

# William Michael Rand

Curriculum Vitae  
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## CONTACT INFORMATION

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## CURRENT AFFILIATIONS

Director, Center for Complexity and Business  
Assistant Professor of Marketing  
Assistant Professor, University of Maryland Institute for Advanced Computational Studies  
Affiliate Assistant Professor of Decision, Operations, and Information Technology  
Affiliate Assistant Professor of Computer Science  
Affiliate Faculty of Applied Mathematics, Statistics, and Scientific Computation

## EDUCATION

Ph.D.: Ph.D., University of Michigan, Computer Science, Co-Chairs John Holland and Rick Riolo,  
“Controlled Observations of the Genetic Algorithm in a Changing Environment: Case Studies  
using the Shaky Ladder Hyperplane-Defined Functions” 2005  
M.S.: Computer Science, University of Michigan, 2001  
Certificate of Study in Complex Systems, University of Michigan 2001  
B.S.: Computer Science (with Honors), Michigan State University, 1999  
B.A.: Philosophy (with Honors), Michigan State University, 1999

## PAST PROFESSIONAL EXPERIENCE

Northwestern University, Northwestern Institute on Complex Systems, Center for Connected Learning  
and Computer-Based Modeling, Northwestern University, Evanston, IL, Post-doctoral Research  
Fellow, Fall of 2005 to Summer of 2008  
University of Michigan, Center for the Study of Complex Systems (CSCS) and the School of Natural  
Resources and the Environment (SNRE), Research Assistant for Agent-Based Modeling of  
Urban Sprawl, Ann Arbor, MI, Fall of 2001 to Summer of 2005  
University of Michigan, Inter-University Consortium for Political and Social Research, Instructor for  
Complex Systems Models in Social Science, Ann Arbor, MI, Summer of 2004  
University of Michigan, Electrical Engineering and Computer Science, Graduate Student Instructor for  
EECS 183 (Elementary Programming Concepts), Ann Arbor, MI, Fall of 2001  
University of Michigan, Academic Success Program, Tutor, Ann Arbor, MI, Fall of 2001 and Winter of  
2002  
Mitsubishi Chemical, Knowledge Management, Research Assistant, Yokohama, Japan, Summer of 2001

University of Michigan, Electrical Engineering and Computer Science, Research Fellow in Music Information Retrieval, Ann Arbor, MI, Fall of 1999 through Winter of 2001  
University of Michigan, Electrical Engineering and Computer Science, Graduate Student Instructor for EECS 492 (Intro to AI), Ann Arbor, MI, Fall of 2000  
Michigan State University, Computer Science, Research Assistant in Genetic Programming, East Lansing, MI, Fall of 1994 through Summer of 1999  
Michigan State University, Computer Science, Teaching Assistant for CSE 131 (Intro to Technical Computing), East Lansing, MI, Winter of 1999  
Michigan State University, Computer Science, Teaching Assistant for CSE 440 (Intro to AI), East Lansing, MI, Fall of 1998  
IBM, AS/400 Internet and Database Areas, Assistant Developer, Rochester, MN, Summers of 1996, 1997 and 1998

## JOURNAL PAPERS

- “Agent-Based Modeling in Marketing: Guidelines for Rigor”, William Rand and Roland Rust, *International Journal of Research in Marketing*, 2011.
- “The Problem with Zoning: Nonlinear Effects of Interactions between Location Preferences and Externalities on Land Use and Utility” Moira L. Zellner, Rick L. Riolo, William Rand, Daniel G. Brown, and Scott E. Page, *Environment and Planning B*, 2010, 37, pp. 408-428.
- “The Shaky Ladder Hyperplane-Defined Functions and Classic Dynamic Problems” Abir Alharbi and William Rand, *International Journal of Computational Intelligence and Applications (IJCIA)*, 2010, 9(1): 33-48.
- “Design Guidelines for Agent Based Model Visualization” Daniel Kornhauser, Uri Wilensky, and William Rand, *Journal of Artificial Societies and Social Simulation*, 2009, 12(2), <http://jasss.soc.surrey.ac.uk/12/2/1.html>.
- “The Emergence of Zoning Policy Games in Exurban Jurisdictions: Informing Collective Action Theory” Moira L. Zellner, Scott E. Page, William Rand, Daniel G. Brown, Derek T. Robinson, Joan Nassauer, and Bobbi Low, *Land Use Policy*, April 2009, 26(2): 356-67.
- “Reciprocity Between the Cerebellum and the Cerebral Cortex: Nonlinear Dynamics in Microscopic Modules” Jun Wang, Gregory Dam, Sule Yildirim, William Rand, Uri Wilensky and James C. Houk, *Complexity*, 2008, 14(2): 29-45 (cover article).
- “Exurbia from the Bottom-Up: Confronting Empirical Challenges to Characterizing a Complex System” Daniel G. Brown, Derek T. Robinson, Li An, Joan I. Nassauer, Moira Zellner, William Rand, Rick Riolo, Scott E. Page, Bobbi Low, and Zhifang Wang *Geoforum*, 2008, 39(2):805-818.
- “Making Models Match: Replicating an Agent-Based Model” Uri Wilensky and William Rand, *Journal of Artificial Societies and Social Simulation*, 2007, 10(4) <http://jasss.soc.surrey.ac.uk/10/4/2.html>
- “Spatial Process and Data Models: Toward Integration of Agent-Based Models and GIS”, Brown, D.G., North, M., Robinson, D., Riolo, R., Rand, W., *Journal of Geographical Systems* Special Issue on Space-Time Information Systems (Springer-Verlag), 2005, 7(1): 25-47.
- “Path Dependence and the Validation of Agent-Based Spatial Models of Land Use”, D. G. Brown, S. E. Page, R. Riolo, M. Zellner, W. Rand, *International Journal of Geographical Information Science (IJGIS)* Special Issue on Land Use Dynamics (Taylor & Francis), 2005, 19(2): 153-174.
- “Agent Based and Analytical Modelling to Evaluate the Effectiveness of Greenbelts”, Daniel G. Brown, Scott E. Page, Rick Riolo, and William Rand, *Journal of Ecosystem Modelling and Software* (Elsevier), December 2004, v19n12, p1065-1164.
- “Markov Models of Literary Style for Authorship Identification”, William Rand, *Fluctuations and Noise Letters* (World Scientific), December 2002, v2n4, p299-305.

## **JOURNAL PAPERS UNDER REVIEW**

- “Product Diffusion and Synthetic Networks: Improving Pre-Launch Forecasts with Simulated Priors”, Michael Trusov and William Rand, under review at *Journal of Marketing Research*.
- “Media, Aggregators and the Link Economy: Strategic Hyperlink Formation in Content Networks”, Chris Dellarocas, Zsolt Katona, and William Rand, first review at *Management Science*

## **JOURNAL PAPERS IN PROGRESS**

- “On Dynamic Resource Allocation in IT Outsourcing Project: Integrating Managerial Attention, Categorization and Interruptions in an Agent-Based Model”, Anand Gopal, Balaji Koka, and William Rand, preparing manuscript for *Academy of Management Journal*
- “Consumer Behavior in Content Networks: An Examination of Online News”, David Anderson, Chris Dellarocas, Zsolt Katona, and William Rand, two studies done, finishing third study and analysis, preparing manuscript for *Marketing Science*
- “Mapping Products to Networked Communication: Impact of User Activities in Content Communities on Product Sales” Hyoryung Nam, PK Kannan and William Rand, revising model and finishing analysis, manuscript in preparation for *Marketing Science*
- “Social Tag Maps: A New Approach for Understanding Brand Association Networks” Hyoryung Nam, Yogesh Joshi, PK Kannan and William Rand, manuscript in preparation for *Journal of Marketing*

## **PEER-REVIEWED CONFERENCE PAPERS**

- “Comparing Social Tags to Microblogs.” Victoria Lai, Christopher Rajashekar and William Rand. 2<sup>nd</sup> International Modeling Social Media Workshop 2011, part of IEEE International Conference on Social Computing 2011.
- “Recommendations in Social Media for Brand Monitoring.” Shanchan Wu, William Rand and Louiqa Raschid. ACM Recommender Systems 2011.
- “Predicting author blog channels with high value future posts for monitoring.” Shanchan Wu, Tamer Elsayed, William Rand and Louiqa Raschid. Twenty-Fifth Conference on Artificial Intelligence (AAAI), 2011.
- “Differential Adaptive Diffusion: Understanding Diversity and Learning whom to Trust in Viral Marketing”, Hossam Sharara, William Rand and Lise Getoor, *International AAAI Conference on Weblogs and Social Media (ICWSM)*, July 17-21, 2011, Barcelona, Spain.
- “Evolving Viral Marketing Strategies” Forrest Stonedahl, William Rand and Uri Wilensky, *Genetic and Evolutionary Computation Conference (GECCO)*, July 7-11, 2010, Portland, OR, USA.
- “Participatory Simulation as a Tool for Agent-Based Simulation” Matthew Berland and William Rand, (2009) *International Conference on Agents and Artificial Intelligence (ICAART)*, January 19-21, Porto, Portugal.
- “CrossNet: A Framework for Crossover with Network-based Chromosomal Representations ” Forrest Stonedahl, William Rand, and Uri Wilensky (2008) *Genetic and Evolutionary Computation Conference (GECCO)*, July 12-16, Atlanta, GA, USA.
- “Multi-Agent Learning with a Distributed Genetic Algorithm” Forrest Stonedahl, William Rand and Uri Wilensky (2008) *Autonomous Agents and Multi-Agents Systems (AAMAS) ALAMAS+ALag Workshop*, May 12-16, 2008, Estoril, Portugal.

- "The Defined Cliffs Variant in Dynamic Environments: A Case Study Using the Shaky Ladder Hyperplane-Defined Functions" Abir Alharbi, William Rand, and Rick Riolo (2007) *Genetic and Evolutionary Computation Conference (GECCO)*, July 7-11, London, UK.
- "Full Spectrum Modeling: From Simplicity to Elaboration and Realism in Urban Pattern Formation" William Rand and Uri Wilensky (2007) *North American Association of Computational Social and Organization Sciences (NAACSOS)*, June 6-9, Emory University, Atlanta, GA, USA
- "Schemata Analysis, Genetic Algorithms and Dynamic Environments: A Case Study Using the Shaky Ladder Hyperplane-Defined Functions", Abir Alharbi, William Rand, and Rick Riolo (2007) *Evolution in Stochastic and Dynamic Environments (EvoStoc)*, Valencia, Spain. *Lecture Notes in Computer Science: EvoWorkshops 2007*. v4448, p657-667.
- "Verification and Validation through Replication: A Case Study Using Axelrod and Hammond's Ethnocentrism Model" William Rand and Uri Wilensky (2006) *North American Association Computational Social and Organization Sciences (NAACSOS)*, June 21-23, Notre Dame University, South Bend, IN, USA.
- "The Effect of Crossover on the Behavior of the GA in Dynamic Environments: A Case Study using the Shaky Ladder Hyperplane-Defined Functions" William Rand, Rick Riolo, and John Holland (2006) *Genetic and Evolutionary Computation Conference (GECCO)*, Seattle, WA, USA. *Proceedings of GECCO 2006*: 1289-1296.
- "The Effect of Building Block Construction on the Behavior of the GA in Dynamic Environments: A Case Study Using the Shaky Ladder Hyperplane-Defined Functions" William Rand and Rick Riolo (2006) *Evolution in Stochastic and Dynamic Environments (EvoStoc)*, Budapest, Hungary. *Lecture Notes in Computer Science: EvoWorkshops 2006*. v3907, p776-87.
- "The Problem with a Self-Adaptive Mutation Rate in Some Environments: A Case Study using the Shaky Ladder Hyperplane-Defined Functions", William Rand and Rick Riolo, Published in *Proceedings of GECCO 2005*.
- "Measurements for Understanding the Behavior of the Genetic Algorithm in Dynamic Environments: A Case Study using the Shaky Ladder Hyperplane-Defined Functions", William Rand and Rick Riolo, Published in *Workshop Proceedings of GECCO 2005*.
- "Can Statistical Methods on Land-Use Change Patterns Calibrate Agent-Based Models?" Li An, Daniel G. Brown, William Rand, and Scott E. Page (2005) *Geocomputation*, August 1-3, Ann Arbor, MI, USA.
- "Shaky Ladders, Hyperplane-Defined Functions and Genetic Algorithms: Systematic Controlled Observation in Dynamic Environments", William Rand and Rick Riolo, Published in *Proceedings of EvoStoc 2005*.
- "The Interaction between Zoning Regulations and Residential Preferences as a Driver of Urban Form", M. L. Zellner, W. Rand, R. Riolo, S. E. Page, D. G. Brown, and L. E. Fernandez, Published in *Proceedings of 2003 UTEP Symposium* (University of Michigan Taubman College).
- "Statistical Validation of Spatial Patterns in Agent-Based Models", William Rand, Daniel G. Brown, Scott E. Page, Rick Riolo, Luis E. Fernandez, and Moira Zellner (2003) Published in *Proceedings of Agent-Based Simulation (ABS)* (SCS European Publishing House).
- "Modeling the Effects of Greenbelts at the Urban-Rural Fringe", Daniel G. Brown, Scott E. Page, Rick Riolo, William Rand, Published in *Proceedings of International Environmental Modelling and Software Society 2002* (iEMSs).
- "MusArt: Music Retrieval via Aural Queries", William P. Birmingham, Roger B. Dannenberg, Gregory H. Wakefield, Mark Bartsch, David Bykowski, Dominic Mazzoni, Colin Meek, Maureen Mellody, William Rand, Published in *Proceedings of the International Symposium on Music Information Retrieval (ISMIR)*, October 2001.

“GP+Echo+Subsumption=Improved Problem Solving”, W.F. Punch and W.M. Rand, Published in *Proceedings of the Genetic and Evolutionary Computation Conference (GECCO)* (Morgan Kaufmann), July 2000.

## **PEER-REVIEWED CONFERENCE POSTERS**

“When Does Simulated Data Match Real Data?: An Exploration of Calibration Functions for an Agent-Based Model using Evolutionary Computation”, Forrest Stonedahl, David Anderson and William Rand, *Genetic and Evolutionary Computation Conference (GECCO)*, July 12-16, Dublin, Ireland.

“Future Link Prediction in the Blogosphere for Recommendation”, Shanchan Wu, William Rand and Louiqa Raschid, *International AAAI Conference on Weblogs and Social Media (ICWSM)*, July 17-21, 2011, Barcelona, Spain.

“The Future of Content: A Strategic Network Formation Perspective on New Business Model for News” Chris Dellarocas and William Rand (2009) *Workshop on Information in Networks (WIN)*, September 25-26, 2009.

“Identifying Network Properties from Aggregate Data” William Rand and Michael Trusov (2009) *Workshop on Information in Networks (WIN)*, September 25-26, 2009.

"Coevolution of Predators and Prey in a Spatial Model: An Exploration of the Red Queen Effect" Jules Ottino-Loffler, William Rand, and Uri Wilensky (2007) *Genetic and Evolutionary Computation Conference (GECCO)*, July 7-11, London, UK.

"Evolution of Rules for Non-Uniform Cellular Automata using a Simple Genetic Algorithm: An Investigation into Diversity and Computation", Forrest Sondahl and William Rand (2007) *Genetic and Evolutionary Computation Conference (GECCO)*, July 7-11, London, UK.

“Statistical Analysis for Music Information Retrieval”, William Rand and William Birmingham, Published in *Proceedings of the International Symposium on Music Information Retrieval (ISMIR)*, October 2001

## **PEER-REVIEWED TECHNICAL DEMOS**

“GoGoBot: Group Collaboration, Multi-Agent Modeling, and Robots”, William Rand, Paulo Blikstein, and Uri Wilensky (2008) *Autonomous Agents and Multi-Agent Systems (AAMAS)*, Hakodate, Esstoril, Portugal. *Proceedings of AAMAS 2008*.

"Just a Cog in the Machine: Participatory Robotics as a Powerful Tool for Understanding Collaborative Learning", Paulo Blikstein, William Rand, and Uri Wilensky (2007) *Computer Supported Collaborative Learning (CSCL)*, Rutgers University, Rutgers, NJ, USA.

"Participatory, Embodied, Multi-Agent Simulation", Paulo Blikstein, Bill Rand and Uri Wilensky (2006) *Autonomous Agents and Multi-Agent Systems (AAMAS)*, Hakodate, Hokkaido, Japan. *Proceedings of AAMAS 2006*: 1457-1458.

## **BOOK CHAPTERS**

“Business Applications and Research Questions Using Spatial Agent-Based Models”, William Rand, 2011 in *Agent-Based Models for Geographical Systems*, A. J. Heppenstall, A. T. Crooks, L. M. See, M. Batty, eds..

## **BOOKS IN PROGRESS**

“Introduction to Agent-Based Modeling: Modeling natural, engineered, and social complex systems with NetLogo”, Uri Wilensky and William Rand, a hands-on textbook on Agent-Based Modeling, under contract by *M.I.T. Press*.

## CONFERENCE PAPERS

- “The El Farol Bar Problem and Computational Effort: Why People Fail to Use Bars Efficiently”, William Rand and Forrest Sondahl (2007) *Agent 2007*, November 15-17, Evanston, IL, USA.
- “Examining Group Behavior and Collaboration using ABM and Robots”, Paulo Blikstein, William Rand, and Uri Wilensky (2007) *Agent 2007*, November 15-17, Evanston, IL, USA.
- “Visualization Tools for Agent-Based Modeling in NetLogo”, Daniel Kornhauser, William Rand, and Uri Wilensky (2007) *Agent 2007*, November 15-17, Evanston, IL, USA.
- “Machine Learning Meets Agent-Based Modeling: When Not to Go to a Bar”, William Rand (2006) *Agent 2006*, September 21-23, Chicago, IL, USA.
- “Toward a Graphical ABM Toolkit with GIS Integration”, William Rand, Daniel G. Brown, Rick Riolo and Derek Robinson, *Agent 2005*, October 13-15, Chicago, IL, USA.
- “The Complex Interaction of Agents and Environments: An Example In Urban Sprawl”, William Rand, Moira Zellner, Scott E. Page, Rick Riolo, Daniel G. Brown, Luis Fernandez, *Agent 2002*, Chicago, IL, USA.

## CONFERENCE PRESENTATIONS, ABSTRACTS AND DEMOS

- “News, Networks and Users: How Network Properties affect Online News Consumption” David Anderson, Chris Dellarocas, Zsolt Katona, William Rand and Forrest Stonedahl, INFORMS, 2011, Charlotte, NC, November 13-16, 2011.
- “On Dynamic Resource Allocation in IT Outsourcing Projects”, Anand Gopal, Balaji Koka, and William Rand, INFORMS, 2011, Charlotte, NC, November 13-16, 2011.
- “News, Networks and Users: How Network Properties affect Online News Consumption” David Anderson, Chris Dellarocas, Zsolt Katona, William Rand and Forrest Stonedahl, Conference on Information Systems and Technology (CIST) at INFORMS, 2011, Charlotte, NC, November 12-13, 2011.
- “On Dynamic Resource Allocation in IT Outsourcing Project: Integrating Managerial Attention, Categorization and Interruptions in an Agent-Based Model”, Anand Gopal, Balaji Koka and William Rand, *Frontiers in Service*, June 30-July 3, 2011, Ohio State University, Columbus, OH.
- “Evolving Viral Marketing Strategies”, William Rand, Forrest Stonedahl and Uri Wilensky, *Marketing Science*, June 9-12, 2011, Rice University, Houston, TX.
- “Evolving Viral Marketing Strategies”, William Rand, Forrest Stonedahl and Uri Wilensky, *Advanced Research Techniques Forum*, June 5-8, 2011, Desert Springs, CA.
- “Creation, Curation, Analysis and Visualization of a Dataset of Social Media Tags”, Vicky Lai and William Rand, *Undergraduate Research Day*, April 27, 2011, University of Maryland, College Park, MD.
- “Consumer Behavior in Content Networks: An Examination of Online News”, David Anderson, Chris Dellarocas, Zsolt Katona and William Rand, *Winter Conference on Business Intelligence*, March 10-12, University of Utah, Salt Lake City, UT.
- “Media, Aggregators and the Link Economy: Strategic Hyperlink Formation in Content Networks”, Chris Dellarocas, Zsolt Katona, and William Rand, *Workshop on Information Systems and Economics (WISE)*, December 11-12, 2010, St. Louis, MO.
- “On Dynamic Resource Allocation in IT Outsourcing Project: Integrating Managerial Attention, Categorization and Interruptions in an Agent-Based Model”, Anand Gopal, Balaji Koka, and

- William Rand, *Complexity in Business Conference*, November 12, 2010, University of Maryland, Washington, DC.
- “Understanding Diffusion in Digital Social Media”, William Rand, Yogesh Joshi, Louiqa Raschid and Shanchan Wu, *Complexity in Business Conference*, November 12, 2010, University of Maryland, Washington, DC.
- “Searching for Networks in Aggregate Data”, Michael Trusov and William Rand, *Computational Social Science Society (CSSS) 2010*, November 5-6, 2010, Arizona State University, Tempe, AZ.
- “Media, Aggregators and the Link Economy: Strategic Hyperlink Formation in Content Networks”, Chris Dellarocas, Zsolt Katona, and William Rand, *Workshop on Media Economics and Public Policy*, October 15-16, 2010, Hunter College, New York City, NY.
- “Functional Data Analysis and Agent-Based Modeling” Wolfgang Jank, William Rand, and Michael Trusov (2010) *Joint Statistical Meetings (JSM)*, July 31-August 5, Vancouver, Canada.
- “Using Agent-Based Models and Functional Data Analysis to Understand Auction Behavior” Wolfgang Jank, William Rand, and Wei Guo (2010) *Marketing Science*, June 17-19, Cologne, Germany.
- “Analyzing Servicescapes using Agent-Based Modeling” John Healey and William Rand (2010) *Frontiers in Service*, June 10-13, Karlstad, Sweden.
- “Media, Aggregators and the Link Economy: A Strategic Network Formation Perspective on the Future of Content” Chris Dellarocas, Zsolt Katona, and William Rand (2010) *Winter Conference on Business Intelligence*, March 11-13, Salt Lake City, UT.
- “Towards a Strategic Theory of Content and Link Formation in Web-based Content Networks” Chris Dellarocas and William Rand (2009) *Conference on Information Systems and Technology (CIST)*, October 11-14, San Diego, CA.
- “Simulating the Formation of Parliamentary Decision Teams, or How the Bundestag is like a Musical” William Rand and Klaus Liepelt (2009) *Sunbelt, International Network For Social Network Analysis*, March 10-March 15, San Diego, CA.
- “Content Networks” Chris Dellarocas and William Rand (2009) *Marketing Science*, June 4-6, Ann Arbor, MI, USA.
- “Identifying Network Properties from Aggregate Data” Michael Trusov and William Rand (2009) *Marketing Science*, June 4-6, Ann Arbor, MI, USA.
- “Rigorous Agent-Based Modeling in Marketing” William Rand and Roland Rust (2009) *Marketing Science*, June 4-6, Ann Arbor, MI, USA.
- “Social Network Structure and the Diffusion of Innovation”, William Rand (2009) *Eastern Economic Association Annual Conference*, February 27-March 1, New York City, NY, USA.
- “Adaptive Agents and the Diffusion of Innovation across Diverse Systems”, William Rand (2008) *Society for Industrial and Applied Mathematics (SIAM) Complexity and Business Analytics Conference*, October 10, University of Michigan-Dearborn, Dearborn, MI, USA.
- “A Framework for Combining Agent-Based Simulation and Evolutionary Computation”, William Rand (2007) *Evolutionary Computation and Multi-Agent Systems and Simulation (ECoMASS) at the Genetic and Evolutionary Computation Conference (GECCO) 2007*, July 7, London, UK.
- "Multi-agent Communication Disorders: Dynamic Breeding Networks in Genetic Algorithms", Forrest Sondahl and William Rand (2007) *Swarmfest 2007*, July 12-14, Chicago, IL, USA.
- "Widgets, Planets, and Demons: the Case for the Integration of Human, Embedded, and Virtual Agents via Mediation", William Rand, Paulo Blikstein, and Uri Wilensky (2006) *Swarmfest 2006*, South Bend, IN, USA.
- "NetLogo 3.1: Low Threshold, No Ceiling", William Rand and Uri Wilensky (2006) *North American Association Computational Social and Organizational Systems (NAACSOS) 2006*, South Bend, IN, USA.

- “Relationship between Agent-Based Models and Geographic Information Systems: An Illustrated Catalog”, William Rand, Daniel G. Brown, Michael North, Rick Riolo, Derek T. Robinson (2004) *Swarmfest*, May 10, Ann Arbor, USA.
- “The Effects of Heterogeneous Development Density Regulations on Exurban Development: An Agent-Based Model of Developer and Homebuyer Decision-Making”, Moira Zellner, William Rand, Daniel G. Brown, Joan Nassauer, Bobbi Low, Li An, Rick Riolo, Scott E. Page, Derek Robinson (2004) , *Swarmfest*, May 10, Ann Arbor, MI, USA.
- “What Makes A City Look Like A City: Validation of Agent-Based Models Through Emergent Spatial Patterns”, William Rand (2003) *Society for Industrial and Applied Mathematics Conference on Mathematics for Industry*, October 14, Toronto, ON, Canada.
- “SOME: An Agent-Based Model of Suburban Sprawl”, William Rand, Daniel G. Brown, Scott E. Page, Rick Riolo, Moira Zellner, Luis Fernandez (2003) *Swarmfest*, April 14, Notre Dame, IN, USA.

## **TECHNICAL REPORTS**

- “Statistical Analysis in Music Information Retrieval”, William Rand and William Birmingham, Technical Report from University of Michigan Department of Electrical Engineering and Computer Science, 2001, CSE-TR-444-01.

## **SELECTED INVITED TALKS**

- “Authority, Trust and Influence: The Complex Network of Social Media”, December 7, 2011, Computational Linguistics and Information Processing, University of Maryland Institute for Advanced Computer Studies, College Park, MD.
- “Authority, Trust and Influence: The Complex Network of Social Media”, December 2, 2011, Marketing Department, University of Maryland, College Park, MD.
- “Differential Adaptive Diffusion: Understanding Diversity and Learning whom to Trust in Viral Marketing”, November 18, 2011, Smeal School of Business, Pennsylvania State University, State College, PA.
- “Authority, Trust and Influence: The Complex Network of Social Media”, October 5, 2011, TTI / Vanguard conference on Complex Systems, Tysons Corner, VA.
- “Differential Adaptive Diffusion: Understanding Diversity and Learning whom to Trust in Viral Marketing”, September 9, 2011, Center for Social Complexity, George Mason University, Fairfax, VA.
- “Understanding the Diffusion of Information on Social Media”, Optimal Solutions Group, June 1, 2011, College Park, MD.
- “Understanding the Diffusion of Information on Social Media”, ThinkVine, May 4, 2011, Cincinnati, OH.
- “Understanding the Diffusion of Information using Agents and Networks”, Robert H. Johnson Health and Society Fellows Program, University of Pennsylvania, February 24, 2011, Philadelphia, PA.
- “Building Your Personal Brand using Social Media”, University of Maryland Campus Recreation Services, February 22, 2011, College Park, MD.
- “Media, Aggregators and the Link Economy”, November 19, 2010, Networks, Electronic Commerce and Telecommunications Institute Fall Conference, New York City, NY.
- “Media, Aggregators and the Link Economy”, November 9, 2010, Google Marketing Research Awards, New York City, NY.
- “Diffusion of Information in Social Media” September 9, 2010, University of Maryland, Applied Dynamics Seminar, College Park, MD.

- “An Introduction to Agent-Based Modeling Using NetLogo” May 26, 2010, Ohio State University, Innovation Group on Complexity in Human, Natural, and Engineered Systems, Columbus, OH.
- “Understanding the Diffusion of Information Using Agent-Based Modeling and Network Science” May 4, 2010, US Dept. of Transportation, Federal Highway Administration, McLean, VA.
- “Inferring Network Properties from Aggregate Diffusion Data” February 25, 2010, Statistics Seminar, University of Maryland, College Park, MD.
- “A Complex Systems Approach to the Diffusion of Information” November 9, 2009, Villanova School of Business, Philadelphia, PA.
- “Agent-Based Modeling and the Diffusion of Information” August 25<sup>th</sup>, 2009, Department of Homeland Security’s Invitational Workshop on Biologically-Inspired Social Modeling, Arlington, VA.
- Series of Talk on Agent-Based Modeling and Social Network Applications, July 13-July 31, 2009, Mittweida University (Mittweida, Germany) and the Max Planck Institute for the Study of Societies (Cologne, Germany).
- “Diffusion of Innovation Across Diverse Systems” May 1, 2009, Center for Social Complexity, George Mason University.
- “Agent-Based Modeling in Marketing” William Rand and Roland Rust, April 24, 2009, Inaugural Complexity in Business Conference, Center for Complexity in Business, University of Maryland.
- “Diffusion of Innovation Across Diverse Systems” February 13, 2009, Biology-Inspired Computing Seminar, Department of Computer Science, University of Maryland.
- “Simulating the Formation of Decision Teams, or How the Legislative Process is like a Musical” August 1, 2008, Deutsche Welle-TV, Berlin, Germany.
- “Adaptive Agents, Networks, and the Diffusion of Innovation” December 10, 2007, Marketing Research Seminar, Smith School of Business, University of Maryland, College Park, MD, USA.
- “From Turtles to Cities: Agent-Based Modeling and Urban Pattern Formation” August 13, 2007, Decision and Information Sciences Seminar, Argonne National Laboratory, Argonne, IL, USA.
- “Agents, Complex Systems, and the Diffusion of Innovation” August 8, 2007, ExxonMobil Exploration, Orrington Hotel, Evanston, IL, USA.
- “Agents, Networks, and the Diffusion of Innovation” May 22, 2007, Gridwise Architecture Council, Rosemont Convention Center, Rosemont, IL, USA.
- “Networks and Diffusion of Innovation” January 26, 2007, Complexity Action Network Virtual Network Meeting, Northwestern University, Evanston, IL, USA.
- “Advancing the State of the Art in Agent-Based Modeling” October 25, 2006, Northwestern Institute on Complex Systems (NICO) Seminar, Northwestern University, Evanston, IL, USA.
- “Applications of ABM to Businesses and Organizations” October 16, 2006, Complexity Action Network Virtual Network Meeting, Northwestern University, Evanston, IL, USA.
- “Emergence and Feedbacks: Genetic Algorithms and Agent-Based Modeling” January 31, 2005, Northwestern Institute on Complex Systems (NICO) Seminar, Northwestern University, Evanston, IL, USA.
- “Statistical Validation of Spatial Patterns in Agent-Based Models” August 29, 2003, Seminar at National Center for Computer Science and Mathematics in the Netherlands (CWI), Amsterdam, The Netherlands.
- “SOME: An Agent-Based Model of Suburban Sprawl” February 4, 2003, AI Seminar, University of Michigan, Ann Arbor, MI, USA.

## **WORKSHOPS AND SPECIAL SESSIONS**

- “3<sup>rd</sup> Annual Complexity in Business Conference”, Co-chair with Roland Rust, October 14, 2011, University of Maryland’s Center for Complexity in Business, Washington, DC.

- “5<sup>th</sup> Evolutionary Computation and Multi-Agent Systems and Simulation (ECoMASS)”, Co-chair with Forrest Stonedahl, presented at *Genetic and Evolutionary Computation Conference (GECCO)* 2011, Dublin, Ireland.
- “2<sup>nd</sup> Annual Complexity in Business Conference”, Co-chair with Wolfgang Jank and Roland Rust, November 12, 2010, University of Maryland’s Center for Complexity in Business, Washington, DC.
- “Using Simulation Experiments to Build and Test Entrepreneurship Theories: Simulation in Entrepreneurship”, Presenter, Professional Development Workshop, presented at *Academy of Management (AOM)*, 2010, Montreal, Canada.
- “Complex Systems and Marketing” Session Organizer (2010) *Joint Statistical Meetings (JSM)*, July 31-August 5, Vancouver, Canada.
- “Micro Behaviors and Macro Outcomes: New Questions, Methods, and Application for Studying Complex Systems in marketing”, Co-chair with Andrew Stephen, Part of *Marketing Science* 2010, Cologne, Germany.
- “4<sup>th</sup> Evolutionary Computation and Multi-Agent Systems and Simulation (ECoMASS)”, Co-chair with Rick L. Riolo, *Genetic and Evolutionary Computation Conference (GECCO)* 2010, Portland, Oregon.
- “Modeling and Analyzing Network Data – A hands-on workshop using NetLogo, R and NodeXL”, Co-presenter with Wolfgang Jank, University of Maryland’s Center for Complexity in Business Fall Workshop, December 4, 2009, College Park, MD, USA
- “Applied Agent-based Modeling in Management Research”, Presenter, Professional Development Workshop as part of the *Academy of Management (AOM)*, 2009, Chicago, IL, USA.
- “3<sup>rd</sup> Evolutionary Computation and Multi-Agent Systems and Simulation (ECoMASS)”, Co-chair with Sevan Ficici and Rick L. Riolo, Part of the *Genetic and Evolutionary Computation Conference (GECCO)* 2009, Montreal, Canada.
- “Agent-Based Modeling in Marketing”, Co-chair with Roland Rust, Part of *Marketing Science* 2009, Ann Arbor, MI, USA.
- “Complexity in Business Conference”, Co-chair with Chris Dellarocas and Roland Rust, April 24, 2009, University of Maryland’s Center for Complexity in Business, College Park, MD.
- “2<sup>nd</sup> Evolutionary Computation and Multi-Agent Systems and Simulation (ECoMASS)”, Co-chair with Sevan Ficici and Rick L. Riolo, Part of the *Genetic and Evolutionary Computation Conference (GECCO)* 2008, Atlanta, GA.
- “1<sup>st</sup> Evolutionary Computation and Multi-Agent Systems and Simulation (ECoMASS)”, Co-chair with Sevan Ficici, Part of the *Genetic and Evolutionary Computation Conference (GECCO)* 2007, London, UK.
- “Extending Computational Cognitive Modelling to Issues of Multi-Agent Interaction (ECM\_MAI)”, Co-chair with Sule Yildirim, Part of the *International Conference on Artificial Intelligence (ICAI)* 2007, Las Vegas, Nevada, USA.

## **TUTORIALS**

- “An Introduction to Agent-Based Modeling” Lead Instructor, November 18, 2011, Smeal School of Business, Pennsylvania State University, State College, PA.
- “An Overview of ABM Applications and Techniques” Lead Instructor, February 24, 2011, Robert H. Johnson Health and Society Fellows Program, University of Pennsylvania, Philadelphia, PA.
- “Using NetLogo to Understand Computational Social Science” Lead Instructor, *Computational Social Science Society (CSSS)* 2010, November 5-6, 2010, Arizona State University, Tempe, AZ.
- “Introduction to Agent-Based Modeling” Lead Instructor, November 11-November 13, 2010, *AAAI Fall Symposium on Complex Adaptive Systems* 2010, Washington, DC.

“NetLogo Workshop” Lead Instructor, May 26, 2010, Complexity in Human, Natural and Engineered Systems Innovation Group, Ohio State University, Columbus, OH.

“Introduction to Agent-Based Modeling” Lead Instructor, November 5-November 7, 2009, *AAAI Fall Symposium on Complex Adaptive Systems* 2009, Washington, DC.

“Agent Based Simulation Methods: Applied” Lead Instructor, July 28-July 31, 2008, Mittweida Summer CommuniCy 2008, Hochschule Mittweida University of Applied Sciences, Mittweida, Germany.

“Model Building and Simulation: Introduction to Adaptive Structures” Lead Instructor, July 21-25, 2008, Mittweida Summer CommuniCy 2008, Hochschule Mittweida University of Applied Sciences, Mittweida, Germany.

“Hands-On Introduction to Agent-Based Modeling Using NetLogo” Lead Instructor, May 21, 2008, *NICO Complexity Conference*, Northwestern University, Evanston, IL, USA.

"Introduction to Agent-Based Modeling Using NetLogo" Lead Instructor, November 12-14, 2007, *Agent* 2007, Northwestern University, Evanston, IL, USA.

“Agent Based Simulation Methods” Lead Instructor, July 16-27, 2007, Mittweida Summer CommuniCy 2007, Hochschule Mittweida University of Applied Sciences, Mittweida, Germany.

"Introduction to Agent-Based Modeling Using NetLogo" Lead Instructor, June 6, 2007, *North American Association for Computational Social and Organizational Science (NAACSOS)* 2007, Emory University, Atlanta, GA, USA.

“Hands-On Workshop on Agent-Based Modeling” Lead Instructor, June 1, 2007, *Complex Systems Approaches to Population Health Workshop*, University of Michigan, Ann Arbor, MI, USA.

"Introduction to Agent-Based Modeling Using NetLogo" Lead Instructor, September 18-20, 2006, *Agent* 2006, Holiday Inn City Centre, Chicago, IL, USA.

"NetLogo Workshop for Texas Instruments' Educators" Assistant Instructor, July 21-28, 2006, Northwestern University, Evanston, IL, USA.

"Introduction to Agent-Based Modeling Using NetLogo" Lead Instructor, June 25, 2006, *Swarmfest* 2006, Notre Dame University, South Bend, IN, USA.

"Introduction to Agent-Based Modeling Using NetLogo" Lead Instructor, June 21, 2006, *North American Association for Computational Social and Organizational Science (NAACSOS)* 2006, Notre Dame University, South Bend, IN, USA.

"Modeling for Innovation: Exploring New Ideas for Innovation & Diffusion Through Agent-Based Modeling" Lead Instructor, June 29, 2006, Complexity Action Network Innovation Lab, Northwestern University, Evanston, IL, USA.

"Introduction to Agent-Based Modeling Using NetLogo" Lead Instructor, October 10-12, 2005, *Agent* 2005, Holiday Inn City Centre, Chicago, IL, USA.

"Complex Systems Models in Social Science" Lab Instructor, Summer, 2004, University of Michigan, Inter-University Consortium for Political and Social Research (ICPSR), Ann Arbor, MI, USA.

## **GRANTS AND AWARDS**

Marketing Science Institute, “Building the B[r]and: Using Social Media to Drive Customer Engagement and Sales”, 2011-2012, \$11,000

Department of Transportation, Federal Highway Administration, Exploratory Advanced Research Program, “Agent-Based Approach for Integrated Traveler and Driver Behavior Modeling”, 2011-2013, \$654,869

Robert H. Smith Summer Research Award, “Diffusion and Ranking in Social Media”, Summer 2011, \$4,000

National Science Foundation, “Diffusion and Ranking in Social Media: A Computational Examination of the Role of Influence and Authority”, Three Years, 2010-2013, \$488,840

NET Institute Summer Research Award, “Media, Aggregators and the Link Economy”, Summer 2010, \$3,000  
Robert H. Smith Summer Research Award, “Merging Agent-Based and Functional Models for Complex Markets: The Case of Online Auctions”, Summer 2010, \$6,750  
Google and WPP Marketing Research Award, “Media, Aggregators and the Link Economy: An Analytical and Empirical Examination of the Future of Content”, Google and WPP, 2010, \$80,000  
Rackham Interdisciplinary Workshop Grant, “Complex Systems Advanced Academic Workshop (CSAAW)”, University of Michigan, 2003 to 2005, \$5,000 / year

## **POPULAR PRESS REFERENCES**

*Washington Post*, 12/2/2011, “Facebook commerce startups get in on gift-buying season”  
*Your Money & Business*, *Smith Business Close-Up* on Maryland Public Television, August 18, 2011, “Social Media in Business”  
*Financial Times*, 7/28/2011, “Professor of the Week”, “Geolocation”, “Microblog”, “Sentiment Analysis”, “Social Media Monitoring”, “Social Tag”  
*Baltimore Business Journal*, 11/19/2010, “Bridging the App Gap”

## **HONORS AND AWARDS**

Top 15% Teaching Award, Robert H. Smith School of Business, University of Maryland, 2011  
Campus Nominee, Microsoft New Faculty Fellowship, University of Maryland, 2008  
Northwestern Institute on Complex Systems Postdoctoral Research Fellow, Evanston, IL, USA, 2005 to 2008  
Santa Fe Institute Graduate Workshop in Economics Participant, Santa Fe Institute, Summer of 2003  
Winter School for Complex Systems Participant, École Normale Supérieure de Lyon, December 2002  
Santa Fe Institute Complex Systems Summer School Program Participant, Santa Fe Institute, Summer of 2002  
Japanese Technology Internship Program Participant, University of Michigan, Summer of 2001  
Graduate Assistance in Areas of National Need (GAANN) Fellow, University of Michigan, 2000 to 2001  
Computer Science Departmental Fellow, University of Michigan, 1999 to 2000  
Alumni Distinguished Scholar, Michigan State University, 1994 to 1999  
Summit Group Award of Excellence, Michigan State University, 1998 to 1999  
Member of National Champion Debate Team, Michigan State University, 1994 to 1999  
Distinguished Engineering Scholarship, Michigan State University, 1994 to 1996

## **REVIEWING SERVICE**

### *Journals*

Editorial Board, *International Journal of Business and Systems Research*  
Ad-Hoc Reviewer, *Organization Science*  
Ad-Hoc Reviewer, *ACM Computing Surveys*  
Ad-Hoc Reviewer, *Journal of Marketing Research*  
Ad-Hoc Reviewer, *Decisions Sciences*  
Ad-Hoc Reviewer, *International Journal of Research in Marketing*  
Ad-Hoc Reviewer, *Journal of Consumer Research*

Ad-Hoc Reviewer, *International Journal of Business and Systems Research*  
Ad-Hoc Reviewer, *Marketing Letters*  
Ad-Hoc Reviewer, *Journal of Product Innovation Management*  
Ad-Hoc Reviewer, *Journal of Artificial Systems and Social Simulation*  
Ad-Hoc Reviewer, *Simulation*  
Ad-Hoc Reviewer, *Evolutionary Computation*  
Ad-Hoc Reviewer, *Complexity*  
Ad-Hoc Reviewer, *Eastern Economic Journal*  
Ad-Hoc Reviewer, *IEEE Transactions on Computational Intelligence and AI in Games*  
Ad-Hoc Reviewer, *Decision Support Systems*

### *Conferences*

Chair of Workshops, *Genetic and Evolutionary Computation Conference (GECCO) 2011*, Philadelphia, PA.  
Reviewer, *International Conference on Information Systems (ICIS) 2011*, Shanghai, China.  
Program Committee Member, *Congress on Evolutionary Computation (CEC) 2011*, New Orleans, LA, USA.  
Program Committee Member, *Association for the Advancement of Artificial Intelligence (AAAI) 2010 Fall Symposium on Complex Adaptive Systems*, Arlington, VA  
Reviewer, *Academy of Management (AOM) 2010*, Montreal, Canada  
Program Committee Member, *Congress on Evolutionary Computation (CEC) 2010*, Barcelona, Spain  
Program Committee Member, *Evolutionary Algorithms in Stochastic and Dynamic Environments (EvoStoc) at Evo\* 2010*, Istanbul, Turkey  
Reviewer, *International Conference on Information Systems 2009*, Phoenix, AZ  
Program Committee Member, *Association for the Advancement of Artificial Intelligence (AAAI) 2009 Fall Symposium on Complex Adaptive Systems*, Arlington, VA  
Program Committee Member, *Congress on Evolutionary Computation (CEC) 2009*, Trondheim, Norway  
Program Committee Member, *Evolutionary Algorithms in Stochastic and Dynamic Environments (EvoStoc) at Evo\* 2009*, Turbingen, Germany  
Program Committee Member, *World Congress on Social Simulation, (WCSS) 2008*, George Mason University, Washington, DC  
Program Committee Member, *Alife XI (2008)*, Winchester, UK  
Program Committee Member, *Evolutionary Algorithms in Stochastic and Dynamic Environments (EvoStoc) at Evo\* 2008*, Napoli, Italy  
Program Committee Member, *IEEE World Congress on Computational Intelligence (WCCI) 2008*, Hong Kong  
Program Committee Member, *Evolutionary Algorithms for Dynamic Optimization Problems (EvoDOP) at the Genetic and Evolutionary Computation Conference (GECCO) 2007*, London, UK.  
Program Committee Member, *Evolutionary Algorithms in Stochastic and Dynamic Environments (EvoStoc) at Evo\* 2007*, Valencia, Spain  
Program Committee Member, *Genetic Algorithm Track for Genetic and Evolutionary Computation Conference (GECCO) 2006*, Seattle, WA, USA  
Program Committee Member, *Evolutionary Algorithms in Stochastic and Dynamic Environments (EvoStoc) at EvoWorkshops 2006*, Budapest, Hungary  
Program, Committee Member, *Evolutionary Algorithms for Dynamic Optimization Problems (EvoDOP) at the Genetic and Evolutionary Computation Conference (GECCO) 2005*, Washington, DC, USA

Program Committee Member, *EvoDOP-2005 Workshop at GECCO 2005*

*Governmental*

Reviewer, Maryland Industrial Partnerships

Reviewer, National Science Foundation

External Reviewer, Netherlands Organization for Scientific Research (NWO)

External Reviewer, National Fund for Scientific and Technological Development (FONDECYT) of the Chilean Government Commission for Scientific and Technological Development (CONICYT), Chile

External Reviewer, Summer Research Grants, Central European University (CEU), Budapest, Hungary

*Books*

Ad-Hoc Reviewer, Wiley Publishing

*Thesis*

External Reviewer, “AWOL – A Model for Solving Decision Problems in Multi-Agent Systems” (2009) Dissertation of Ami Ricardo Berler at Ben-Gurion University of the Negev, Israel

External Reviewer, “Fitness Adaptation in Memetic Algorithms” (2007) Dissertation of Ferrante Neri at the University of Jyvaskyla, Norway

**UNIVERSITY SERVICE**

Smith Media Team, Robert H. Smith School of Business, University of Maryland, 2011-present

Smith IT Architecture Review Committee, Robert H. Smith School of Business, University of Maryland, 2011-present

Faculty Council, Robert H. Smith School of Business, University of Maryland, 2010-present

Director of Research, Center for Complexity in Business, University of Maryland, 2008-present

Banneker-Key Scholarship Committee, University of Maryland, 2011

Coordinator, Northwestern Institute on Complex Systems Reading Group (NRG), Northwestern University, 2006-2008

President, Computer Science and Engineering Graduate Student Society (CSEG), University of Michigan 2004-2005

Coordinator, Complex Systems Advanced Academic Workshop (CSAAW), University of Michigan, 2003-2005

Executive Board and Events Coordinator, Computer Science and Engineering Graduate Student Society (CSEG), 2001-2004

Computer Science Curriculum Committee, University of Michigan, 2001-2002

Computer Science Graduate Studies and Research Committee, Michigan State University, 1998-1999

Vice-President, MSU Chapter of Association for Computing Machinery (ACM), Michigan State University, 1995-1999

Advisory Committee to the Chair of the Computer Science Department, Michigan State University, 1996-1998

Tau Beta Pi (Engineering Honors), Michigan State University

Upsilon Pi Epsilon (Computer Science Honors), Michigan State University

Mu Pi Epsilon (Mathematics Honors), Michigan State University

Phi Tau Sigma (Philosophy Honors), Michigan State University

## **COMMITTEE MEMBERSHIPS**

Jared Sylvester, University of Maryland, Computer Science  
Derek Monner, University of Maryland, Computer Science  
Dilek Gunec, University of Maryland, Decision, Operations and Information Technology  
Hossam Sharara, University of Maryland, Computer Science  
Hyoryung Nam, University of Maryland, Marketing  
Wei Guo, University of Maryland, Applied Mathematics, Statistics and Scientific Computation  
Randy Casstevens, George Mason University, Computer Science  
Daniel Kornhauser, Northwestern University, Computer Science  
Forrest Stonedahl, Northwestern University, Computer Science, grad. 2011  
Don Miner, University of Maryland – Baltimore County, Computer Science, grad. 2010  
Yao Wu, University of Maryland, Computer Science, grad. 2009  
Yandan Lu, University of Illinois-Chicago, Urban Planning, grad. 2009

## **PROFESSIONAL SOCIETY MEMBERSHIP**

Open Agent Based Modeling (OpenABM) Consortium, founding member  
Network for Computational Modeling in Socio-Ecological Sciences (CoMSES), founding member  
Association for Computing Machinery (ACM)  
Special Interest Group for Evolutionary Computation (SIGEVO)  
American Statistical Association (ASA)  
Institute for Operations Research and the Management Sciences (INFORMS)