-002	Spring 2002	Teacher Rating of 4.22 on a 5.0 scale
6200:250-001	Spring 2002	Teacher Rating of 4.43 on a 5.0 scale
6200:250-007	Fall 2001	Teacher Rating of 4.03 on a 5.0 scale
6200:250-101	Summer 2001	Teacher Rating of 4.45 on a 5.0 scale
6200:250-008	Spring 2001	Teacher Rating of 4.54 on a 5.0 scale
6200:250-005	Fall 2000	Teacher Rating of 4.17 on a 5.0 scale

Network Construction

Iona College

IS 450	Summer 2008	No Results (no evaluation mechanism)
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Programming ($\mu = 4.66$ on a 5.0 scale, $\sigma = 0.15$, $n = 4$)

University of Texas at Tyler

COSC 3365 Fall 2016 No Results (partial semester for a colleague)

Cleveland State University

IST 410-50 Fall 2011 Teacher Rating of 4.76 on a 5.0 scale

CIS 500-50 Spring 2011 Cross-taught with CIS 260-1

CIS 260-1 Spring 2011 Teacher Rating of 4.55 on a 5.0 scale

Quantitative Investment

Iona College

IS 615 Summer 2009 No Results (not evaluated)

IS 615 Summer 2008 No Results (not evaluated)

Security

Cleveland State University

IST 736-1 Summer 2011 Teacher Rating of 3.06 on a 5.0 scale

Sports Data Analytics

University of Texas at Tyler

COSC 4342 Spring 2017 Teacher Rating of 3.97 on a 5.0 scale

Systems Analysis and Design

University of Texas at Tyler

COSC 3375 Fall 2015 Teacher Rating of 4.84 on a 5.0 scale

Telecommunications

University of Texas at Tyler

COSC 4325 Fall 2015 Teacher Rating of 4.50 on a 5.0 scale

Iona College

IS 991 Winter 2008 No Results (not evaluated)

IS 991 Winter 2007 No Results (not evaluated)

Writing and Research III: Honors Thesis

Central Connecticut State University

HON 441-21 Spring 2015 No Results (no evaluation mechanism)

CURRICULUM DEVELOPMENT

University of Texas at Tyler

Undergraduate

Business Intelligence and Analytics

Creating value from business data by converting it into meaningful and useful information for business decision making by using current industry business intelligence (BI) and business analytics (BA) tools and technologies.

ERP Architecture Using SAP

Solution architects, project managers, project team members and solution consultants who want to gain a broad fundamental understanding of the core processes, business interrelations and integration of the individual business applications within the SAP ERP eco-system.

Sports Data Analytics

Identifying the metrics, types of analyses and making sense of sports-related data from a managerial business perspective. Use of industry tools to gather, learn, make predictions and visualize large sports data sets.

Web Analytics and Application

Exploring key concepts and best practices of web analysis. Using web analytic tools and techniques to learn how web analytics can drive higher profits, improve customer service and create a measurable positive value for business.

Graduate

Business Intelligence and Analytics

Creating value from business data by converting it into meaningful and useful information for business decision making by using current industry business intelligence (BI) and business analytics (BA) tools and technologies.

ERP Architecture Using SAP

Solution architects, project managers, project team members and solution consultants who want to gain a broad fundamental understanding of the core processes, business interrelations and integration of the individual business applications within the SAP ERP eco-system.

Central Connecticut State University

Undergraduate

e-Business II

Emphasizes the business decisions of web design, development, testing implementation, and integration of business processes. Integrated development environments, the cloud, data access, security and social media will be covered.

Graduate

BI and Business Analytics

Transforming enterprise-wide data into meaningful and useful information for business decision making using business intelligence (BI) and business analytics (BA) tools and technologies. Examining industry use of BI/BA to achieve competitive edge.

Iona College

Undergraduate

Network Construction

A hands-on course where students are tasked with constructing a non-trivial computer network from the ground up. Theory is blended with practice and students will gain experience in network design, construction, troubleshooting and diagnostics.

Computer Security

With the ever increasing reliance on networked computer systems, properly securing those systems from physical, domestic and global threats becomes paramount. While systems in the industries of finance/banking, transportation, utilities and government services are high value targets, any compromised system can be used as a platform of attack. Threats to computer security can come from a myriad of vectors, including penetration testing, WiFi, DNS poisoning, DDOS, social engineering, using exploits and even cyber-warfare. This class will teach the student how to properly design system installations and effectively use security auditing tools to reduce an organization's risk.

Graduate

IT in Infrastructure

With an ageing national infrastructure, we examine ways in which Information Systems can be used to develop, maintain and improve our existing transportation, telecommunication and energy needs. With many of these systems becoming more complex and inter-dependent, it is important to identify the potential roles that Information Systems may play in maximizing solutions and opportunities while minimizing situations where the introduction of Information Systems may cause unintended consequences.

Quantitative Investing

This course provides an overview of Information System-based financial transaction systems and their role in portfolio selection for the Financial Sector. Topics include portfolio selection, rebalancing and performance monitoring from the standpoint of artificial intelligence learning techniques. This course covers stock selection/filtering, building robust scalable models, identifying statistical deviations, arbitrage market theories, managing risk and measuring the performance of various quant models.

Telecommunications

This course provides a systems view of computer networking and telecommunications. Topics include voice and data communications, networking protocols, IP telephony, wireless and mobile networks, networking security and management. The course also covers networking and telecommunication techniques, applications technology, networking topologies and architectures. Specific areas discussed include LAN system fundamentals, such as Ethernet and token ring, WAN system fundamentals, such as circuit-switching, packet-switching, X.25, frame relay and Asynchronous Transfer Mode.

DEGREE AND NON-DEGREE PROGRAM PROPOSALS

- (1) PhD in Data Science – University of Texas at Tyler, 2017.
- (2) MS in Data Science – University of Texas at Tyler, 2017.
- (3) Data Science Certificate for BS-CIS/CS/IT and MS-CS – University of Texas at Tyler, 2017.
- (4) Information Technology Bachelors – University of Texas at Tyler, 2015.
- (5) Computer Information Systems Bachelors – University of Texas at Tyler, 2015.
- (6) Business Analytics/Business Intelligence Certificate Program – CCSU, 2013.

- (7) Masters in Healthcare Informatics – Cleveland State University, 2011 – 2012.
- (8) PhD in Information Systems – Iona College, 2009, Partial completion and changed jobs.

ACADEMIC LABS AND CENTERS

Founder and Director of the Data Analytics Lab

- ◆ Created research lab space to further collegiate analytics needs
- ◆ Grant writing to solve difficult health informatics problems
- ◆ Acquired needed equipment to pursue academic interests
- ◆ Hire and oversee several Graduate Assistants and undergraduate researchers

STUDENT-DIRECTED PUBLICATIONS

- (1) Schumaker, R., and Maida, N., Analysis of Stock Price Movement Following Financial News Article Release. *Decision Support Systems*. Under Review.
- (2) Mason, D., Schumaker, R., Veronin, M., Dixit, R., Dhake, P., Elath, H. and Scoggins, A., Standardizing the FDA Adverse Reporting System (FAERS) Database. *52nd National Collegiate Honors Council Annual Conference*. November 2017. Atlanta, GA.
- (3) Spillman, J., Bustamante, G., Hopkins, T. and Schumaker, R., (2016). Predicting the Outcomes of the 2016 NCAA March Madness Men’s Tournament Brackets: A Study of Fan Twitter Sentiment. *27th Annual Conference of the International Information Management Association (IIMA-2016)*, September 2016. Taipei, Taiwan.
- (4) Lopez, H., Perkins, M., Odin, K., Webb, D. and Schumaker, R., (2016). Prediction from Fanbase Opinions: A Study of the League of Legends Community on Twitter. *27th Annual Conference of the International Information Management Association (IIMA-2016)*, September 2016. Taipei, Taiwan.
- (5) Nail, M., Ugone, C., King, C., Schumaker, R. and Conn, M.E., (2016). Predicting Opening Weekend Box Office Success: Using Social Media Sentiment and YouTube Data. *27th Annual Conference of the International Information Management Association*, September 2016. Taipei, Taiwan.
- (6) Maida, N. and Schumaker, R., (2015). Press Release Engineering- Managing Stock Price through Press Release Manipulation. *26th Annual Conference of the International Information Management Association*, October 2015. Chattanooga, TN.
- (7) Schumaker, R. and Reganti, R., (2014). Implementation of Electronic Health Record (EHR) System in the Healthcare Industry. *International Journal of Privacy and Health Information Management*. 2(2):57-71.
- (8) Grenier, E., Fair, C. and Schumaker, R., (2014). Social Media – Is it a Valid Source for Creating New Business? *Journal of Creative Communications*, 9(2):147-159.
- (9) Gregory, K. and Santiago, L., (2013). Effects of Technology Demonstration Complexity on Driving Adoption of Automated Software Testing Practices. *24th Annual Conference of the International Information Management Association*, October 2013, New Rochelle, NY.

- (10) Genest, D. and Daley, A., (2013). Teachers vs Students-Investigating Middle School Students and Their Teachers' Technical Abilities. *24th Annual Conference of the International Information Management Association*, October 2013, New Rochelle, NY.
- (11) Gagnon, J., Gray, S. and Khalaf, L., (2013). How Universities can Use Social Media as an Informational Tool. *24th Annual Conference of the International Information Management Association*, October 2013, New Rochelle, NY.
- (12) Fields, A., Shorthouse, A. and Schumaker, R. (2013). Everything Has its Price: Concerns and Rewards for Using Mobile Location Services. *24th Annual Conference of the International Information Management Association*, October 2013, New Rochelle, NY.
- (13) Caruso, R. and Papowitz, E., (2011). Roomba Recon. *Make Magazine*, 27:49-55.

TEXTBOOKS REVIEWED

- (1) Cohoon, J. and Davidson, J. Java Program Design. McGraw-Hill/Irwin, 2014.
- (2) Horstmann, C. Big Java 4th Edition. John Wiley & Sons, 2011.
- (3) Haag, S. and Perry, J. I-Series: Microsoft Office Access 2003 Complete. McGraw-Hill/Irwin, 2003.
- (4) Haag, S. and Perry, J. I-Series: Microsoft Office Excel 2003 Complete. McGraw-Hill/Irwin, 2003.

CONTINUED STUDY

Teaching Workshops

September 2017 – TEDxSantoDomingo, What Makes a Good Teacher Great? (Web), 0.5 hours
September 2017 – TEDxLafayette, Teaching Methods for Inspiring Students (Web), 0.5 hours
April 2017 – University of Texas at Tyler, Undergraduate Research Town Hall (Web), 1.5 hours
February 2017 – University of Texas at Tyler, Team Based Learning (Web), 1 hour
February 2017 – University of Texas at Tyler, Canvas LMS, 2 hours
November 2016 – University of Texas at Tyler, Actively Engaging Students (Web), 1.5 hours
February 2016 – University of Texas at Tyler, Service Learning, 1 hour

Technical Training and Workshops

September 2017 – IIMA 2017, Perception Data Workshop (Tableau), 2 hours
July 2017 – AILA 2017, Corpus Linguistics: Introduction to Multi-Dimensional Analysis, 1 hour
March 2017 – SSAC 2017, Concession Analytics, 1 hour
January 2017 – University of Texas at Tyler, Advanced Statistical Analyses, 2 hours
December 2016 – CT Predictive Analytics, ElasticSearch + Logstash + Kibana, 2 hours
October 2016 – University of Texas at Tyler, OpenStack Cloud Computing Workshop, 12 hours
September 2016 – IIMA 2016, How to Attack Android in 10 Seconds or Less, 4 hours
May 2016 – Tableau, Data Science for All: A University-Wide Course in Data Analytics, 1 hour
December 2015 – ICIS 2015, SIGBPS 2015 Workshop on Big Data and E-Commerce, 8 hours
March 2015 – Greater Hartford ACM Chapter, Apache Hadoop Workshop, 8 hours

R (Statistical Computing Programming Language)

March 2017 – SSAC 2017, Scraping and Analyzing NFL Data with R, 1 hour

March 2015 – Univ. of Massachusetts Amherst, Intro to R Workshop, 2 hours

March 2015 – Amherst College, Accessing Bigger Datasets Using SQLite in R, 2 hours

March 2015 – Amherst College, Working with Geographic Data in R, 2 hours

SAP Training

June 2013 – HEC Montreal, ERP Simulation – Level 1, 4 days

May 2013 – Georgia Southern University, Terp10 Training, 10 days

February 2013 – University of Wisconsin – Milwaukee, Business Analytics and SAP HANA, 2 days

January 2013 – Sam Houston State University, Introduction to SAP, 4 days

Post Baccalaureate

Spring 2003 – University of Akron

- 3460:460 Artificial Intelligence and Heuristic Programming

INDUSTRY EXPERIENCE

Co-Founder and Chief Technical Officer, 2015 – 2016

sentiSports.com

- ◆ sentiSports.com is a subscription-based service that provides sentiment analysis of sports matches to media, odds-makers and individuals in real-time
 - Responsible for the technical details, system building, cloud services

President and Founder, 2008 – 2012

The Schumaker Foundation Inc.

- ◆ The Schumaker Foundation Inc. is a 501(c)(3) public non-profit charity that is dedicated to providing financial scholarships to exceptional students in both Divinity and Information Systems fields.
 - Organized, founded and brought forth a new avenue of assistance to serve a demographic subset that is not typically served
 - Responsible for all aspects of the Foundation's business
 - Incorporation, taxation, day to day activities, strategic vision, website design and maintenance, presiding over board meetings, etc.

Mentor, 2011 – 2012

Shaker LaunchHouse

- ◆ The Shaker LaunchHouse is a business incubator that services the Northeastern Ohio region. Portfolio companies are developed and grown at the advice and investment of the organization.

Director of the IS Dept. Computer Lab, September 2007 – August 2010

Information Systems Dept., Iona College

- Initiated and implemented a student assistant training program to handle daily operations
- Modernized an aging facility with state of the art computers, servers and networking equipment
- Instrumental for creating student and faculty demand for the lab

Computer Lab Manager, January 2001 – March 2002

CBA Computer Labs, Univ. of Akron

- Instrumental in modernizing operations by embracing the complete paperless office concept
- Created a networked scheduling program to handle the student demand for lab equipment
- Raised efficiencies by developing models to provide instant data on all aspects of operations
- Initiated and implemented an online student assistant training program with hands-on objectives

Interim Director of Technology, August 2000 – January 2001

CBA Computer Labs, Univ. of Akron

- Responsible for the overall development and technology needs of the college
- Assertively trained Lab Assistants to handle incredibly complex computer-related problems
- Took an aggressive initiative in replacing 1/3 of the lab computers and servers
- Handled daily operations and set into motion a long term strategic plan addressing future needs

Vice President, 1997 – 1999

Schumaker Hardware Inc.

- Responsible for day to day operations across all facets of operation
- Integral in expanding physical store selling area by 150%
- Wrote a neural network algorithm to analyze and predict sales given historical knowledge
- Created an inventory control program that reduced inventory counts from weeks to days

CERTIFICATIONS AND LICENSES

- CompTIA Security+ Certification (SY0-401), May 2015
- CompTIA Network+ Certification (N10-005), March 2015
- SAP Certified Business Associate with SAP ERP 6.5 (C_TERP10_65), May 2013
- Amateur Radio License – General Class (KC1AFF), November 2010
- Amateur Radio License – Technician Class (KD8OYN), November 2010
- Fundamentals of Engineering Designation (EIT), May 1997

TECHNICAL SKILLS

- *Cloud Providers:* Microsoft Azure and Amazon AWS
- *ERP Systems:* SAP
- *Operating Systems:* Windows eco-system, Linux Mint
- *Programming and Scripting:* Java, t-SQL, Php, .Net, VBA, html
- *Database:* Microsoft SQL Server, MySQL, Oracle
- Have actively taught expert levels of MS Office
- Have written several Android applications

AWARDS AND HONORS

- George W. and Robert Pirtle Endowed Professorship in Business, 2016 – 2019
- CCSU Hall of Honor Gold Award for Research, 2015
- IIMA Fellow, 2014
- IEEE Senior Member, 2014
- Phi Taus Under Forty Award, 2014
- Nominated for CCSU School of Business Hall of Honor Research Award, 2013, 2014

- ACM Senior Member, 2013
- Sports Data Mining book in Top 25% of Springer eBook sales, 2012-2016
- Second most downloaded paper in ACM TOIS for June 2010
- CELTIC Excellence in Teaching Award, 2009
- Induction into Sigma Iota Epsilon, Honorary Management Fraternity

MISCELLANEOUS PROFESSIONAL SERVICE

- ACM Distinguished Speakers Program, 2013 – 2019
- Chair of the Greater Hartford ACM Chapter, 2013 – 2015
- Founder of the Greater Hartford ACM Chapter
- SABR Statistical Analysis Committee Member, 2007 – 2010
- ICIS Volunteer, 2005
- JCDL Director of Onsite Registration Activities, 2004
- ISI Volunteer, 2004

COLLEGIATE SERVICE

- UT Tyler University-Wide Endowed Professorship Committee, 2017
- UT Tyler Strategic Work Group on Community Connectivity and Partnerships, Chair, 2017
- UT Tyler CS Dept. Chandler Professorship Committee, 2016
- UT Tyler CBT Faculty Awards Committee, 2015 – 2018
- UT Tyler CBT Assurance of Learning Committee, 2015 – 2018
- CCSU School of Business Bylaws Committee, 2015
- CCSU Honors College Thesis Advisor, 2014 – 2015
- CCSU MIS Dept. Student Advisor, 2013 – 2015
- CCSU MIS Club Faculty Advisor, 2013 – 2015
- CCSU MIS Dept. Open House Delegate, 2013 – 2015
- CCSU MIS Dept. Graduation Representative, 2014 – 2015
- CCSU MIS Dept. Bylaws Committee Chair, 2013 – 2014
- CCSU MIS Dept. The Travelers Case Competition Advisor, 2013, 2014
- CCSU Information Technology Committee, 2013 – 2015
- CCSU-AAUP Delegate-At-Large, 2013 – 2015
- CSU Mentor for the McNair Scholars Program, 2011 – 2012
- CSU CIS Dept. IST 203 Textbook Selection Committee, 2011
- Iona College Library Committee Member, 2008 – 2010
- Iona College Institutional Review Board Member, 2009 – 2010
- Iona College Presidential/Dean's Scholarship Interviewer, 2008, 2009
- Iona College Hagan School of Business Strategic Vision Committee Member, 2009 – 2010
- Iona College Hagan School of Business Curriculum Committee Member, 2009 – 2010
- Iona College Hagan School of Business Freshman Advisor, 2007 – 2010
- Iona College IS Dept. AACSB Self-Study Committee Chair, 2008 – 2009
- Iona College IS Dept. Liaison for Campus Day for Accepted Students, 2009
- Iona College IS Dept. Textbook Selection Committee, 2008 – 2010
- Iona College IS Dept. Director of the IS Computer Lab, 2007 – 2010
- Arizona AI Lab Recruiting Leader, 2004 – 2007
- Arizona AI Lab PhD Seminar Coordinator, 2004 – 2006
- Arizona Eller College Admissions Interviewer, 2006, 2007

- Arizona Graduate and Professional Student Council Representative, 2006 – 2007
- Arizona Graduate and Professional Student Council, Travel Grant Judge, 2006
- Arizona MISA Test Review Volunteer Instructor, 2004 – 2005
- Akron Graduation Marshall for the Faculty, 2002 – 2003
- Akron Scholarship Interviewer, 2003
- Akron Quasi-Academic Advisor for SITE Student Group, 2002 – 2003
- Akron CBA Computer Operations Committee, 2000 – 2001

COMMUNITY SERVICE

- Member Elks Club #215, 2015 – Present
- Officer of Elks Club #957, 2014 – 2015
- Big Brothers/Big Sisters Volunteer, 2000 – 2003, 2011 – 2012
- Shaker LaunchHouse Mentor, 2011 – 2012
- The Schumaker Foundation Inc. – Board of Governor's, 2008 – 2012
- Adopt-A-Spot Volunteer – Derby, CT, 2008 – 2010
- ΦΚΤ Board of Governor's, ΑΦ Chapter, 1999 – 2003

REFERENCES

Available upon request.