CURRICULUM VITAE

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Education

PhD	1977	Systems Science, Portland State University, Portland, OR
Master of Engineering	1973	Harvey Mudd College, Claremont, CA
BS	1972	Engineering, Harvey Mudd College, Claremont, CA, with Distinction

Academic Employment

2015-present	Professor and Systems Science Program Chair, Portland State University, Portland, OR
2010-2015	Associate Professor, w/Tenure, Systems Science Program, Portland State University, Portland, OR
2005-2009	Associate Professor, Tenure-Track, Systems Science Ph.D. Program, Portland State University, Portland, OR
2000-2005	Associate Professor, Fixed Term, Systems Science Ph.D. Program, Portland State University, Portland, OR
1997-2000	Adjunct Professor, Systems Science Ph.D. Program, Portland State University, Portland, OR
1993-1997	Adjunct Associate Professor, Systems Science Ph.D. Program, Portland State University, Portland, OR
1978-1993	Adjunct Assistant Professor, Systems Science Ph.D. Program, Portland State University, Portland, OR
1976-1977	Research Associate, NSF Grant, Systems Science Ph.D. Program, Portland State University, Portland, OR

Industry Employment

2001-2009	Consultant, Leupold & Stevens, Inc., Beaverton, OR
1993-2000	Information Resources Manager, Leupold & Stevens, Inc., Beaverton, OR
1992-1993	MRP Project Manager, Epson Portland, Inc., Hillsboro, OR
1987-1991	Director of Manufacturing, Magni Systems, Inc., Beaverton, OR
1984-1987	MIS Director and Materials Manager, Photon Kinetics, Inc., Beaverton, OR
1978-1984	Planning and Scheduling Manager, Corporate Forecaster, Tektronix, Inc., Beaverton, OR
1975-1976	Resource Planning Analyst, Pacific Power and Light Company, Portland, OR

Dissertation

"CHANCE: A Probabilistic Model for Energy Resource Planning," 1977. Committee members: Richard Duncan (chair), George Lendaris, and Harold Linstone.

Refereed Publications

Peer-Reviewed Book Chapters and Technical Reports

Uehara T, Y Nagase, W. Wakeland, "System Dynamics modelling of Ecological-Economic Systems." book chapter in Feedback Economics, Robert Y Cavana, Brian C. Dangerfield, Oleg V. Pavlov, Michael J. Radzicki, I. David Wheat co-editors. Springer Contemporary Systems Thinking Series, June, 2021. https://link.springer.com/book/10.1007/978-3-030-67190-7

Nielsen, A., W. Wakeland, A. Zimam, "A Public Health Model for Simulating Policy Interventions to Reduce Nonmedical Opioid Use," in *Advances in Intelligent Systems and Computing,* Springer-Verlag, Vol. 319, 2015, 239-254.

Nielsen, A. and W. Wakeland, "Dynamic Simulation of the Effect of Tamper Resistance on Opioid Misuse Outcomes," in *Advances in Intelligent Systems and Computing,* Springer-Verlag, Vol. 256, 2014, 169-181.

Raffo, D. and W. Wakeland, W., *High Value Added Ways to Apply Process Simulation within Organizations* (vol. CMU/SEI-2008-TR-002). Software Engineering Institute, Carnegie Mellon University, 2008.

Raffo, D. and W. Wakeland, "Moving up the CMMI Capability and Maturity Levels Using Simulation," Software Engineering Institute Technical Report, TR-28, Carnegie Mellon University, 2007.

Setamanit, S., W. Wakeland, D. Raffo, "Exploring the Impact of Task Allocation Strategies for Global Software Development Using Simulation," *Software Process Change*, Eds: Wang, Pfahl, Raffo, and Wernick, Lecture Notes in Computer Science, Number 3966, Springer 2006, pp 274-285.

Wakeland, W., J. Fusion, B. Goldstein, "Estimation of subject-specific ICP dynamic models using prospective clinical data," in M. Ursino, C. Brebbia, G. Pontrelli, E. Magosso (eds.) *Modelling in Medicine and Biology VI*, WIT Press, Southampton, Boston, 2005, pp 57-66.

Journal Articles [w/Impact factor]

Lim, T. Y., E. J. Stringfellow, C. A. Stafford, C. DiGennaro, J. B. Homer, W. Wakeland, S. L. Eggers, R. Kazemi, L. Glos, E. Ewing, C. B. Bannister, K. Humphreys, D. C. Throckmorton M. S. Jalali, "Modeling the evolution of the U.S. opioid crisis for national policy development" PNAS (submitted 8/30/21) [IF 12.3]

Nunes, A., M. Zwick, W. Wakeland, "Sensitivity Analysis of an Agent-Based Simulation Model using Reconstructability Analysis." Int'l J. of General Systems, 2021 (50:3) 319-338. https://www.tandfonline.com/doi/full/10.1080/03081079.2021.1874947 [IF 1.64]

Homer J, Wakeland W. "A dynamic model of the opioid drug epidemic with implications for policy." *American Journal of Drug and Alcohol Abuse*. June, 2020. DOI: 10.1080/00952990.2020.1755677 [IF 1.83]

Pray, IW, Wakeland W, Pan W, Lambert WE, Garcia HH, Gonzalez AE, O'Neal SE "Understanding transmission and control of the pork tapeworm with CystiAgent: a spatially explicit agent-based model" *Parasites & vectors*, 2020 *13*(1) 1-13. [IF 3.43]

Christensen JS., Wild H, Kenzie ES., Wakeland W, Budding D, Lillas C. "Diverse Autonomic Nervous System Stress Response Patterns in Childhood Sensory Modulation." *Frontiers in Integrative Neuroscience* (2020) Vol 14. https://www.frontiersin.org/article/10.3389/fnint.2020.00006 [IF: 2.81]

Pray IW, Muro C, Gamboa R, Vilchez P, Wakeland W, *et al.* Seasonal patterns in risk factors for *Taenia solium* transmission: a GPS tracking study of pigs and open human defecation in northern Peru. *Parasites & Vectors* 2019 12(1) 1-12. https://doi.org/10.1186/s13071-019-3614-5 [IF 3.43]

McGregor M, A Nielsen; C Chung, M Fillery; W Wakeland, Silvano Mior, "System Dynamics to Investigate Opioid Use and Chiropractic Care for Chronic Musculoskeletal Pain" *J of Manipulative and Physiological Therapeutics*. 2019 42(4), 237-246. [IF 1.35]

Missikpide C., C. Peek-Asa, D.V. McGehee, J. Torner, W. Wakeland, R Wallace. "Teen driver system modeling: a tool for policy analysis." *Injury Epidemiology* 2018 5:34. https://doi.org/10.1186/s40621-018-0164-9 [IF 2.40]

Hallvik SE, Geissert P, Wakeland W, Hildebran C, Carson J, O'Kane N, Deyo RA. (2017) Opioid-Prescribing Continuity and Risky Opioid Prescriptions, *Ann Fam Med* Sep/Oct 2018 16(5) 440-2. PMID: 30201641 [IF 4.57]

Pray, I, Wakeland W, Pan W, Lambert W, Gilman R, Gonzalez A, Gavidia C, Garcia H, O'Neal S. "Introducing CYSTIAGENT: an agent-based model to simulate Taenia Solium transmission in Peru" *American J of Tropical Medicine and Hygiene*, 2018 99(4) 7-8. [IF 2.13]

Deyo RA, Hallvik SE, Hildebran C, Marino M, O'Kane N, Carson J, Van Otterloo J, Wright, DA, Millet LM, Wakeland W. Use of Prescription Opioids Before and After Lumbar Fusion Surgery. *Pain* June 2018 159(6) 1147-54 [IF 5.213]

Kenzie E, Parks E, Bigler E, Lim M, Wright D, Chesnutt J, Hawryluck G, Gordon W, Wakeland W. "The Dynamics of Concussion: Mapping pathophysiology, persistence, and recovery with causal-loop diagramming," *Frontiers in Neurology, Neurotrauma.section* Apr 2018 epub ahead of print [IF 3.552]

Geissert P, Hallvik S, Van Otterloo J, O'Kane N, Alley L, Carson J, Leichtling G, Hildebran C, Wakeland W, Deyo RA. Response to Hincapie-Castillo and Colleagues Letter to the Editor. Pain Apr 2018 159(4) 805-6. [IF 5.213]

Deyo RA, Hallvik SE, Hildebran C, Marino M, Springer R, Irvine JM, O'Kane N, Van Otterloo J, Wright DA, Leichtling G, Millet LM, Carson J, Wakeland W, McCarty D. Association of Prescription Drug Monitoring Program Use With Opioid Prescribing and Health Outcomes: A Comparison of Program Users and Nonusers. J Pain, Feb 2018 19(2) 166-177. PMID: 29054493 [IF 4.519]

Geissert P, Hallvik S, Van Otterloo J, O'Kane N, Alley L, Carson J, Leichtling G, Hildebran C, Wakeland W, Deyo RA. High Risk Prescribing and Opioid Overdose: Prospects for a Predictive Model. Pain Jan 2018 159(1) 150-6. PMID: 28976421 [IF 5.213]

Kenzie E, Parks E, Bigler E, Lim M, Chesnutt J, Wakeland W. "Concussion as a Multi-scale Complex System: An Interdisciplinary Synthesis of Current Knowledge" *Frontiers in Neurology, Neurotrauma.section*, Sep 2017 Vol. 8, Article 513, 17 pgs. (2017) [IF 3.552]

Uehara, T., Y. Nagase, W. Wakeland, "Integrating Economics and System Dynamics Approaches for Modelling an Ecological–Economic System." Syst. Res, July/Aug 2016, 33(4), 515-31. [IF 1.034]

Wakeland, W., A. Nielsen, A., T. D. Schmidt, "Gaining Policy Insight with a System Dynamics Model of Pain Medicine Prescribing, Diversion and Abuse." Syst. Res, May/Jun 2016, 33(3), 400-412. [IF 1.034]

Chen, H., J. Yu, W. Wakeland, "Generating technology development paths to the desired future through system dynamics modeling and simulation." Futures 2016 Jan 1. [IF 1.242]

Wakeland W., A. Nielsen, P. Geissert, "Dynamic model of nonmedical opioid use trajectories and potential policy interventions." Am J Drug Alcohol Abuse, 2015, 41(6), 508-518. NIHMS744117, PMID: 25982491, PMCID: PMC46857106 [IF 1.31]

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Wakeland, W., A. Nielsen, T. Schmidt, D. McCarty, L. Webster, J. Fitzgerald, J.D. Haddox, "Modeling the Impact of Simulated Educational Interventions on the Use and Abuse of Pharmaceutical Opioids in the United States: A Report on Initial Efforts." *Health Education Behavior* 2013 40(1), 74S-86S. NIHMS617037 PMID: 24084403, PMCID: PMC4136470 [IF 1.825]

Wikoff, R., G. Nurse-Rainbolt, W. Wakeland, "Measuring the Longitudinal Effects of Food Carbon Footprint Training on Consumers: Knowledge, Attitudes, and Behavioral Intentions," *Sustainability: The Journal of Record*. October 2012, 5(5): 317-322.

Goldstein, B., R.C. Tasker, W. Wakeland, "From Lundberg to SIM-ICP: Computational Physiology and Modeling Intracranial Pressure" *Sci. Transl. Med.*4, 2012, 129fs6. PMID: 22496544 [IF 7.804]

Chen, H., W. Wakeland, J. Yu, "A two-stage technology foresight model with system dynamics simulation and its application in the Chinese ICT industry," *Technological Forecasting and Social Change* 79 (7), 2012: 1254–1267. [IF 1.709]

Wakeland W., T. Schmidt, A. Gilson, D. Haddox, L. Webster, "System dynamics modeling as a potentially useful tool in analyzing mitigation strategies to reduce overdose deaths associated with pharmaceutical opioid treatment of chronic pain," *Pain Medicine*, 12(S2), 2011: S49–S58. PMID: 21668757 [IF 2.346]

Wakeland W., L. Sears, K. Venkat, "Measuring the Effects of a Food Carbon Footprint Training on Consumers: the Effect on Consumer Knowledge, Attitudes, and Behavioral Intentions," *Sustainability: Journal of Record*, Vol. 2, No. 1, 2009, pp 45-52.

Wakeland W., R. Agbeko, K. Vinecore, M. Peters, B. Goldstein, "Assessing the Prediction Potential of a Computer Model of Intracranial Pressure Dynamics," *Critical Care Medicine*, Vol. 37, No. 3, 2009, pp 1079-89. PMID: 19237921 [IF 6.330]

Jolly R. and W. Wakeland, "Using Agent Based Simulation and Game Theory Analysis to Study Knowledge Flow in Organizations:The KMscape," *International Journal of Knowledge Management*, Vol. 5, No.1, 2009, pp 17-28. [IF .240]

Wakeland W. and B. Goldstein, "A review of physiological simulation models of intracranial pressure dynamics," *Computers in Biology and Medicine* 2008. vol. 38, 2008, pp. 1024-1041. PMID: 18760775 [IF 1.089]

Setamanit S., W. Wakeland, D. Raffo, "Using Simulation to Evaluate Global Software Development Task Allocation Strategies," *Software Process Improvement and Practice*, vol. 12, No. 5, 2007, pp 491-503. [IF .844]

Hornero R., M. Aboy, D. Abasolo, J. McNames, W. Wakeland, B. Goldstein, "Complex analysis of intracranial hypertension using approximate entropy," *Critical Care Medicine*, vol. 34, no. 1, 2006, pp 87-95. [IF 6.330]

Sommers, J.A., J.C. Cullen, R.R. Sinclair, W.W. Wakeland, "Dynamic Systems and Organizational Decision Making in Nonprofits," *Journal of Applied Behavioral Science*, vol. 41, no. 4, 2005, pp 482-502. [IF 1.682]

Wakeland, W.W., S. Shervais, D.M. Raffo. "Heuristic Optimization as a V and V Tool for Software Process Simulation Models," *Software Process Improvement and Practice*, vol. 10, no. 3, 2005, pp 301-309. [IF .844]

Liu, L. and W. Wakeland, "Combining optimizer and metamodelling for railcar structural optimization," *Proceedings of the Institution of Mechanical Engineers, Part F: Journal of Rail and Rapid Transit,* vol. 219, no. 1, 2005, pp 1-10. [IF.436]

Wakeland, W. and B. Goldstein, "A computer model of intracranial pressure dynamics during traumatic brain injury that explicitly models fluid flows and volumes," *Intracranial Pressure and Brain Monitoring, Acta Neurochirurgica Supplementum*, 03/2005, vol. 95, pp 321-326. [IF 1.520]

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Wakeland, W.W., R.H. Martin, D.M. Raffo, "Using Design of Experiments, Sensitivity Analysis, and Hybrid Simulation to Evaluate Changes to a Software Development Process: A Case Study," *Software Process Improvement and Practice*, vol. 9, no. 2, 2004, pp 107-119. [IF .844]

Linstone, H., G. Lendaris, S. Rogers, W. Wakeland, M. Williams, "The Use of Structural Modeling for Technology Assessment," *Technological Forecasting and Social Change*, vol. 14, no. 4, 1979, pp 291-327.

Wakeland, W., "QSIM2: A Low-Budget, Heuristic Approach to Modeling and Forecasting," *Technological Forecasting and Social Change*, vol. 9, nos. 1 & 2, 1977, pp 213-229.

Peer-Reviewed Conference Papers

Stringfellow, E., T. Y. Lim, C. Stafford, C. DiGennaro, J. Homer, W. Wakeland, M.Jalali, "Reducing Opioid Use Disorder and Overdose in the United States: Policy Analysis" Proc. 39th Int'l System Dynamics Conference, online Jul, 2021.

Lim, T. Y., E. Stringfellow, C. Stafford, C. DiGennaro, J. Homer, W. Wakeland, L. Glos, R. Kazemi-Tabriz, M. Jalali "Reducing Opioid Use Disorder and Overdose in the United States: Model Development and Estimation" Proc. 39th Int'l System Dynamics Conference, online Jul, 2021.

Wakeland, W., J. Homer. "Addressing parameter uncertainty in SD models with fit-to-history and Monte-Carlo sensitivity methods." Proc. 38th Int'l System Dynamics Conference, online Jul, 2020.

Nagase Y., T. Uehara, W. Wakeland, "Ecological economics system (EES) modelling: with a focus on endogenous innovation and resilience." Proc. 38th Int'l System Dynamics Conference, online Jul, 2020.

Wakeland, W., E. Kenzie. "Computational Model for Traumatic Brain Injury." Proc. 36th Int'l System Dynamics Conference, Reykjavik, Iceland, Aug, 2018.

Nagase, Y**.,** W. Wakeland**,** T. Uehara. "Ecological Economic System Modelling with a Focus on Endogenous Innovation and Resilience, Proc. 36th Int'l System Dynamics Conference, Reykjavik, Iceland, Aug, 2018.

Wakeland W. "Computational Modeling Framework for Multi-level Systems w Feedback, Uncertainty, and Heterogeneity—Case in Point: Concussion," Proc. 35rd Int'l System Dynamics Conference, Boston, July, 2017.

Parks, E., E. Kenzie, W. Wakeland, “Concussion as a complex system: Building a system dynamics model of mild traumatic brain injury.” Innovations in Collaborative Modeling, East Lansing, MI, June 14-15, 2016.

McGregor, M., A. Nielsen, C. Chung, M. Fillery, W. Wakeland, S. Mior, “Chiropractic care in a system dynamics model for minimizing opioid abuse for chronic non-malignant pain patients.” Association of Chiropractic Colleges Research Agenda Conference, Orlando, FL, Mar., 2016.

Wakeland W. “Prediction--the Quintessential Policy Model Validation Test,” Proc. 33rd Int’l System Dynamics Conference, Boston, July, 2015.

Nielsen A., W. Wakeland, T. Schmidt, “Simulating health policy interventions to reduce nonmedical use of pharmaceutical opioids.” 141st American Public Health Association Annual Meeting and Exposition, Boston, MA, Nov., 2013.

Nielsen, A., W. Wakeland, T. Schmidt, “An epidemic model of nonmedical opioid use with simulated public health interventions,” Proc. 3rd Int’l Conf. on Simulation and Modeling Methodologies, Technologies and Applications, Rekjavik, Iceland, August, 2013, pp 556-564.

Wakeland W. and A. Nielsen, “Modeling opioid addiction treatment policies using system dynamics,” Proc. 31st Int’l System Dynamics Conference, Boston, July, 2013.

Uehara T., Y. Nagase, W. Wakeland, “A Model-based Theory for Ecological Economics: A System Dynamics Approach,” Proc. 31st Int’l System Dynamics Conference, Boston, July, 2013.

Nielsen, A. and W. Wakeland, “Dynamic Simulation of Opioid Misuse Outcomes,” Proc.2nd Int’l Conf. on Simulation and Modeling Methodologies, Technologies, and Applications, Rome, Italy, August, 2012, pp 397-408.

Wakeland, W., A. Nielsen, T. Schmidt, “System Dynamics Modeling of Medical Use, Nonmedical Use and Diversion of Prescription Opioid Analgesics,” Proc. 30th Int’l Conf. System Dynamics Society, St. Gallen, Switzerland, July 2012.

Uehara, T., Y. Nagase and W. Wakeland. “Using system dynamics to contribute to ecological economics” Proc. 30th Int’l Conf. System Dynamics Society, St. Gallen, Switzerland, July 2012.

Uehara, Takuro, Yoko Nagase, and Wayne Wakeland. “System dynamics implementation of a model of population and resource dynamics with adaptation”, Proc.12th Biennial Conf. Int’l Soc. for Ecological Economics, Rio de Janeiro, Brazil, June, 2012.

Schmidt, T. D., W. Wakeland & D. Haddox. “A System Dynamics Model of Pharmaceutical Opioids: Medical Use, Diversion, and Nonmedical Use,” Proc. 29th Int’l Conf. System Dynamics Society, Wash. DC, July, 2011.

Walker, R., W. Wakeland, “Calibration of Complex System Dynamics Models--A Practioners Report,” Proc. 29th Int’l Conf. System Dynamics Society, , Wash. DC, July, 2011.

Wakeland, W., U. Medina, “Comparing Discrete Simulation and System Dynamics: Modeling an Anti-insurgency Influence Operation,” Proceedings of the 28th International Conference of the System Dynamics Society, Seoul, Korea, July 2010.

Uehara, T., Y. Nagase, W. Wakeland, “System Dynamics Implementation of an Extended Brander and Taylor-like Easter Island Model,” Proceedings of the 28th International Conference of the System Dynamics Society, Seoul, Korea, July 2010.

Cowan K., T. Daim, W. Wakeland, et al., “Forecasting the Adoption of Emerging Energy Technologies: Managing Climate Change and Evolving Social Values,“ Proceedings of PICMET ’09 (Portland International Conference on Management of Engineering and Technology), Portland, OR, August 2009, pp 3048-58.

Fenske, R., M. Pullman, W. Wakeland, "Food Delivery Footprint: Addressing Transportation, Packaging, and Waste in the Food Supply Chain," Second Annual Int'l Conf. on Business & Sustainability: Designing Sustainability, Portland, OR, October 2008.

Jolly, R. and W. Wakeland, "Using Agent Based Simulation and Game Theory Analysis to Study Information Sharing in Organizations—the Infoscape," Hawaii International Conference on System Sciences, Waikoloa, HI, January 2008.

Wakeland, W., K. Venkat, L. Sears, "Development of the Food Carbon Game and Determining its Effects on Consumer Knowledge, Transfer Intentions, and Environmental Self-Efficacy - A Progress Report," International Conference on Sustainability in the Supply Chain, Portland, OR, November 2007.

Setamanit, S., W. Wakeland, D.M. Raffo, "Improving Global Software Development Project Performance Using Simulation," Proceedings of PICMET '07 (Portland International Conference on Management of Engineering and Technology), Portland, OR, August 2007 pp2458-66..

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Setamanit, S., W. Wakeland and D. Raffo, "Exploring the Impact of Task Allocation Strategies for Global Software Development Using Simulation," Beijing: Proceedings of the Joint International Software Process Workshop and Workshop on Software Process Simulation and Modeling (ProSim), 2006.

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Liu, L. and W. Wakeland, "Does more uniformly distributed sampling generally lead to more accurate prediction in computer experiments?" 2005 Proceedings of the Winter Simulation Conference, Orlando, FL, December 2005, pp 2561-2571.

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Cangur, O., B. Denouden, B. Reiff, W. Wakeland, "Using Discrete System Simulation to Model the Lane County Criminal Justice System," Proceedings of PICMET '05 (Portland International Conference on Management of Engineering and Technology), Portland, OR, August 2005.

Bulbul, A. and W. Wakeland, “Introducing a Holistic Project Management Tool: Project Management Simulation Model (PMSM),” Proceedings of PICMET ’05 (Portland International Conference on Management of Engineering and Technology), Portland, OR, August 2005.

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Wakeland W. and M. Hoarfrost, “The Case for Thoroughly Testing Complex System Dynamic Models,” Proceedings of the 23rd International Conference of the System Dynamics Society, Boston, MA, July 2005.

Raffo D.M., U. Nayak, W. Wakeland, “Implementing Generic Process Simulation Models,” Proceedings of the 6th International Workshop on Software Process Simulation and Modeling (ProSim 2005), St. Louis, MO, May 2005. pp 139-143

Wakeland, W., J. McNames, B. Goldstein, "Calibrating an intracranial pressure dynamics model with annotated clinical data—a progress report," Proceedings of the 26th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, San Francisco, CA, September 2004, pp 746-749.

Liu, L. and W. Wakeland, “Using a Sizing-Optimizer to Optimize Topology and Partial Ground Structure Approach,” Proceedings of American Institute of Aeronautics and Astronautics 10th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, Albany, NY, August 2004, vol. 4, pp 2420-2429.

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Liu L. and W. Wakeland, “Combining Sizing Optimizer and Metamodel Optimization for Structural Topology Optimization,” Optech04 Optimization Technology Meeting, Breckenridge, CO, May 2004.

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Sommers, J.A., J.C. Cullen, R.R. Sinclair, W.W. Wakeland, “Using Systems Dynamics to Guide Organizational Change: A Case Study from the Non-Profit Sector,” Proceedings of the National Academy of Management Conference, Seattle, WA, August 2003.

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Forrester, J.L. and W.W. Wakeland, "Simulation as a Tool for Evaluating Strategic Policies for Flexible Supply Chain Systems," Proceedings of PICMET '03 (Portland International Conference on Management of Engineering and Technology), Portland, OR, July 2003.

Wakeland, W., R. Martin and D. Raffo, "Using Design of Experiments, Sensitivity Analysis, and Hybrid Simulation to Evaluate Changes to a Software Development Process: A Case Study," Proceedings of the International Workshop on Software Process Simulation and Modeling (ProSim '03), Portland, OR, May 2003.

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Wakeland, W.W., "Transforming technology management courses for Web delivery" Proceedings of PICMET '01 (Portland International Conference on Management of Engineering and Technology), Portland, OR, July 2001, pg. 300.

Wakeland, W., "The Judging Process for SyM Bowl: A High School System Dynamics Modeling Competition," Proceedings of the 16th International Conference of the System Dynamics Society, Quebec, QC, July 1998.

Wakeland, W. and G. Lendaris, "Structural Modeling—A Classroom Experience," Proceedings of the International Conference on Cybernetics and Society, Seattle, WA, October 1982, pp 317-321.

Peer-Reviewed Abstracts

Nielsen A., W. Wakeland, T. Schmidt, "Simulating health policy interventions to reduce nonmedical use of pharmaceutical opioids." 141st American Public Health Association Annual Meeting and Exposition, Boston, MA, November, 2013.

Wakeland, W., A. Nielsen, A. Zimam, "Dynamic Simulation of Nonmedical Opioid Use: Leveraging Research to Gain Insight." Addiction Health Services Research Conference 2013, Portland, OR, October, 2013.

Nielsen, A., T. Schmidt, W. Wakeland, "Dynamic modeling of initiation of nonmedical opioid use, College on Problems of Drug Dependence, 75th Annual Scientific Meeting, San Diego, CA, June, 2013.

Zimam A., T. Schmidt, A. Nielsen, W. Wakeland, "Data on the diversion, nonmedical use and adverse outcomes associated with pharmaceutical opioids," College on Problems of Drug Dependence, 75th Annual Scientific Meeting, San Diego, CA, June, 2013.

Wakeland W., J. Fitzgerald, A. Gilson, J. D. Haddox, J. Homer, L. Lee, L. Macovsky, D. McCarty, L. Webster, "Data gaps regarding diversion and abuse of prescription opioid analgesics," College on Problems of Drug Dependence, 72nd Annual Scientific Meeting, Scottsdale AZ, June, 2010.

Lee, L. K., D. McCarty, J.D. Haddox, J. Fitzgerald, W. Wakeland, L. Webster. "Non-prescribed use of Vicodin and OxyContin among U.S. youth," College on Problems of Drug Dependence, 72nd Annual Scientific Meeting, Scottsdale AZ, June, 2010.

Pullman, M., R. Fenske, W. Wakeland, K. Venkat, "Institutional Food Footprint," 3rd Annual American Association of Wine Economists Conference, Reims, France, June 2009.

Wakeland, W., R. Agbeko, K. Vinecore, M. Peters, B. Goldstein, "Assessing the Prediction Potential of an In Silico Computer Model of Intracranial Pressure Dynamics," *J. of Critical Care* 2009; 24(3):e34-e35.

Goldstein, B., R. Agbeko, M. Peters, W. Wakeland, "Assessing the Prediction Potential of a Computer Model of Intracranial Pressure Dynamics in Severe Traumatic Brain Injury," *Critical Care Medicine*, 2007; 35(12):A206.

Wakeland, W., "Measuring the accuracy of predictions from patient-specific model of intracranial pressure dynamics," *J. of Critical Care* 2007; 22(4):343-344.

Wakeland, W., J. Fusion, B. Goldstein, "Reproducing published results from *in silico* computer models of the acute inflammatory response to severe sepsis," *J. of Critical Care* 2006; 21(4):346-7.

Wakeland, W., J. Fusion, B. Goldstein, "Creating clinically useful in silico models of intracranial pressure dynamics," *J. of Critical Care* 2005; 20(4):396-7.

Levitte, G., M. Aboy, J. McNames, W. Wakeland, S. Lai, B. Goldstein, "Response Analysis of Intracranial Pressure to Change in Respiratory Rate," *Critical Care Medicine* 2003; 31(12):A92.

Aboy, M., J. McNames, W. Wakeland, S. Lai, B. Goldstein, "Transient Pulse Morphology Analysis of the Intracranial Pressure Signal after Ventricular CSF Drainage," *Critical Care Medicine* 2003; 31(12):A92.

Honors, Grants, and Fellowships

Honors

2017	Received Portland State University George C. Hoffmann award for faculty excellence
2012	Received Best Paper award for 2nd Int'l Conf. on Simulation Modeling Methods, Technology, and Applications
2005	Received "Best Abstract" award for ICCAI 2005 conference submission.
1983	Certified as Fellow in the field of Production and Inventory Management, by the American Production and Inventory Control Society (APICS).
1973	Received Letter of Commendation and NASA Certificate of Achievement for master's thesis, "Development and Digital Computer Implementation of a First-Order Vector Markov Birth-Death Model."

Funded Research

Serving or served as Principal Investigator or Co Investigator on multiple externally funded research grants totaling over $2.5M and $1.25M in the past ten years.

2020-2022	**PI for PSU subcontract** on "A dynamical model of preeclampsia development," NIH R21, prime is OHSU (PI: Myatt) ($43,989 to PSU)
2019-2020	**PI for PSU subcontract** on "Using System Dynamics to Enhance the FDA's Opioids Systems Model and Address the Ongoing Crisis," FDA, prime is Harvard, Mass General (PI: Jalali) ($57,655 to PSU)
2017-2018	**Principal Investigator**, "Brain Trauma Evidence Based Consortium: Dynamic Model Initiative," subcontract from Stanford University to PSU, $226,377
2014- 2016	**Principal Investigator**, "Brain Trauma Evidence Based Consortium: Dynamic Model Initiative," Brain Trauma Foundation, $406,490
2014-2016	Administrative supplement to OHSU R01 grant (PI: Rick Deyo) that is studying Oregon's new Prescription Drug Monitoring Program. Funding supported add'l analyses by PSU researchers. $49,980

2014 **Principal Investigator, "**Dynamic Model Initiative," (key collaborator: Nancy Carney, OHSU), Brain Trauma Foundation, $91,119.

2011-2014 **Principal Investigator,** "The System Dynamics of Prescription Opioid Misuse," (co-PI: Dennis McCarty, OHSU), National Institutes of Health R21, $360,251.

2009-2011 **Principal Investigator**, "System Dynamics Modeling as an Approach to Reducing the Risks of Prescription Drug Abuse and Diversion," Purdue Pharma, $198,269.

2008-2009 **Principal Investigator**, "Assessing the Impact of an Enhanced Tool and Training Program on Food Sustainability," PSU Faculty Enhancement Grant, $7350.

2007-2009 **Co-Principal Investigator**, "Food Delivery Footprint: Addressing Transportation, Packaging and Waste in the Food Supply Chain," (Principal Investigator: Mellie Pullman), OTREC, $30,000

2007-2008 **Principal Investigator**, "A Method for Improving Supply Chain Sustainability," PSU Internal Sustainability Grant, $10,000.

2007 **Principal Investigator**, "Modeling Fishery Regulation & Compliance," PSU Faculty Development Grant, $1,000.

2006-2007 **Principal Investigator,** "Update PATT Model Variation," Quantel, Inc., $10,000.

2004-2005 **Principal Investigator**, "ARENA Model of Criminal Justice System," Lane Council of Governments, $24,000.

2003-2006 **Co-Principal Investigator**, "Modeling Intracranial Pressure Dynamics in Pediatric Traumatic Brain Injury," (Principal Investigator: Brahm Goldstein), Thrasher Research Fund, $319,882.

2003-2006 **Co-Principal Investigator,** "Optimizing IV & V Costs and Benefits using Simulation," (Principal Investigator: David Raffo), NASA, $624,000.

2002 **Principal Investigator**, "Prototype Systems Model of Ecological, Fishery, and Socio-economic Dynamics in the Pacific Coast Groundfish Fishery," Ecotrust, $3,000.

1997-1999 **Supporting Faculty,** "Center for Software Process Improvement and Modeling," co-PIs: David Raffo, Warren Harrison," PSU, $10,000.

1976-1977 **Research Associate**, "The Use of Structural Modeling for Technology Assessment," (Principal Investigator: Harold Linstone), National Science Foundation.

Grants Currently Under Review

Grant Proposal Submissions (not funded)

2020 Co-I for NSF DRK12 proposal, "Systems Thinking Experiences in Learning Laboratories Around Reinforcing Understanding of Environmental Dynamics (STELLAR-UED): A Modeling Approach" (PI: Diana Fisher)

2019 Co-I for DOD proposal, "Can objective measures of mobility in clinical testing and in daily life guide a model for mTBI rehabilitation?" (PI: Laurie King)

2019 Co-I for NSF DRK12 proposal, "Systems Thinking Experiences in Grades 7-11 Learning Laboratories Around Reinforcing Global Climate Change Understanding: A Modeling Approach (STELLAR-GCCU Project)" (PI: Diana Fisher)

2018 PI for R21 to NIH/NIDA, "System Tools for Opioid Prevention (STOP): DAT18-02: Policy simulation tool to address the opioid crisis" $407,286 Oct

2018 PI for R21 to NIH/NiCHD, "Dynamics of Toxic Stress in Children" $459,314 June

2018 PI for Collaborative OHSU/PSU funding RFP, "Dynamical Modeling and Simulation of Pregnancy-Associated Pathologies" $50,000 May

2017 Co-PI for PSU Subcontract, OHSU R21 submission (PI Nancy Carney) "Subjective Determinants of Recovery from Traumatic Brain Injury: A Systems Approach" NIH, $162,356, Nov

2017 Co-I (PI: Sam Sennott) for grant proposal to the Google Champi n call "Augmented Intelligence for Families and Caregivers of Children with Complex Communication Disabilities in Brazil and Oregon ($77K), Oct

2017 NIH R01, "Resilience in older Adults: links with cognitive and MRI dementia risk markers" (PI: Barry Oken); resubmitted in Feb 2018; and, again, not funded; Considering next steps, June.

2015 Co-I (PI: Daim) Evaluating the Diffusion of Solar Electric Systems in the Pacific NW residential Sector, $389K to NSF SMOR call

2015 NSF REU on Invasions and Data (PI: Riviera) role as student mentor

2013 Institute for New Economic Thought, "Simulate and test the planning algorithm for a participatory economy" (PI: Wakeland, co-PI Robin Hahnel)

2013 Dept. of Energy, subcontract from PGE to PSU "Smart Power Solar Utility Network Renewable Integration Systems" (PI: Wakeland, co-PI: Shawn Chandler)

2012 National Science Foundation "Systems Science Academy" (PI: Wakeland, co-PIs Melanie Mitchell, Christof Teuscher, Ron Narode)

2011 National Science Foundation, "Embedding humans in visually rich, agent-based, models," (PI: Scott Heckbert; co-PI: Wakeland)

2011 National Science Foundation, "A Sustainability Research Network (SRN) on Integrated Valuation and Adaptive Management of Ecosystem Services" (PI: Robert Costanza)

2009 National Science Foundation, "Assessing the Adoption of Emerging Electricity Energy Technology: Managing Climate Change and Evolving Social Values" (PI: Tugrul Daim)

2009 U.S. Dept of Health and Human Services, "Center for Sustainable Interventions to Increase Physical Activity (PI: Carlo Crespo)

2008 SPARKS, "Assessment of the Clinical Performance of an *in-silico* Model of Intra-Cranial Pressure Dynamics and the Utility of Bedside Closed-Loop Algorithms for the Acute Management of Severe Paediatric Head jury," (PI: Mark Peters)

2008 Sustainable Agriculture Research and Education, "Understanding Consumers in Sustainable Food Systems to Increase Demand" (PI: Robin Fenske)

2008 Oregon Transportation Research and Education Consortium, "Reducing Food Transportation System Demand" (PI: Wayne Wakeland)

2007 Northwest Academic Computing Consortium, to use web technology to integrate remote students into face-to-face classroom discussions (PI: Wayne Wakeland)

2006 Laerdal Foundation for Acute Medicine, to study the influence of head elevation on traumatic brain injury patients (PI: Wayne Wakeland)

2005 NIH, to enhance intradepartmental doctoral training in bioengineering and biotechnology (PI: Sean Kohles)

2004 NSF, to research the dynamics of fishery management failure (PI: Richard Dudley)

2004 NSF, to develop a research instrument for global software development (PI: David Raffo)

2003 NIH, to research the therapeutic response dynamics in pediatric brain injury (PI: Brahm Goldstein)

2003 PSU, to support fisheries modeling research (PI: Wayne Wakeland)

2003 Northwest Academic Computer Consortium, to add streaming video to web courses (PI: Wayne Wakeland)

2002 AHRQ, to model transitions in cardiac care within an integrated delivery system (PI: Brian Hazelhurst)

2002 PSU, to support intracranial pressure modeling research (PI: Wayne Wakeland)

2002 Northwest Health Foundation, to study the effectiveness of using a computer model to manage drug administration (PI: Wayne Wakeland)

2002 NSF, to fund summer institutes for teaching system dynamics to biomedical researchers (PI: Ed Gallaher)

2002 US EPA, to build a systems model for electronics recovery, reuse, and recycling (PI: Wayne Rifer)

Presentations of Peer-Reviewed Work at Professional Meetings

Presentation: **Wakeland, W**. J. Homer. "Addressing parameter uncertainty in SD models with fit-to-history and Monte-Carlo sensitivity methods." 38th Int'l System Dynamics Conference, online (was Bergen Norway), July, 2020.

Poster: Nagase Y, Nagase, T. Uehara, **W. Wakeland**, "Ecological economics system (EES) modelling: with a focus on endogenous innovation and resilience." 38th Int'l System Dynamics Conference, online (was Bergen Norway) Jul, 2020.

Work in progress presentation: **Wakeland, W**. J. Homer. "Addressing parameter uncertainty in SD models with fit-to-history and Monte-Carlo sensitivity methods." 37th Int'l System Dynamics Conference, Albuquerque, July, 2019.

Presentation: **Wakeland W**., E. Kenzie. "A computational model for recovery from traumatic brain injury" Int'l Soc. For Systems Science, Corvallis, Jun/Jul, 2019.

Presentation: Nagase, Y., **W. Wakeland**, T. Uehara. "Ecological Economic System Modelling with a Focus on Endogenous Innovation and Resilience." 36th Int'l System Dynamics Conference, Reykjavik, Iceland, Aug, 2018.

Presentation: **Wakeland, W**., E. Kenzie. "Computational Model for Traumatic Brain Injury." 36th Int'l System Dynamics Conference, Reykjavik, Iceland, Aug, 2018.

Poster: **Wakeland, W**. "Computational Modeling Framework for Multi-level Systems w Feedback, Uncertainty, and Heterogeneity—Case in Point: Concussion" 35th Int'l System Dynamics Conference, Boston, July, 2017.

Poster: **Parks, Elle L**., Erin S. Kenzie, and Wayne Wakeland, "A Systems-level Dynamic Model of Concussion." National Neurotrauma Society, Lexington, KY, June, 2016.

Poster: **Parks, Elle** L., E. Kenzie and W. Wakeland. "Using Systems Methods to Create a Dynamic Model of Concussion Recovery," American Association of Neurological Surgeons, Chicago, IL, April 2016.

Poster: **Kenzie, E**., E. Parks, W. Wakeland. "Constructing a Dynamic Model of Concussion," Conference on Complex Systems, Tempe, AZ, September 2015.

Presented: **Wakeland, W**. "Prediction--the Quintessential Policy Model Validation Test," 33th Int'l System Dynamics Conference, Boston, July, 2015.

Presented: **Wakeland, W.** "Will data-driven midels drive causal models to extinction?"U of O symposium on Bridging Disciplines Through Complex Systems Science, Nov 2014.

Poster: Wakeland, W., A. Nielsen, **A. Zimam**, "Dynamic Simulation of Nonmedical Opioid Use: Leveraging Research to Gain Insight." Addiction Health Services Research Conference, Portland, OR, Oct., 2013.

Poster: **Nielsen, A.,** T. Schmidt, W. Wakeland, "Dynamic modeling of initiation of nonmedical opioid use, College on Problems of Drug Dependence, 75th Annual Scientific Meeting, San Diego, CA, June 2013.

Presented: Nielsen, A., **W. Wakeland**, T. Schmidt, "An epidemic model of nonmedical opioid use with simulated public health interventions," 3rd Int'l Conf. on Simulation and Modeling Methodologies, Technologies and Applications, Rekjavik, Iceland, August, 2013.

Presented: Uehara T., Y. Nagase, **W. Wakeland**, "A Model-based Theory for Ecological Economics: A System Dynamics Approach," 31st Int'l System Dynamics Conference, Boston, July, 2013.

Poster: **Wakeland W**. and A. Nielsen, "Modeling opioid addiction treatment policies using system dynamics," 31st Int'l System Dynamics Conference, Boston, MA, July, 2013.

Presented: Nielsen A. and **W. Wakeland**. "Dynamic Simulation of Opioid Misuse Outcomes," 2nd Int'l Conf. on Simulation Modeling Methodologies, Technologies and Applications, Rome, Italy, August, 2012.

Presented: **Wakeland, W**., A. Nielsen, T. Schmidt, "System Dynamics Modeling of Medical Use, Nonmedical Use and Diversion of Prescription Opioid Analgesics," 30th Int'l System Dynamics Conf., St. Gallen, Switzerland, July 2012.

Presented: Uehara, T., Y. Nagase and **W. Wakeland**. "Using system dynamics to contribute to ecological economics" 30th Int'l System Dynamics Conf., St. Gallen, Switzerland, July 2012.

Presented: Walker, R. & **W. Wakeland**. "Calibration of Complex System Dynamics Models--A Practioners Report." 29th Int'l System Dynamics Conf., Wash. DC, July, 2011.

Presented: **Wakeland W**. and U. Medina "Comparing Discrete Simulation and System Dynamics: Modeling an Anti-insurgency Influence Operation," 28th International Conference of the System Dynamics Society, Seoul, Korea, July 2010.

Presented: Uehara, T., Y. Nagase, **W. Wakeland**, "System Dynamics Implementation of an Extended Brander and Taylor-like Easter Island Model," 28th International Conference of the System Dynamics Society, Seoul, Korea, July 2010.

Poster: **Wakeland W**., et al., "Data gaps regarding diversion and abuse of prescription opioid analgesics," College on Problems of Drug Dependence, 72nd Annual Scientific Meeting, Scottsdale AZ, June, 2010.

Poster: Goldstein presented Wakeland et al, "Assessing the Prediction Potential of an In Silico Computer Model of Intracranial Pressure Dynamics," 8th Annual International Conference on Complexity in Acute Illness, Palo Alto, CA, August 2009.

Presented: Wakeland, W., L. Sears, K. Venkat, "Development of the Food Carbon Game and Determining its Effects on Consumer Knowledge, Transfer Intentions, and Environmental Self-Efficacy - A Progress Report," International Conference on Sustainability in the Supply Chain, Portland, OR, November 2007.

Poster: Wakeland, W., "Measuring the Accuracy of Predictions from Patient-Specific Models of Intracranial Pressure Dynamics," 6th Annual International Conference on Complexity in Acute Illness, Orange, CA, October 2007.

Presented: Wakeland, W., "Modeling Fishery Regulation and Compliance: A Case Study of the Yellowtail Rockfish," 25th International Conference of the System Dynamics Society, Boston, MA, July 2007.

Poster: Goldstein presented Wakeland, W., J. Fusion, B. Goldstein, "Reproducing published results from *in silico* computer models of the acute inflammatory response to severe sepsis," 5th Annual International Conference on Complexity in Acute Illness, Washington, DC, October 2006.

Presented: Fusion, J. and W. Wakeland, "Complexity and Sufficiency of Equations Used to Model Biomedical Phenomena," Society for Chaos Theory in Psychology & Life Sciences 16th Annual International Conference, Baltimore, MD, August 2006.

Presented: Venkat, K. and W. Wakeland, "Is Lean Necessarily Green?" 50th Anniversary Conference of the International Society for the Systems Sciences, Sonoma, CA, July 2006.

Poster and Plenary Presentation: Wakeland, W, J. Fusion, B. Goldstein, "Creating clinically useful *in silico* models of intracranial pressure dynamics," 4th Annual International Conference on Complexity in Acute Illness, Cologne, Germany, October 2005.

Presented: Wakeland, W., J. Fusion, B. Goldstein, "A Tale of Two Methods—Agent-Based Simulation and System Dynamics—Applied in a Biomedical Context: Acute Inflammatory Response," 6th European Congress of Systems Science, Paris, France, September 2005.

Presented: Wakeland, W., J. Fusion, B. Goldstein, "Estimation of subject-specific ICP dynamics models using prospective clinical data," Biomedicine 2005 6th International Conference on Modelling in Medicine and Biology, Bologna, Italy, September 2005.

Poster: Wakeland W. and M. Hoarfrost, "The Case for Thoroughly Testing Complex System Dynamics Models," 23rd International Conference of the System Dynamics Society, Boston, MA, July 2005.

Presented: Wakeland, W., J. McNames, B. Goldstein, "Calibrating an intracranial pressure dynamics model with annotated clinical data—a progress report," 26th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, San Francisco, CA, September 2004.

Presented: Wakeland, W., B. Goldstein, L. Macovsky, J. McNames, "A computer model of intracranial pressure dynamics during traumatic brain injury that explicitly models fluid flows and volumes," 12th International Symposium on Intracranial Pressure and Brain Monitoring, Hong Kong, August 2004.

Presented: Aboy, M., J. McNames, W.W. Wakeland, M. Ellenby, D. Hollemon, S. Lai, R. Chesnut, S. Durham, B. Goldstein, "Pulse and mean intracranial pressure analysis in pediatric traumatic brain injury," 12th International Symposium on Intracranial Pressure and Brain Monitoring, Hong Kong, August 2004.

Poster: Wakeland, W., A. Bulbul, M. Aboy, J. McNames, B. Goldstein, "Using Optimization to Calibrate Models of ICP Dynamics to Patients with Intracranial Hypertension," 12th International Symposium on Intracranial Pressure and Brain Monitoring, Hong Kong, August 2004.

Presented: Wakeland, W.W., E.J. Gallaher, L.M. Macovsky, C.A. Aktipis, "A Comparison of System Dynamics and Agent Based Simulation Applied to the Study of Cellular Receptor Dynamics," 37th Annual Hawaii International Conference on System Sciences, January 2004.

Presented: Wakeland, W.W., O. Cangur, G. Rueda, "A System Dynamics Model of the Pacific Coast Rockfish Fishery," Proceedings of the 21st International Conference of the System Dynamics Society, New York, NY, July 2003

Presented: Wakeland, W.W., "How the Web is Transforming Technology Management Education," PICMET '01 (Portland International Conference on Management of Engineering and Technology), Portland, OR, July 2001.

Presented: Wakeland, W., "The Judging Process for SyM Bowl: A High School System Dynamics Modeling Competition," 16th International Conference of the System Dynamics Society, Quebec, QC, July 1998.

Non-Refereed Publications & Presentations

Non-Refereed Invited Presentations

Wakeland, W. "Testing the Prediction Capability of a Fisheries Policy Model," Environmental Science and Management Seminar Series, Portland, OR, Dec. 2015.

Wakeland, W., "Model-based Analysis of Complex Dynamic Systems," Pacific Northwest National Laboratory Systems Engineering Seminar Series, Richland, WA, February, 2013.

Wakeland, W. "Systems Thinking for Green Workplaces," Achieve NW Virtual Conference, Portland, OR July, 2009.

Wakeland, W. "How to be Lean and Green," Business for Social Responsibility, New York City, October, 2008.

Non-Refereed Technical Report

Pullman, M. "Food delivery footprint: Addressing transportation, packaging, and waste in the food supply chain," OTREC Research Report, RR-08-154, Oregon Transportation Research and Education Consortium, March, 2009.

Solloway, C.R. and W. Wakeland, "Birth/death process model," NASA Tech. Briefs 1976 1(2): 224

Non-Refereed Book Chapters

Wakeland, W, K. Venkat, S. Cholette, Ch. 9, Food Transportation Issues and Reducing Carbon Footprint, in J. Boye and Y. Arcand (eds.) *Green Technologies in Food Production and Processing,* Springer Science, 2012, pp 211-236.

Gallaher, E.J., L.M. Macovsky, W.W. Wakeland, "The Need for System Dynamics in Biological Education: Examples from Pharmacodynamics," in J.L. Hargrove and C.D. Berdanier (eds.) *Mathematical Modeling in Nutrition and Toxicology*, Mathematical Biology Press, Athens, GA, 2005.

Non-Refereed Journal Articles

Wakeland, W., "Microcomputer MRP in Three Months: Photon Kinetics," *Production & Inventory Management Review*, vol. 5, no. 7, 1985, pp 48-52.

Non-Refereed Book Reviews

Wakeland, W., "Koen Frenken: Innovation, Evolution, and Complexity Theory," *Technological Forecasting and Social Change*, vol. 74, no. 8, 2007, pp 1515-1518.

Wakeland, W., "Patricia Wallace: The Internet in the Workplace," *Technological Forecasting and Social Change*, vol. 72, no. 6, 2005, pp 753-755.

Non-Peer Reviewed Conference Papers and Presentations

Wakeland, W.W., "High Definition Manufacturing Cell Model," 14th Annual ProModel Solutions Conference, Park City, UT, July 2002.

Wakeland, W.W., "Teaching Systems Science in High School Compared to Graduate School," World Congress of the Systems Sciences, Toronto, ON, July 2000.

Wakeland, W.W., "SyM Bowl Update: Encouraging and Recognizing Proficiency in System Dynamics Modeling," Annual Systems Thinking & Dynamic Modeling Conference, Stevenson, WA, June 2000.

Wakeland, W.W., "Meta-Modeling Aspects of the Model Conceptualization Process," 34th Annual Meeting of the International Society for Systems Sciences, Portland, OR, July 1990.

Wakeland, W.W. and M. Roberts, "The Trade-Offs Between Single and Two-Level Master Scheduling in a Build-to-Order Environment," Fourth Annual MANMAN Conference, San Jose, CA, 1987.

Teaching, Mentoring, and Curricular Achievements

Teaching

Teach 3-6 computer modeling & simulation or related courses per year at PSU, covering the full spectrum of simulation methodologies. Additional specifics are provided below:

2017	Received an Outstanding Teaching Award from students of the College of Liberal Arts and Sciences.
2013	Received an Outstanding Teaching Award from students of the College of Liberal Arts and Sciences.
2010	Received an Outstanding Teaching Award from students of the College of Liberal Arts and Sciences.
2007-2013	Invited to develop and co-teach Systems Thinking and Sustainable Operations courses in the Sustainable MBA program at the Bainbridge Graduate Institute, Bainbridge, WA.
2004	Received an Outstanding Teaching Award from students of the College of Liberal Arts and Sciences.
2002	Received an Outstanding Teaching Award from students of the College of Liberal Arts and Sciences.
2001-2007	Generated over half of the curriculum-based Systems Science student credit hours, mostly via elective courses.
2000 & 2005	Provided sabbatical coverage by offering core courses that are normally taught by other faculty, including the Systems Approach course and the Systems Theory course.
2000-present	Developed and administer a Graduate Certificate in Computer Modeling and Simulation that has attracted dozens of students, generated a significant increase in student credit hours, and served to feed the Systems Science Masters and Ph.D. programs. More than 50 students have earned this certificate to date.
2000	Received an Outstanding Teaching Award from students of the School of Engineering and Applied Sciences.
1978-present	Encourage local business professionals and students from other disciplines to take my classes, by teaching at night and by emphasizing the practical application of systems concepts to a wide array of problems.

Mentoring

2019-present	Mentor for the Systems Dynamics Society for Andy Boyd (2019), Cissy Amparo (2021)
2019-2021	Mentor on NSF REU project for Anna Kathryn Smith (2019), Paulina Grzybowicz, Sundari Arunarasu, and Nicholas Carolan (2020), Christina Valtierra (2021)
2017	Mentor for Melinda Davis, OHSU, K07 award
2016	Mentor for Michelle Hribar, OHSU, K99 award
2015	Mentor for Janne Boone-Heinonen, OHSU, K01 award

2013 Nominated for PSU Supervisor of the Year.

2003-present Chaired or chairing 33 Systems Science dissertation or Master's thesis committees: 25 graduates (Kenzie 2021, Driscoll 2019, Nielsen 2018, Kmon MS 2016, Fisher 2016, Oken 2016, Chandler MS 2015, Santoriello 2015, Sweeney MS 2015, Raymaker 2015, Miller 2014, Sienko-Thomas 2014, Pelkey MS 2013, Garganus MS 2013, Nifong MS 2013, Wickoff 2013, Uehara 2012, Adkins MS 2011, Jolly 2011, Cangur 2009, Kudo 2008, Mist 2007, Bulbul M.S. 2005, Liu 2004, Marcus 2004), 4 w/approved diss. proposal (Geissert, Peters, Keeling, Lawrence), 3 writing diss. proposal (Moore, Frakes, Weisdorf), 1 working on MS thesis (Lilja)

1999 Served on Master's thesis committee in Mathematics (Gallagher 1999).

1995-present Serve as advisor or co-advisor recently for 5-10 (15-25 in the past) Systems Science graduate students prior to taking comprehensive exams and/or beginning their research.

1988-present Served or serving as member of (not chairing) 64 Systems Science Ph.D. Dissertation Committees:
<u>64 Graduates</u>
2019: Turman-Bryant 2015: Newton-Curtis, Greene, Fusion. 2014: Udbye. 2011: O'Connell, Gui, Hansen. 2010: Leavengood, Dancu, Borthwick, Holstrom. 2009: Oliver, Ozbay. 2008: Paronto, Marchand, Yragui, Hall, Zenobia. 2007: Charles, Sudrajat, Chen, Setamanit. 2006: Leo, Abugharbieh, Fussell, Sahibzada. 2005: Iewwongcharoen, Sommers, Srivannaboon, Eghtedari, Alvear, Cullen. 2004: Inman, Shafiro, Kuang, Gerdsri, Patanakul, Ho, Srivannaboon. 2003: Iewwongcharoen, Williams. 2002: Ewton, Brockwood, Roos, Forrester, Pandjepong. 2001: Lim, Martin, Kwik. 2000: Shervais, Yuang, Louise, Lii, Smith. 1999: Razak. 1998: Daim. 1997: Eden. 1996: Zeiber, Zhou, Morehead. 1994: Iyigun. 1993: Morrison. 1992: Al Kadri.

1980-present Served on over 150 Systems Science Comprehensive Exam Committees; and an average of 2/yr. recently: 1 in 2020-21, 5 in 2019-20, 1 in 2018-19, 1 2017-18, 3 in 2016-17, 2 in 2015-16, 3 in 2014-15, 6 in 2013-14, 11 in 2012-13, 3 in 2011-12, 3 in 2010-11, 12 in 2009-10, 4 in 2008-09.

<u>Curricular Achievements</u>

2020 Developed and delivered new course in response to Covid-19: Modeling Pandemics

2017 Converted three key methods courses to fully on-line format to improve accessibility

2016-2017 Submitted major SySC curriculum revision package: reducing credit hours req'd for SySc PhD, adding courses to Systems Minor, updating Grad Certificate in Computer Modeling (GCCM), deleting 4 old grad courses, and adding 4 new courses: SYSC 340U Big Data and the Modern World, SYSC 4/535 Modeling and Simulation with R and Python, SYSC 4/540 Introduction to Network Science, and SYSC 4/545 Application of Data Science

2016-2017 Migrated courses supporting GCCM to fully online format so the certificate courses can be taught from anywhere and marketed globally. Retired obsolete courses and added new course, Modeling and Simulation with R and Python (MSRP), designed and taught by Dale Frakes.

2015-2016 Developed and taught new methods course: Environmental Systems Modeling and Simulation, which was served as the inspiration for the MSRP course noted above

2011-2013 Co-created co-taught new course Systems "Sustainability and Organizational Resilience" with Matt Jones in Public Administration and fine-tuned content. Teach course bi-annually.

2010 Developed and taught new course, "System Dynamics II"

2009-2010 Worked with Assoc. Dean Scott Marshall to design a course with systems focus for PSU's MBA curriculum.

2008 Received AIM grant to improve course during migration to Blackboard 6.

1998-2002 Reengineered courses for web delivery
- Developed learner-directed activities (asynchronous discussions, computer-based experiments, etc.) to replace or complement lectures and synchronous discussions

1980-present Revise courses regularly to keep pace with the rapidly evolving computer technology
- From mainframe computers running DYNAMO, GASP, and GPSS; to DOS PCs running DYNAMO, SLAM, and SIMAN
- To Macs running STELLA and Extend
- To Windows PCs running Extend, Arena, ProModel, Starlogo, Vensim, and Netlogo

1978-2002 Developed or co-developed 10 new PSU courses
- Agent-based Simulation
- Organizational Theory & Dynamics (w/Bob Sinclair)
- Manufacturing System Simulation (w/Tim Anderson)
- Business Process Modeling & Simulation (w/David Raffo)
- System Dynamics (required core course)
- Model Conceptualization
- Combined Simulation Projects
- Discrete System Simulation
- Continuous System Simulation
- Structural Modeling

Community Outreach

2017 Presentation on Systems Science Then and Now at Reed College, Nov

2017 Presented a "lab" on Agent-Based Modeling to GEOG 694 class, Feb

2012 Presentation on Systems Thinking to the Portland Waterworks School, June.

2011 Presentation on Systems Thinking to the Portland Waterworks School, June.

2010 Presentation on Elluminate software to CAE AIM grant recipients, PSU, March.

2008 Focus on Faculty Presenter, regarding on-line instruction, PSU, September.

2005 Served as science fair judge at Benson High School.

1996-2002 Served as judging coordinator for SyM Bowl, a system dynamics modeling fair for high school students sponsored by the Oregon Health and Science University.

1995 Taught a one-day course on System Dynamics to teachers at Centennial High School.

1994 Developed and delivered a computer modeling seminar to PSU faculty members who were developing courses for the "Science in the Liberal Arts" curriculum.

1988-present Co-founder and past President, Cascade Systems Society, dedicated to fostering systems education and promoting systems thinking among local educators and professionals.

1980-1984 Served as an advisor for Project Business, a volunteer program associated with Junior Achievement that teaches basic business concepts to 8th grade students.

Scholarly Works in Progress

Potential journal articles based on ongoing research that are likely to be submitted in the next 12-24 months:

2021	Team will be submitting a revised version of the 2021 conference paper "Reducing Opioid Use Disorder and Overdose in the United States: Policy Analysis" Nature Medicine (project funded by the FDA and led by Harvard & MGH)
2021	Will submit a manusript to a new article collection called Advances in Acute Traumatic Brain Injury Prevention, Assessment, Management, Models, and Prediction…in Frontiers in Bioengineering and Biotechnology, regarding computational modeling of recovery from brain injury based on the 2018 ISDC and 2019 ISSS conference papers
2021/22	Possible submission to SDR or other suitable venue, "Addressing parameter uncertainty in SD models with fit-to-history and Monte-Carlo sensitivity methods" based on the 2019 and 2020 ISDC papers and recommended for journal submission by reviewers
2022	Possible submission to SDR "Prediction the quintessential policy model validation test," based on modeling case studies related to fishery regulation & compliance presented at the 2013 ISDC conference, and elevated intracranial pressure following traumatic brain injury presented at the 2015 ISDC conference

Significant Professional Development Activites

2012	Summer workshop on developing fully online courses
1999	Attended three-day ProModel Simulation Class, ProModel Corporation, Portland, OR
1992	Participated in three-day MRPII Executive Overview Class, Oliver-Wight Education Associates, Portland, OR
1986	Participated in five-day management development program presented by Morton Organizational Development Laboratory, Napa Valley, CA
1983	Attended four-day Master Scheduling Class, Oliver-Wight Education Associates, San Francisco, CA
1981	Attended five-day MRPII Class, Oliver-Wight Education Associates, Portland, OR
1980	Participated in Stanford Advanced Management College, Stanford University, Fallen Leaf Lake, CA

Governance and Service Activities for the University, College, Department

2021	Leading a Provost funded summer project "Reimagine SYSC at PSU"
2020	Served on Faculty ad hoc committee on Academic Program Review and Curricular Adjustment
2019-present	Serving on Graduate Council
2018-2020	Served as Graduate Office Representative for EES/Geog Phd student (Ross 2020)
2017-present	Serving or served as Graduate Office Representative for 5 Mathematics PhD students (Li, Lyons 2021, Rhodes 2020, Pandya 2019, Daneshi 2019)
2017-2018	Served on Graduate Dean Search Committee
2017-2018	Served on Graduate Council
2016-2017	Conducted campus conversation (mostly a survey) at the dean's request to assess the degree of interest in systems and complexity science at PSU; reported and discussed results with deans and other leaders in several colleges
2016	Served on GEOG faculty search committee

2015-2016	Conducted external review for the Systems Science Program, including preparation of 70-page self-study document; then organizing and hosting two-day visit by external reviewers from U. of Ariz., Northwestern, and U. Cincinnati
2015-2016	Served as Honors thesis adviser (Daniel Anderson)
2014-2016	Served as Graduate Office Representative for Biology PhD student (Marchini)
2013-2016	Served as Graduate Office Representative for 2 Urban Studies and Planning PhD students (Yang 2021, Kim 2016)
2013	Participated in PSU's Academic Leadership Planning Session
2012-2013	Served on Ad hoc Graduate Council committee to review tuition remissions policies
2012-2013	Served as Chair, PSU Graduate Council
2012-2013	Served on CLAS Strategic Planning Committee, Research and Partnerships subcommittee
2011-present	Serve as Systems Science Program Chair, which included finding a new organizational home twice, and overseeing the transition from OAA to CLAS/School of the Environment and then to a partnership with CLAS/Geography.
2011-2013	Served as Graduate Office Representative for Doctor of Ed. student (Waters 2013)
2011-2012	Served on University Studies Council
2010-2011	Served on D2L subcommittee regarding roles and policies
2010-2011	Served on Search Committee for Online Learning Director
2009-2011	Served on PSU Faculty Development Committee
2009-present	Served or Serving as Graduate Office Representative for 10 Psychology PhD students (Carsey, Auten 2020, Shepherd 2019, Smith 2019, Mansfield 2017, Ellis 2015, Caughlin 2015, Demsky 2015, McCune 2010, Mack 2012)
2008-present	Served or serving as Graduate Office Representative for 12 ETM PhD students (Alibage, Alizadeh 2018, Rahimi 2018, Lim 2013, Sperry 2013, Salman 2013, Phan 2013, Tran 2013, Patt 2013, Bekhami 2012, Kim 2011, Gerdsri 2009).
2008-2013	Served as co-advisor for Interdisciplinary Masters student (Crumley 2013).
2006-2019	Served on dissertation committee for 2 Public Affairs and Policy PhD students (Stranadko 2019, Brown 2011).
2006-present	Served as Graduate Office Representative for 2 CS Ph.D. students (Delgado 2020, Price 2008).
2006-2007	Served on ACAIT subcommittee for LMS (learning mgmt. system) evaluation.
2004-2016	Served as Graduate Office Representative on 7 ECE masters thesis or dissertation committees (Podrasky 2016, Wan 2010, Alhagi 2010, Gebauer 2008, Zhang 2006, Giesecke 2006, Aboy 2004).
2004-2006	Served as Chair, PSU Graduate Council.
2003-2006	Served actively on the PSU committee evaluating course management system options, including teaching one of my courses using eCollege, Sakai, and WebCT 6.
2003	Initiated and led collaborative efforts with core Systems Science faculty and PSU library staff to substantially revise journal subscriptions in order to improve content coverage and reduce costs.
2002-2006	Served as a PSU Graduate Council member. Chaired two major proposal review subcommittees. Represented the Graduate Council on a PSU Senate-initiated subcommittee to evaluate the review process for proposed new academic programs.

2002	Initiated and coordinated efforts to substantially revise and improve the System Science catalog text and supplemental rules documents.
2001-present	Compile and analyze data regarding Systems Science student admissions, advancement, and graduation. Developed and maintain computer models to predict future trends. Initiated monitoring of departmental student credit hours.
2001	Initiated and directed the creation of the Systems Science brochure used to promote the program; obtained the assistance of the PSU marketing group and coordinated the initial dissemination of the brochures.
2000-present	Play an instrumental role recruiting students into both the Systems Science core program and the business option by serving as the primary faculty contact for prospective students.
2000	Revamped the Systems Science website and arranged for ongoing maintenance to ensure that the contents are kept up to date and accurate.

Professionally Related Service

2021	Reviewer, International Journal of Simulation and Process Modelling
2021	Reviewer, Academia Letters
2021	Reviewer, Preventive Medicine
2020	Reviewer, for NIH/SREA CSR study section
2020	Reviewer, Computers and Industrial Engineering
2020-present	Editorial board, Systems journal
2020	Reviewer, Journal of Neuroscience Methods
2020	Reviewer, Jama Network Open
2020	Reviewer, BMC Medicine journal
2020-2021	Reviewer, Computers in Biology and Medicine
2020	Reviewer, Ecological Economics journal
2020	Reviewer, International Journal of Information Management
2020	Reviewer, Medical Engineering and Physics
2020	Reviewer, Journal of Substance Abuse Treatment
2020	Reviewer, Environmental Modeling and Software
2020	Reviewer, Addictive Behaviors Reports journal
2020-2021	Reviewer, Drugs: Education, Prevention & Policy journal
2020	Reviewer, PLOS Medicine
2020	Reviewer, Frontiers in Public Health
2019	Reviewer, grant proposals for CDRMP, Congressionally Directed Medical Research Programs
2019	Reviewer, Fulbright Commission
2019	Reviewer, Current Psychology
2019-present	Reviewer, Journal of Evaluation in Clinical Practice
2019-present	Reviewer, American Journal of Preventive Medicine
2019	Reviewer, Substance Abuse: Treatment and Research journal

2018-present	Reviewer, American Journal of Drug and Alcohol Abuse
2018	Reviewer, Medical Decision Making
2018-2021	Reviewer, PLOS ONE
2018-2020	Reviewer, American Journal of Public Health
2018	Reviewer, Sustainability Accounting, Management and Policy journal
2018	Reviewer, BMC Health Services journal
2018	Reviewer, Frontiers in Neuroscience, Neurology journal
2018	Reviewer, grant proposals for OASH: Research on Research Integrity
2016-present	Serving or served as external dissertation committee member for 5 doctoral students: Alistair Chan (McGill, Natural Resource Sciences), Faisal Alkhaldi (Tennessee Tech, Elec. & Comp. Engr.), Ian Pray (OHSU/PSU School of Public Health, Epidemiology) defended May 2019Merritt Hughes (Boston U. Public Policy) defended March 2018), Celestin Missipode (U.of Iowa, Civil Engr.) defended Fall 2017.
2015-2016	Master's thesis committee, Univ. of Washington (Anderson)
2012-2013	Elected Health Policy Special Interest Group Representative for the System Dynamics Society
2012	Doctoral exam committee, Oregon Health & Science University (Chase)
2011-2014	Dissertation committee, Oregon Health & Science University (Laderas)
2011	Hosted visiting scholar from Turkey (Didem)
2010	Doctoral exam committee, Oregon Health & Science University (Laderas)
2006	Doctoral exam committee, Oregon Health & Science University (Campbell)
2006	Doctoral exam committee, University of New Mexico (Medina); service acknowledged in a letter of appreciation
2006	External tenure-related reviewer, Penn State University
2005	Reviewer, Agent Directed Simulation conference
2005	Reviewer, Pharmaceutical Research journal
2004-present	Editorial Advisory Board, Technological Forecasting & Social Change journal
2003-2008	Reviewer, Software Process Improvement & Practice journal
2003-present	Reviewer, System Dynamics Review journal
2003-present	Reviewer, International System Dynamics Society conference
1997-present	Reviewer, Portland International Conference on Management of Engineering and Technology (PICMET)
1977-present	Reviewer, Technological Forecasting & Social Change journal

Memberships in Professional Societies

2006-2011	Society for Complexity in Acute Illness
2004-2013	IEEE Engineering in Medicine and Biology Society
2004-2013	IEEE Systems, Man, and Cybernetics Society

2003-2010	Society for Modeling and Simulation International
2003-present	Society for Chaos Theory in Psychology and Life Sciences
2000-present	International Society for the Systems Sciences
1998-present	System Dynamics Society
1983-1998	American Production and Inventory Control Society (APICS)
1979-1986	Society for Computer Simulation