

Robert Gilmore Pontius, Jr.

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School of Geography
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updated 27 April 2009

EXPERTISE

Mathematical Analysis of Map Comparison
Geographic Information Science (GIS)
Quantitative Environmental Modeling
Land Change Science
Statistics

EDUCATION

Doctor of Philosophy -- Environmental Science 1994
State University of New York
College of Environmental Science and Forestry
(authored dissertation entitled "Modeling Tropical Land-Use Change and Assessing Policies to Reduce Carbon Dioxide Release from Africa")
Master of Applied Statistics 1989
The Ohio State University
Bachelor of Science -- Mathematics, Economics 1984
University of Pittsburgh
Cleveland Institute of Art
Ohio Wesleyan University

EXPERIENCE

Tenured Associate Professor 2004-present and Assistant Professor 1998-2004
Clark University
School of Geography 1998-present
Department of International Development, Community, and Environment [IDCE] 1998-2010
(teaches GIS, Accuracy Assessment, Quantitative Modeling, Statistics)
(advises Human Environment Regional Observatory program)
(participates in Environmental Science program)
(advises PhD, Masters and Bachelors students)
(conducts funded research)
Associate Scientist 1995-1997
Tellus Institute & Stockholm Environment Institute
(analyzed environmental sustainability and conducted GIS-based modeling)
Assistant Professor 1994-1995
Boston University
(taught in Department of Geography and Center for Energy & Environmental Studies)

Research Assistant 1992-1994
 State University of New York
 (researched global carbon cycle and land use)

Teaching Associate 1990-1991, 1987-1989
 State University of New York
 (taught Forest Biometrics)
 The Ohio State University
 (taught Mathematics)

Statistical Consultant 1990-1994
 State University of New York
 (consulted on numerous projects)

Mathematical Statistician 1989-1990
 United States Department of Agriculture
 (designed area-sampling frames)

Mathematics Teacher 1985-1987
 United States Peace Corps in Tanzania
 (taught Advanced-level Mathematics)

HONORS

Michael Brehney Prize for best paper
 Environment and Planning B 2005

Zayed International Prize for the Environment
 Authors of the Millennium Ecosystem Assessment 2005

Invited Keynote Speaker
 Southern Forestry and Natural Resources GIS conference in Orlando, FL, USA 2008
 Spatial Accuracy conference in Lisbon Portugal 2006

Continental Who's Who
 Inductee 2009

Exceptional Merit
 Clark University 2003, 2005, 2007

Hodgkins Prize for excellence in scholarship, teaching and service
 Clark University 2003

Oliver and Dorothy Hayden Junior Faculty Fellow
 Clark University 2003

ESRI Scholar
 GIScience Conference 2002

Technical Communication Award
 Society for Technical Communication 1997

People's Choice Award Winner
 International Jugglers Association 1996

Distinguished Teaching Fellow
 State University of New York 1993-1994
 Syracuse University 1991-1992

Phi Kappa Phi Honor Society Inductee
 The Ohio State University 1989

Mathematics Summer Fellow
 The Ohio State University 1987

PUBLICATIONS AS PEER REVIEWED JOURNAL ARTICLES (*italics denote student*)

1. **Pontius Jr, Robert Gilmore** and *Neeti Neeti*. in press. Uncertainty in the difference between maps

- of future land change scenarios. Sustainability Science.
2. **Pontius Jr, Robert Gilmore** and *John Connors*. in press. Range of categorical associations for comparison of maps with mixed pixels. Photogrammetric Engineering & Remote Sensing.
 3. **Pontius Jr, Robert Gilmore**, Wideke Boersma, Jean-Christophe Castella, Keith Clarke, Ton de Nijs, Charles Dietzel, Zengqiang Duan, Eric Fotsing, Noah Goldstein, Kasper Kok, Eric Koomen, *Christopher D. Lippitt*, William McConnell, Alias Mohd Sood, Bryan Pijanowski, Snehal Pithadia, Sean Sweeney, Tran Ngoc Trung, A. Tom Veldkamp, and Peter H. Verburg. 2008. Comparing the input, output, and validation maps for several models of land change. *Annals of Regional Science* 42 (1): 11-47.
 4. **Pontius Jr, Robert Gilmore**, *Olufunmilayo Thontteh* and *Hao Chen*. 2008. Components of information for multiple resolution comparison between maps that share a real variable. *Environmental and Ecological Statistics* 15(2): 111-142.
 5. *Alo, Clement* and **Robert Gilmore Pontius Jr**. 2008. Identifying systematic land cover transitions using remote sensing and GIS: The fate of forests inside and outside protected areas of Southwestern Ghana. *Environment and Planning B* 35(2): 280-295.
 6. *Kuzera, Kristopher* and **Robert Gilmore Pontius Jr**. 2008. Importance of matrix construction for multiple-resolution categorical map comparison. *GIS and Remote Sensing* 45(3): 249-274.
 7. **Pontius Jr, Robert Gilmore**, Robert Walker, *Robert Yao-Kumah*, Eugeino Arima, Stephen Aldrich, Marcellus Caldas and Dante Vergara. 2007. Accuracy assessment for a simulation model of Amazonian deforestation. *Annals of the Association of American Geographers* 97(4): 677-695.
 8. **Pontius Jr, Robert Gilmore**, *Anna J Versluis* and *Nicholas R Malizia*. 2006. Visualizing certainty of extrapolations from models of land change. *Landscape Ecology* 21(7): 1151-1166.
 9. **Pontius Jr, Robert Gilmore** and *Christopher D Lippitt*. 2006. Can error explain map differences over time? *Cartography and Geographic Information Science* 33(2): 159-171.
 10. **Pontius Jr, Robert Gilmore** and *Mang Lung Cheuk*. 2006. A generalized cross-tabulation matrix to compare soft-classified maps at multiple resolutions. *International Journal of Geographical Information Science* 20(1): 1-30.
 11. **Pontius Jr, Robert Gilmore** and *Jeffrey Malanson*. 2005. Comparison of the structure and accuracy of two land change models. *International Journal of Geographical Information Science* 19(2): 243-265.
 12. **Pontius Jr, Robert Gilmore** and *Joseph Spencer*. 2005. Uncertainty in extrapolations of predictive land change models. *Environment and Planning B: Planning and Design* 32: 211-230.
 13. *Fedorko, Evan*, **Robert Gilmore Pontius Jr**, *Stephen Aldrich*, Luc Claessens, Charles Hopkinson Jr and Wilfred Wolheim. 2005. Spatial distribution of land type in regression models of pollutant loading. *Journal of Spatial Hydrology* 5(2): 60-80.
 14. **Pontius Jr, Robert Gilmore**, *Diana Huffaker* and *Kevin Denman*. 2004. Useful techniques of validation for spatially explicit land-change models. *Ecological Modelling* 179(4): 445-461.
 15. **Pontius Jr, Robert Gilmore** and *Nicholas R Malizia*. 2004. Effect of category aggregation on map comparison. *Lecture Notes in Computer Science* 3234: 251-268. in M J Egenhofer, C Freksa, and H J Miller (eds): GIScience2004.
 16. **Pontius Jr, Robert Gilmore** and *Pablo Pacheco*. 2004. Calibration and validation of a model of forest disturbance in the Western Ghats, India 1920 - 1990. *GeoJournal* 61(4): 325-334.
 17. **Pontius Jr, Robert Gilmore**, *Emily Shusas* and *Menzie McEachern*. 2004. Detecting important categorical land changes while accounting for persistence. *Agriculture, Ecosystems & Environment* 101(2-3): 251-268.
 18. **Pontius Jr, Robert Gilmore**, *Aditya Agrawal* and *Diana Huffaker*. 2003. Estimating the uncertainty of land-cover extrapolations while constructing a raster map from tabular data. *Journal of Geographical Systems* 5(3): 253-273.
 19. **Pontius Jr, Robert Gilmore** and *Kiran Batchu*. 2003. Using the relative operating characteristic to quantify certainty in prediction of location of land cover change in India. *Transactions in GIS* 7(4): 467-484.

20. *Holden, Matthew, Christopher Lippitt, Robert Gilmore Pontius Jr and Carissa Williams.* 2003. Building a database of historic land cover to detect landscape change. *Biological Bulletin* 205: 257-258.
21. **Pontius Jr, Robert Gilmore.** 2002. Statistical methods to partition effects of quantity and location during comparison of categorical maps at multiple resolutions. *Photogrammetric Engineering & Remote Sensing* 68(10): 1041-1049.
22. *Huffaker, Diana and Robert Gilmore Pontius Jr.* 2002. Reconstruction of Historical Land Cover in the Ipswich Watershed. *Biological Bulletin* 203: 253-254.
23. **Pontius Jr, Robert Gilmore,** Joseph Cornell and Charles A S Hall. 2001. Modeling the spatial pattern of land-use change with GEOMOD2: application and validation for Costa Rica. *Agriculture, Ecosystems & Environment* 85(1-3): 191-203.
24. **Pontius Jr, Robert Gilmore** and *Laura Schneider.* 2001. Land-use change model validation by a ROC method for the Ipswich watershed, Massachusetts, USA. *Agriculture, Ecosystems & Environment* 85(1-3): 239-248.
25. *Schneider, Laura and Robert Gilmore Pontius Jr.* 2001. Modeling land-use change in the Ipswich watershed, Massachusetts, USA. *Agriculture, Ecosystems & Environment* 85(1-3): 83-94.
26. Menon, Shaily, **Robert Gilmore Pontius Jr,** Joseph Rose, M L Kahn, and Kamal S Bawa. 2001. Identifying conservation priority areas in the tropics: a land-use change modeling approach. *Conservation Biology* 15(2): 501-512.
27. **Pontius Jr, Robert Gilmore.** 2000. Quantification error versus location error in comparison of categorical maps. *Photogrammetric Engineering & Remote Sensing* 66(8): 1011-1016.
28. Hall, Charles, Hanqin Tian, Ye Qi, **Robert Gilmore Pontius Jr,** and Joseph Cornell. 1995. Modelling spatial and temporal patterns of tropical land-use change. *Journal of Biogeography* 22: 753-757.
29. Hall, Charles A S, **Robert Gilmore Pontius Jr,** Lisa Coleman, and Jae-Young Ko. 1994. The environmental consequences of having a baby in the United States. *Population and Environment* 15 (6): 505-524.

PUBLICATIONS AS BOOK CHAPTERS (italics denote student)

30. **Pontius Jr, Robert Gilmore,** Jean-Christophe Castella, Ton de Nijs, Zengqiang Duan, Eric Fotsing, Noah Goldstein, Kasper Kok, Eric Koomen, *Christopher D Lippitt,* William McConnell, Alias Mohd Sood, Bryan Pijanowski, A Tom Veldkamp, and Peter H Verburg. in press. Lessons learned from a cross-case comparison modeling exercise. Accepted for publication as a chapter in Floor Brouwer and Stephan Goetz (eds.) *The dynamics of land use and ecosystem services; a transatlantic, multidisciplinary and comparative approach.* Springer.
31. **Pontius Jr, Robert Gilmore,** Shaily Menon, *Joseph Duncan,* and *Shalini Gupta.* in press. Fundamentals for using geographic information science to measure the effectiveness of land conservation projects. Accepted for publication as a chapter in P K Joshi, P Pani, and S N Mohapatra (eds.) *Geoinformatics for Natural Resource Management.* Nova Science Publishers: New York NY.
32. Headley, Rachel M K, John Harrington Jr, **Robert Gilmore Pontius Jr,** and Cynthia L Sorrensen. in press. Landsat mapping of local landscape change: the satellite-era. Accepted for publication as a chapter in Brent Yarnal, Colin Polsky, and James O'Brien (eds.) *Sustainable Communities on a Sustainable Planet: The Human-Environment Regional Observatory project.* Cambridge University Press: Cambridge UK.
33. Polsky, Colin, *Sara Assefa, Kate del Vecchio, Troy Hill, Laura Merner, Isaac Tercero,* and **Robert Gilmore Pontius Jr.** in press. The mounting risk of drought in a humid landscape: structure and agency in suburbanizing Massachusetts. Accepted for publication as a chapter in Brent Yarnal, Colin Polsky, and James O'Brien (eds.) *Sustainable Communities on a Sustainable Planet: The Human-Environment Regional Observatory project.* Cambridge University Press: Cambridge UK.
34. Verburg, Peter H., Kasper Kok, **Robert Gilmore Pontius Jr,** and A Veldkamp. 2006. Modelling

- land-use and land-cover change. pages 117-135. Chapter 5 in Eric F Lambin and Helmut J Geist (eds.) Land-use and land-cover change: Local process and global impacts. Springer-Verlag Berlin: Heidelberg, Germany.
35. **Pontius Jr, Robert Gilmore** and *Beth Suedmeyer*. 2004. Components of agreement in categorical maps at multiple resolutions. pages 233-251. Chapter 17 in Ross S Lunetta and John G Lyon (eds.) Remote Sensing and GIS Accuracy Assessment. CRC Press: Boca Raton FL.

PUBLICATIONS IN OTHER EDITED VOLUMES (italics denote student)

36. **Pontius Jr, Robert Gilmore**. in press. Land Use Analysis. Entry accepted for publication in B Warf (ed.). Encyclopedia of Geography. Sage Press: Thousand Oaks CA.
37. **Pontius Jr, Robert Gilmore**. in press. Billie Lee Turner. Entry accepted for publication in B Warf (ed.). Encyclopedia of Geography. Sage Press: Thousand Oaks CA.
38. **Pontius Jr, Robert Gilmore**. 2008. Foreword. pages v-vii in Martin Paegelow and Maria Teresa Camacho Olmedo (eds.). Modeling Environmental Dynamics: Advances in Geomatic Solutions. Springer-Verlag: Berlin Heidelberg.
39. **Pontius Jr, Robert Gilmore**. 2006. Pattern to process. pages 462. in H Geist (ed). Our Earth's Changing Land: an encyclopedia of land-use and land-cover change. Volume 2. Greenwood Press: Westport CT.
40. **Pontius Jr, Robert Gilmore** and Peter H Verburg 2006. Scale. pages 527-529. in H Geist (ed). Our Earth's Changing Land: an encyclopedia of land-use and land-cover change. Volume 2. Greenwood Press: Westport CT.
41. **Pontius Jr, Robert Gilmore**. 2006. Transition matrix. pages 605-607. in H Geist (ed). Our Earth's Changing Land: an encyclopedia of land-use and land-cover change. Volume 2. Greenwood Press: Westport CT.
42. **Pontius Jr, Robert Gilmore** and Kasper Kok. 2006. Validation. pages 633-638. in H Geist (ed). Our Earth's Changing Land: an encyclopedia of land-use and land-cover change. Volume 2. Greenwood Press: Westport CT.
43. **Pontius Jr, Robert Gilmore** and *Mang Lung Cheuk*. 2005. Using indices to track changes in land use. pages 99 in K Chopra, R Leemans, P Kumar, and H Simons (eds.) Millennium Ecosystem Assessment, Ecosystems and Human well-being: Policy Responses, volume 3. Island Press, Washington DC.

PUBLICATIONS AS CONFERENCE PROCEEDINGS (italics denote student)

44. **Pontius Jr, Robert Gilmore** and *Xiaoxiao Li*. 2008. Estimating the land transition matrix based on erroneous maps. Conference proceedings of Studying, Modeling and Sense Making of Planet Earth. Mytilene, Greece 8 pages.
45. **Pontius Jr, Robert Gilmore**, Shaily Menon, *Joseph Duncan*, and *Shalini Gupta*. 2008. GIS methods to quantify effectiveness and leakage in land conservation projects. Conference proceedings of Studying, Modeling and Sense Making of Planet Earth. Mytilene, Greece 8 pages.
46. **Pontius Jr, Robert Gilmore** and *Marco Millones*. 2008. Problems and solutions for kappa-based indices of agreement. Conference proceedings of Studying, Modeling and Sense Making of Planet Earth. Mytilene, Greece 8 pages.
47. **Pontius Jr, Robert Gilmore**, Jean-Christophe Castella, Ton de Nijs, Zengqiang Duan, Eric Fotsing, Noah Goldstein, Kasper Kok, Eric Koomen, *Christopher D. Lippitt*, William McConnell, Bryan Pijanowski, Alias Mohd Sood, A. Tom Veldkamp, and Peter H. Verburg. 2007. Lessons and challenges in land change modeling as revealed by map comparisons. Proceedings of the conference on the science and education of land use. Washington DC, USA 37 pages.
48. **Pontius Jr, Robert Gilmore**, *Olufunmilayo Thontteh*, and *Hao Chen*. 2007. Map comparison to assess the prediction of vegetation response to El Nino in Southern Africa. Conference proceedings

- of the World Congress of the International Association for Landscape Ecology. Wageningen, The Netherlands 2 pages.
49. *Parmentier, Benoit* and **Pontius Jr, Robert Gilmore**. 2007. Improvements in the use of the ROC statistic for landscape ecology. Conference proceedings of the World Congress of the International Association for Landscape Ecology. Wageningen, The Netherlands 2 pages.
 50. *Peethambaram, Smitha* and **Pontius Jr, Robert Gilmore**. 2007. Assessment of a land change model using a three-dimensional matrix at multiple scales. Conference proceedings of the World Congress of the International Association for Landscape Ecology. Wageningen, The Netherlands 1 page.
 51. **Pontius Jr, Robert Gilmore** and Yelena Ogneva-Himmelberger. 2007. Lessons from the first decade of running a Master of Arts program in Geographic Information Science in the United States. Conference proceedings of the meeting of Electronic Culture and New Humanitarian Technologies of the XXI century. Astrakhan, Russia 4 pages.
 52. **Pontius Jr, Robert Gilmore** and *John Connors*. 2006. Expanding the conceptual, mathematical, and practical methods for map comparison. Conference proceedings of the meeting of Spatial Accuracy 2006. Lisbon, Portugal. 16 pages.
 53. **Pontius Jr, Robert Gilmore**, *Anna J Versluis*, and *Nicholas R Malizia*. 2005. Visualizing the certainty for extrapolations from models of landscape change. Conference proceedings of the meeting of Geocomputation. Ann Arbor MI. 6 pages.
 54. **Pontius Jr, Robert Gilmore**, *Hao Chen*, and *Olufunmilayo Thontteh*. 2005. Multiple scale pattern recognition and the foundation of observation-free statistics. Conference Proceedings of the meeting of the American Society for Photogrammetry and Remote Sensing. Baltimore MD. 11 pages.
 55. **Pontius Jr, Robert Gilmore** and *Evan Fedorko*. 2005. Spatial distribution of land type in regression models of pollutant loading. Conference Proceedings of the meeting of the American Society for Photogrammetry and Remote Sensing. Baltimore MD. 5 pages.
 56. *Petrova, Silvia* and **Robert Gilmore Pontius Jr**. 2005. Using imperfect information to validate a model of land change. Conference Proceedings of the meeting of the American Society for Photogrammetry and Remote Sensing. Baltimore MD. 12 pages.
 57. **Pontius Jr, Robert Gilmore** and *Christopher Lippitt*. 2004. A method to distinguish real landscape change from map error during map comparison. Conference proceedings of the joint meeting of The Fifteenth Annual Conference of The International Environmetrics Society and The Sixth Annual Symposium on Spatial Accuracy Assessment in Natural Resources and Environmental Sciences. Portland ME. 9 pages.
 58. *Alo, Clement* and **Robert Gilmore Pontius Jr**. 2004. Detecting the influence of protection on landscape transformation in southwestern Ghana. Conference proceedings of the joint meeting of The Fifteenth Annual Conference of The International Environmetrics Society and The Sixth Annual Symposium on Spatial Accuracy Assessment in Natural Resources and Environmental Sciences. Portland ME. 17 pages.
 59. *Kuzera, Kristopher* and **Robert Gilmore Pontius Jr**. 2004. Categorical coefficients for assessing soft-classified maps at multiple resolutions. Conference proceedings of the joint meeting of The Fifteenth Annual Conference of The International Environmetrics Society and The Sixth Annual Symposium on Spatial Accuracy Assessment in Natural Resources and Environmental Sciences. Portland ME. 11 pages.
 60. *Paladino, Louis* and **Robert Gilmore Pontius Jr**. 2004. Accuracy assessment and uncertainty in baseline projections for land-change forestry projects. Conference proceedings of the joint meeting of The Fifteenth Annual Conference of The International Environmetrics Society and The Sixth Annual Symposium on Spatial Accuracy Assessment in Natural Resources and Environmental Sciences. Portland ME. 11 pages.
 61. *Versluis, Anna J*, **Robert Gilmore Pontius Jr**, and *Nicholas R Malizia*. 2004. Visualizing the rate at which the accuracy of a land change prediction decays. Conference proceedings of the meeting of the University Consortium for Geographic Information Science. Silver Spring MD. 29 pages.
 62. **Pontius Jr, Robert Gilmore** and *Jeffrey Malanson*. 2003. Methods to compare the accuracy of

- different types of land use change models. Abstract in Conference proceedings of Framing Land Use Dynamics. Utrecht, The Netherlands. 2 pages.
63. Caeiro, Sandra, Sandra Sousa, **Robert Gilmore Pontius Jr** and Marco Painho. 2003. Sado estuary management areas: hard versus soft classification maps comparison. Conference proceedings of CoastalGIS 2003, Fifth International Symposium on GIS and Computer Cartography for Coastal Zone Management. Genova, Italy, Geographical Information Systems International Group and ISSOPS International Center of Coastal and Ocean Policy Studies.
64. **Pontius Jr, Robert Gilmore**, *Aditya Agrawal*, and *Diana Huffaker*. 2002. Uncertainty Analysis in Land Change Modeling: Constructing a Gridded Map from Tabular Data. Conference proceedings of the Second International Conference on Geographic Information Science. Boulder CO. 2 pages.
65. **Pontius Jr, Robert Gilmore**, Luc Claessens, Charles Hopkinson Jr, *Abdelkrim Marzouk*, Ed Rastetter, *Laura Schneider*, Joseph Vallino. 2000. Scenarios of land-use change and nitrogen release in the Ipswich watershed, Massachusetts, USA. in B Parks, K Clarke, M Crane, editors. 2000. Conference proceedings of the 4th international conference on integrating GIS and environmental modeling Boulder: University of Colorado, CIRES. (CD and <http://www.colorado.edu/research/cires/banff/pubpapers/165/>)

PUBLICATIONS AS SOFTWARE MANUALS (italics denote student)

66. **Pontius Jr, Robert Gilmore** and *Hao Chen*. 2006. GEOMOD Modeling. 53 pages. Chapter of help system in J Ronald Eastman. Idrisi 15: The Andes Edition. Worcester MA: Clark Labs.
67. Raskin, Paul, Charles Heaps, Jack Sieber, and **Robert Gilmore Pontius Jr**. 1996. Polestar system manual. Stockholm: SEI.

PUBLICATIONS AS RESEARCH REPORTS

68. Polsky, Colin, John Rogan, **Robert Gilmore Pontius Jr.**, and Billie Lee Turner II. 2007. Undergraduate GIScience Research at Clark University: The HERO Program. Council on Undergraduate Research Quarterly 27(3):124-129.
69. Raskin, Paul, Eric Kemp-Benedict, David Calef, Charles Heaps, and **Robert Gilmore Pontius Jr**. 1997. Halfway to the Future: normative scenarios and environmental perils. National Academy of Sciences, Board on Sustainable Development. Woods Hole MA, July 7-11.
70. Raskin, Paul, Peter Gleick, Paul Kirshen, **Robert Gilmore Pontius Jr**, Kenneth Strzepek. 1997. Water Futures: assessment of long-range patterns and problems. Chapter 3 of the comprehensive assessment of the freshwater resources of the world. SEI: Stockholm, Sweden.
71. **Pontius Jr, Robert Gilmore** and Paul Raskin. 1996. Energy resources and sustainability. Global industrial and social progress institute. Tokyo, Japan.
72. Hall, Charles, Hanqin Tian, Ye Qi, **Robert Gilmore Pontius Jr**, Joseph Cornell, and James Uhlig. 1995. Spatially-explicit models of land-use change and their application to the tropics. DOE Research Summary 31, February. Carbon Dioxide Information and Analysis Center: Oak Ridge National Laboratory.
73. Hall, Charles, Hanqin Tian, Ye Qi, **Robert Gilmore Pontius Jr**, Joseph Cornell, and James Uhlig. 1995. Modeling land-use change. CDIAC Communications 21, February. CDIAC: Oak Ridge National Laboratory.
74. **Pontius Jr, Robert Gilmore**. 1990. Modified agricultural weighted estimators. United States Department of Agriculture, Staff Report SSB-90-05.

GRANTS

1. 2009-2011. \$354,146. Co-investigator. National Science Foundation, Research Experience for Undergraduates. "Land Change and Vulnerability Studies in New England: The Human-Environment Regional Observatory."

2. 2007-2011. \$1,442,930. Co-investigator. National Science Foundation, Coupled Natural Human Systems. "Suburbanization, Water-Use, Nitrogen Cycling & Eutrophication in the 21st Century: Interactions, Feedbacks & Uncertainties in a Massachusetts Coastal Zone." Award # BCS-0709685.
3. 2008. \$36,000. Co-investigator. Long Term Ecological Research network. "LTER Workshop Proposal: Future Scenarios of Land Change."
4. 2008. \$11,991. Co-investigator. National Science Foundation, Research Experiences for Undergraduates associated with Coupled Natural Human Systems. "Suburbanization, Water-Use, Nitrogen Cycling & Eutrophication in the 21st Century: Interactions, Feedbacks & Uncertainties in a Massachusetts Coastal Zone."
5. 2007. \$20,000. Co-investigator. National Science Foundation, Supplement to Coupled Natural Human Systems. "Suburbanization, Water-Use, Nitrogen Cycling & Eutrophication in the 21st Century: Interactions, Feedbacks & Uncertainties in a Massachusetts Coastal Zone."
6. 2006. \$6,000. Principal Investigator. National Science Foundation. Research Experience for Undergraduates program. Compliment to subcontract entitled "Plum Island Ecosystems Long Term Ecological Research."
7. 2005. \$6,000. Principal Investigator. National Science Foundation. Research Experience for Undergraduates program. Compliment to subcontract entitled "Plum Island Ecosystems Long Term Ecological Research."
8. 2004-2010. \$4,920,000 = team total; \$61,000 = Pontius' portion. Co-investigator. National Science Foundation. "Plum Island Ecosystems Long Term Ecological Research." OCE-0423565. Marine Biological Laboratory Subaward 24123.
9. 2004-2005. \$400,000 = team total. Co-investigator. National Science Foundation. "The Human Environment Regional Observatory (HERO): Research Experience for Undergraduates Site Supplement."
10. 2002-2006. \$300,253 = team total; \$60,995 = Pontius' portion. Co-investigator. National Science Foundation. "The Human Environment Regional Observatory (HERO): Research Experience for Undergraduates Site." Award # SES-0243772 (subaward 2911-CU-NSF-3772).
11. 2000-2005. \$290,000. Contributor and Supervisor. National Science Foundation. "Human Environment Regional Observatory (HERO): Infrastructural Development for the Human Dimensions of Global Environmental Change."
12. 2003. \$6,000. Principal Investigator. National Science Foundation. Research Experience for Undergraduates program. Compliment to subcontract entitled "Integrated, Ecological-Economic Modeling of Watersheds and Estuaries at Multiple Scales."
13. 2002. \$6,000. Principal Investigator. National Science Foundation. Research Experience for Undergraduates program. Compliment to subcontract entitled "Integrated, Ecological-Economic Modeling of Watersheds and Estuaries at Multiple Scales."
14. 2001. \$6,000. Principal Investigator. National Science Foundation. Research Experience for Undergraduates program. Compliment to subcontract entitled "Integrated, Ecological-Economic Modeling of Watersheds and Estuaries at Multiple Scales."
15. 1999-2000. \$77,460 = Pontius' portion. Co-investigator. National Science Foundation, subcontract with Marine Biological Laboratory. LTER program. "Ecological-Economic Modeling of Watersheds and Estuaries at Multiple Scales". Award # DEB-972682.
16. 1999. \$2,500. Contributor. National Council for the Social Studies. Enhancement of Geographic Literacy program. "Students Acting and Participating to Reinforce Community Spirit".
17. 1995. \$2,000. Principal Investigator. Oxfam America. "Amazon Carbon Risk Assessment".

INVITED EXTERNAL EXPERT REVIEW PANELS

1. 2009 Environmental Science Division. Environmental Protection Agency. Las Vegas NV.
2. 2006, 2008 Chesapeake Bay Program. Annapolis MD.
3. 2006 Helmholtz Association. Leipzig Germany.

4. 2006 Nonlinear Global Change Grants. Environmental Protection Agency. Washington DC.
5. 2005-2006 Dissertation Research Improvement Grants. NSF. Washington DC.

SCIENTIFIC ADVISORY COMMITTEES

1. 2008-2011 Officer in the Spatial Analysis and Modeling Specialty Group of the AAG.
2. 2008-2009 Panelist to the journal Nature.
3. 2009 Advisor to Massachusetts Water Resources Research Center Conference. Amherst MA.
4. 2008 Workshop Participant in Long Term Ecological Research (LTER). San Juan PR.
5. 2008 Workshop Participant in Biophysical and Socioeconomic Systems. Minneapolis MN.
6. 2008 Symposium Participant in Long Term Ecological Research (LTER). Worcester MA.
7. 2007 Member of Scientific Committee for the conference Spatial Accuracy, Shanghai China.
8. 2006 Advisor to National Ecological Observatory Network (NEON). Harvard Forest MA.
9. 2006 Advisor to Long Term Ecological Research (LTER). Madison WI.
10. 2006 Advisor to integrating social science in LTER. Estes Park CO.
11. 2005 Advisor to land change modeling for U.S. Geological Survey. Pingree Park CO.
12. 2005 Advisor to Long Term Ecological Research (LTER). Boston MA.
13. 2005 Advisor to integrating social science in LTER. Athens GA.
14. 2005 Advisor to forecasting models within NEON. Woods Hole MA.
15. 2004 Co-organizer for conference on The Future of Land Use. The Netherlands.

EDITORIAL BOARDS

1. International Journal of Geographical Information Science 2007 - present
2. Landscape Ecology 2007 - present
3. Encyclopedia of Earth 2006 - present

REVIEWER FOR JOURNALS (# OF TIMES)

1. Agriculture, Ecosystems and Environment (8)
2. Annals of the Association of American Geographers (4)
3. Applied Geography (1)
4. Atmospheric Environment (1)
5. Biological Conservation (1)
6. Bioscience (1)
7. Biotropica (1)
8. Climate Policy (1)
9. Computers, Environment and Urban Systems (3)
10. Computers and Geosciences (1)
11. Conservation Biology (1)
12. Conservation and Society (1)
13. Ecological Applications (3)
14. Ecological Economics (12)
15. Ecological Modelling (3)
16. Ecosystems (1)
17. Environment and Planning A (2)
18. Environment and Planning B (4)
19. Environment, Development and Sustainability (1)
20. Environmental Management (8)
21. Environmental Modelling & Software (5)
22. Forest Ecology and Management (1)
23. Geoforum (1)

24. Geographical Analysis (2)
25. Geoinformatica (1)
26. IEEE Transactions on Geoscience and Remote Sensing (1)
27. International Journal of Applied Earth Observation and Geoinformation (1)
28. International Journal of Geographical Information Science (14)
29. International Journal of Remote Sensing (14)
30. Journal of Arid Environments (1)
31. Journal of Coastal Research (1)
32. Journal of Environmental Informatics (1)
33. Journal of Environmental Management (4)
34. Journal of Geographic Systems (1)
35. Journal of Land Use Science (2)
36. Journal of Plant Ecology (1)
37. Land Degradation & Development (1)
38. Land Use Policy (1)
39. Landscape and Urban Planning (7)
40. Landscape Ecology (21)
41. NED University of Journal of Research (1)
42. Photogrammetric Engineering & Remote Sensing (7)
43. Plant Ecology (1)
44. Proceedings of the National Academy of Sciences (1)
45. Remote Sensing of Environment (8)
46. Simulation (1)
47. Singapore Journal of Tropical Geography (3)
48. Science of the Total Environment (2)
49. The Professional Geographer (6)
50. The Arab World Geographer (1)
51. The Professional Geographer (4)
52. Transactions in GIS (2)
53. Urban Ecosystems (1)
54. Water International (2)

REVIEWER FOR BOOKS, GRANTS, AND PROMOTIONS (# OF TIMES)

1. Association of American Geographers Remote Sensing Specialty Group (1)
2. CALFED Bay-Delta Authority (3)
3. California Energy Commission (2)
4. California Energy Institute (1)
5. Handbook of Remote Sensing Chapter (1)
6. Encyclopedia of Earth (2)
7. Katholieke Universiteit Leuven (1)
8. Key Topics and Perspectives in Landscape Ecology Chapter (1)
9. National Academy of Sciences (1)
10. National Aeronautics and Space Administration (3)
11. National Atmospheric and Oceanic Administration (1)
12. National Environment Research Council (1)
13. National Research Council (5)
14. National Science Foundation (8)
15. Netherlands Foundation for the Advancement of Tropical Research (1)
16. Netherlands Organisation for Scientific Research (1)
17. Oxford Press (1)
18. Remote Sensing and GIS Applications for Linking People, Place and Policy Chapter (1)

19. Spatial Accuracy Symposia (4)
20. United States Civilian Research & Development Foundation (2)
21. University of Toronto (1)
22. Wageningen University (1)

PRESENTATIONS INVITED BY UNIVERSITIES AND RESEARCH CENTERS

1. 2009 Harvard Forest. Petersham MA.
2. 2008 Truman State University. Kirksville MO.
3. 2007 Digital Governance and Hotspot Geoinformatics. University Park PA.
4. 2007 Worcester State College. Worcester MA.
5. 2007 Baltimore Ecosystems Study. Baltimore MD.
6. 2007 The Pennsylvania State University. University Park PA.
7. 2006 University of Delaware. Newark DE.
8. 2005 Ashoka Trust for Research in Ecology and the Environment. Bangalore, India.
9. 2005 Karnataka State Remote Sensing Applications Center. Bangalore, India.
10. 2005 McGill University. Montreal, Canada.
11. 2005 National Center for Biological Sciences. Bangalore, India.
12. 2005 National Remote Sensing Agency. Hyderabad, India.
13. 2005 University of Connecticut. Storrs, CT.
14. 2005 University of Massachusetts. Amherst, MA.
15. 2004 Carnegie Mellon University. Pittsburgh, PA.
16. 2004 Universidad Metropolitana. San Juan PR.
17. 2004 University of Buffalo. Buffalo, NY.
18. 2004 Universite Catholique. Louvain-la-Neuve, Belgium.
19. 2004 Wageningen University. Wageningen, The Netherlands.
20. 2004 Wageningen University, Alterra. Benekom, The Netherlands.
21. 2003 Indiana University, CIPEC. Bloomington, IN.
22. 2003 University of Massachusetts. Boston MA.
23. 2002 Brandeis University. Newton MA.
24. 2001 University of Colorado. Boulder, CO.
25. 2000 Michigan State University. East Lansing MI.
26. 1998 Clark University. Worcester MA.
27. 1996 University of Massachusetts. Boston MA.
28. 1995 San Diego State University. San Diego CA.
29. 1995 Woods Hole Research Center. Woods Hole MA.
30. 1995 Union of Concerned Scientists. Cambridge MA.
31. 1994 Boston University. Boston MA.

PRESENTATIONS AT CONFERENCES AS FIRST AUTHOR

1. 2009 Uncertainty in the difference between maps of future land change scenarios. Association of American Geographers. Las Vegas NV.
2. 2009 Inclusion of uncertainty in landscape models of coupled human natural systems. International Association for Landscape Ecology. Snowbird UT.
3. 2009 Certainty of land change models. Massachusetts Water Resources Research Conference. Amherst MA.
4. 2009 Social/Ecological Science and Land Change. All Scientists Meeting. Woods Hole MA.
5. 2008 Estimating the land transition matrix based on erroneous maps. Studying, Modeling & Sense Making of Planet Earth. Mytilene, Greece.
6. 2008 GIS methods to quantify effectiveness and leakage in land conservation projects. Studying, Modeling & Sense Making of Planet Earth. Mytilene, Greece.

7. 2008 Problems and solutions for kappa-based indices of agreement. Studying, Modeling & Sense Making of Planet Earth. Mytilene, Greece.
8. 2008 How certain are you of your geographic information?: blunders and breakthroughs in accuracy assessment. Southern Forestry and Natural Resources GIS conference. Orlando, FL. Keynote Speaker.
9. 2008 Identifying systematic land cover transitions using remote sensing and GIS: The fate of forests inside and outside protected areas of Southwestern Ghana. Association of American Geographers. Boston MA.
10. 2007 Lessons and challenges for land change modelers as revealed by a comparison of thirteen cases. Conference on the science and education of land use: a transatlantic multidisciplinary approach. Washington DC.
11. 2007 Map comparison to assess the prediction of vegetation response to El Nino in Southern Africa. World Congress of the International Association for Landscape Ecology. Wageningen, The Netherlands.
12. 2007 Lessons from the first decade of running a Master of Arts program in Geographic Information Science in the United States. Electronic Culture and New Humanitarian Technologies of the XXI century, Astrakhan Russia.
13. 2007 A generalized cross-tabulation matrix to compare soft-classified maps at multiple resolutions. Association of American Geographers. San Francisco CA.
14. 2006 Expanding the conceptual, mathematical, and practical methods for map comparison. Spatial Accuracy 2006. Lisbon, Portugal. Keynote Speaker.
15. 2006 Validation of the Behavioral Landscape Model as applied to deforestation along the Trans-Amazonian highway. International Association for Landscape Ecology. San Diego CA.
16. 2006 Quantitative assessment for a model of Amazonian deforestation. Association of American Geographers. Chicago IL.
17. 2005 Cross case comparison for several prominent land change models. Open Meeting of the Human Dimensions of Global Environmental Change. Bonn, Germany.
18. 2005 Certainty of the extrapolation of land change in the Ipswich River Watershed. All Scientists Meeting. Woods Hole MA.
19. 2005 Multiple resolution model validation. International conference on the future of statistical theory, practice and education. Hyderabad, India.
20. 2005 Multiple scale pattern recognition and the foundation of observation-free statistics. American Society for Photogrammetry and Remote Sensing. Baltimore MD.
21. 2005 State of the art of land change models as measured by quantitative validation. International Association for Landscape Ecology. Syracuse NY.
22. 2004 Land-change model comparison. Conference Co-Organizer. Integrated assessment of the land system: the future of land use. Amsterdam, The Netherlands.
23. 2004 Conference on environment and land change. Universidad Metropolitana. San Juan PR.
24. 2004 Detecting the influence of protection on landscape transformation in southwestern Ghana. The joint meeting of The Fifteenth Annual Conference of The International Environmetrics Society and The Sixth Annual Symposium on Spatial Accuracy Assessment in Natural Resources and Environmental Sciences. Portland ME.
25. 2004 Uncertainty in extrapolation of predictive land change models. Association of American Geographers. Philadelphia PA.
26. 2004 Student-faculty research and action. Campus Compact Conference. Worcester MA.
27. 2004 Products and lessons from the HERO program. Human Dimensions of Global Change, Carnegie-Mellon University. Pittsburgh PA.
28. 2003 Validation of land-use change models at multiple resolutions. Framing Land Use Dynamics Conference. Utrecht, The Netherlands.
29. 2003 Uncertainty in Extrapolations of Predictive Land Change Models. Open Meeting of the Human

- Dimensions of Global Environmental Change. Montreal, Canada.
30. 2003 Socio-economic drivers of land-use change at several sites in the Plum Island Ecosystems LTER region. National Science Foundation Headquarters. Washington DC.
 31. 2003 Techniques in GIS-based modeling of land cover. Organized Session. Association of American Geographers. New Orleans LA.
 32. 2003 Overview of HERO Central Massachusetts. Association of American Geographers. New Orleans LA.
 33. 2002 Uncertainty Analysis in Land Change Modeling: Constructing a Gridded Map from Tabular Data. GIScience 2002. Boulder CO.
 34. 2002 Methods to detect a process in a pattern. AAG. Los Angeles CA.
 35. 2002 The Clark Master of Arts program in GISDE. AAG. Los Angeles CA.
 36. 2002 Human Environment Regional Observatory in Central Mass. AAG. Los Angeles CA.
 37. 2002 Integrating Land Use Change and Nutrient Flows. National Science Foundation. LTER Workshop. Baltimore MD.
 38. 2002 GIS & Mercury Research. Northern Ecosystem Research Cooperative. Portland ME.
 39. 2002 Land Use, Nitrate, Precipitation and Permeability. All LTER Scientists Meeting, Marine Biological Laboratory, Woods Hole MA.
 40. 2002 Land Research in Massachusetts. Center for the Integrated Study of the Human Dimensions of Global Change. Pittsburgh PA.
 41. 2001 Assessing map accuracy by components of chance, change, quantity, stratification, position and resolution. Environmental Protection Agency. Las Vegas NV.
 42. 2001 A Multiple Resolution ROC statistic to validate a GIS-based model of deforestation in India. International Geosphere Biosphere Program. The Netherlands. Oral and Poster.
 43. 2001 Land-Use Change Models and Methods. Workshop for integrating Social Science into Long Term Ecological Research. Madison WI. Co-Leader.
 44. 2001 Meeting professional needs for Geographic Information Systems. Tufts University. Medford MA.
 45. 2001 Measures of agreement between maps. AAG. New York NY. Presenter and chair.
 46. 2000 A statistical method to compare categorical maps at multiple scales. First international conference on GIScience. Savannah GA.
 47. 2000 Scenarios of land-use change and nitrogen release in the Ipswich watershed. Fourth international conference on integrating GIS and environmental modeling. Banff Canada.
 48. 2000 Land modeling in the Ipswich watershed. LTER All Scientists. Snowbird UT. poster.
 49. 2000 Land-use change modeling. NSF-long term ecological research. Woods Hole MA.
 50. 2000 Statistical methods to validate land use change models. Human Dimensions of Global Change, Carnegie-Mellon University. Pittsburgh PA.
 51. 2000 The next 100 years of land use and nitrogen release in the Ipswich watershed. Executive Office of Environmental Affairs. North Shore MA.
 52. 2000 Statistical methods to validate land-use simulations. Association of American Geographers. Pittsburgh PA.
 53. 1999 Relative operating characteristic to validate maps of suitability for land-use change. International LUCC Workshop at Wageningen, The Netherlands.
 54. 1999 Tools to protect your watershed. Parker River Watershed Association. Rowley MA.
 55. 1999 Public participation in GIS. University Consortium on Geographic Information Science. Minneapolis MN.
 56. 1999 Land-use change modeling in the Ipswich watershed. US EPA. Washington DC.
 57. 1999 Lessons for integrated modeling. National Science Foundation, Human Dimensions of Global Change, Carnegie-Mellon University. Pittsburgh PA.
 58. 1999 Land-use change modeling. Marine Biological Laboratory. Woods Hole MA.
 59. 1998 Modeling the spatial pattern of land-use change. Association of American Geographers. Boston MA.

60. 1997 Scenarios of Global Change Using POLESTAR. Global Scenario Group, Stockholm Environment Institute. Boston MA.
61. 1993 A coordinated research program on carbon fluxes in the tropics IV: a geographically based model of carbon flux due to land-use change in tropical Africa. Eighth annual landscape ecology symposium. Oak Ridge TN.

WORKSHOPS CONDUCTED

1. 2009 Land Change Modeling Methods. Association of American Geographers. Las Vegas NV.
2. 2008 Land Change Modeling Methods. University of Aegean. Mytilene, Greece.
3. 2007 Land Change Modeling for Carbon Offset Projects. Conservation International. Quito, Ecuador.
4. 2007 Land Change Modeling Methods. World Congress of International Association for Landscape Ecology. Wageningen, The Netherlands.
5. 2007 Science of Map Comparison series of lectures. Astrakhan, Russia.
6. 2006 Geomod: land-use change modeling. International Association for Landscape Ecology. San Diego, CA.
7. 2005 Geomod: land-use change modeling. International Association for Landscape Ecology. Syracuse, NY.
8. 2005 Modeling land-use & land-cover change and species distribution. Ashoka Trust for Research in Ecology and the Environment. Bangalore, India.
9. 2005 Fundamentals of map comparison and land-use & land-cover change modeling. National Remote Sensing Agency. Hyderabad, India.
10. 2003 Analyzing and modeling land-use & land-cover change at multiple resolutions. Universidade Nova de Lisboa. Lisbon, Portugal.
11. 1999-2004 Statistics in Environmental Science. Antioch College. Keene NH.

COURSES TAUGHT AT CLARK UNIVERSITY (AND OTHER INSTITUTIONS)

Professional seminar on geographic information sciences for development and environment
1998-2003, 2006-2009.

Research seminar on geographic information sciences for development and environment
1999-2009.

Research seminar on Human Regional Environment Observatory
2001-2009.

Quantitative environmental modeling
1999-2008.

Introduction to computer and quantitative methods
1999-2003, 2006, 2008.

GIS and accuracy assessment
2009.

GIS and land change science
2005-2008.

Ecology and economy in the tropics
1998-2000.

Introduction to quantitative modeling (Boston University)
1995.

Introduction to geographic information science (Boston University)
1995.

Environmental problems in developing countries (Boston University)
1994.

International resources and environmental management (Boston University)

1994.

Mathematics for the social sciences (The Ohio State University)

1988.

Advanced level mathematics (Kilakala Secondary School, Tanzania)

1985-1987.

ADVISOR OF STUDENT THESES

Major advisor of doctoral dissertation:

1. 2009 H Chen. Methods to explore the relationship between land change prediction and its variables through accuracy assessment.

Reader for doctoral dissertation: Manson, McEachern, Pacheco, Snell.

Major advisor of Master of Arts papers:

1. 2009 S Broo. Managing water resources for “suburban drought”.
2. 2008 C Brill. Using GIS to contrast perceived versus preferred priorities for redevelopment.
3. 2008 O Kim. Comparison of two land change modules: the case study of Bolivia.
4. 2007 V Guterrez. How accurate do land change models need to be?
5. 2007 S Al-Dwaik. Transportation paths between the West Bank and Gaza Strip.
6. 2007 X Li. Method to estimate the land transition matrix from two erroneous maps.
7. 2007 J Pearson. Influence of spatial extent on the measurement of land change.
8. 2007 N Teougam. Assessing systematic transitions of land use at different spatial resolutions.
9. 2006 G Kariuki. Measurement of map comparison at multiple spatial and temporal scales.
10. 2006 J Nsibirwa. What are the sources of uncertainty in the 1951 map of the Worcester area.
11. 2006 M Rayner. A sampling strategy for evaluating land cover change in Brazil.
12. 2006 S Peethambaram. Three dimensional matrix for comparing three maps.
13. 2006 L Silva. A stratified random sampling strategy in Minas Gerais, Brazil.
14. 2005 D Sucharski. Improvements for the use of the ROC to compare maps.
15. 2004 J Duncan. Framework for measuring the influence of leakage.
16. 2004 E Fedorko. Spatial Distribution of land use in regression models of pollutant loading.
17. 2004 K Kuzera. A technique for understanding issues of scale in map comparison.
18. 2004 S Petrova. Using imperfect data to validate a land change model.
19. 2004 O Thontteh. Verification of vegetation index predictions using multi-scale comparison.
20. 2004 R Yao-Kumah. Model validation to determine research priorities.
21. 2003 C Alo. Detecting the influence of protection on landscape transformation in Ghana.
22. 2003 S Grimland. Prediction of mercury concentration in sediment in Maine.
23. 2003 S Gupta. Effectiveness of land conservation for biodiversity protection in India.
24. 2003 L Paladino. Accuracy assessment in baseline projections for forestry projects
25. 2003 J Spencer. Uncertainty in extrapolations of predictive land change models.
26. 2002 K Denman. Predictability of land change at multiple resolutions.
27. 2002 M Castrence. Rapid coral reef assessment with remote sensing.
28. 2002 M Cheuk. A generalized confusion matrix for comparing soft-classified maps.
29. 2002 M Komwa. Assessing best bet cropping patterns in Malawi.
30. 2002 J Head. Identifying impermeable surface from remotely sensed images.
31. 2002 M Lowry. Site Selection for the Nashua River Watershed Association.
32. 2002 N Moore. A leakage detection model for determining the value of conservation.
33. 2002 D Parker. A Method to Produce Hydrologically Corrected DEMs.
34. 2001 A Agrawal. Uncertainty analysis of land-use change modeling in GIS.
35. 2001 K Al-Ghamdi. Establishing a municipal GIS to manage utilities of Arriyadh City.
36. 2001 K Batchu. Using ROC to quantify uncertainty in prediction of land cover in India.
37. 2001 M Cope. Land cover classification using Fisher’s linear discriminant analysis.
38. 2001 A Dushku. Assessing effectiveness of carbon offset projects with a GIS model.

39. 2001 K Leung. Incorporation of Spatial Configuration in Land Allocation.
 40. 2001 R Meyer. Evaluation of video data for vegetation mapping in Botswana.
 41. 2001 A Nelson. Quantifying the effectiveness of conservation projects 1.
 42. 2001 N Pieri. Quantifying the effectiveness of conservation projects 2.
 43. 2001 C Rossi. GIS and discriminant analysis to determine the habitat of a fish species.
 44. 2001 B Suedmeyer. Components of agreement in maps at multiple resolutions.
 45. 2001 T Tada. Land use and nitrate loading in small stream catchments.
 46. 2001 K Walton. Shaping the views of the forest industry in Maine.
 47. 2000 B Bouvier. Opium cultivation and land use change in northeast Myanmar.
 48. 2000 P Coye. Modeling land use and nutrient loading for the Onota Lake watershed.
 49. 2000 A Gonzales. Environmental Justice in Puerto Rico: a GIS approach.
 50. 2000 M Hayward. Using GIS to identify trends in infant mortality in Worcester MA.
 51. 2000 C Kigasawa. Rice cultivation and land-use change in the Amano Watershed. Japan.
 52. 2000 C Lee. Land-cover change in China using time series analysis. 1982 - 1999.
 53. 2000 P Palmero. Nature reserve selection and design for species conservation.
 54. 2000 I Popescu. Northeast Myanmar: A GIS weight of evidence modeling approach.
 55. 2000 J Puhakka. Establishing municipal GIS for utilities and excavation damage control.
 56. 1999 A Alspach. Appropriate GIS.
 57. 1999 P Burgess. Conservation and development in conflict.
 58. 1999 S Ford. From paper charts to virtual maps in the marine environment.
 59. 1999 D Juhn. Modeling forest disturbance resulting from scenarios of migration in Peru.
 60. 1999 D Koch. Forest cover change in the Bolivian lowlands.
 61. 1999 S Menard. Land-use change and regional growth in the Ipswich watershed basin.
 62. 1999 M Metevier. Generation and evaluation of scenarios for local planning.
 63. 1999 L Sotomayor. GIS Analysis. monitoring and modeling of mangrove in Ecuador.
 64. 1999 J Suero. The credibility of indigenous knowledge.
 65. 1999 E Whitaker. Evaluation of environmental tobacco advertisements in Worcester.
 66. 1998 C Huang. Real-time landscape monitoring during typhoon period in Taiwan.
 67. 1998 D Ly. Spatial statistical analysis of deforestation in Cambodia 1992 to 1995.
 68. 1995 S DeMarta. Evaluation of the green revolution and alternatives in Latin America.
 69. 1995 J Kramer. Community-based conservation in southern Africa.
- Reader for Master of Arts: Armistead, Ambagis, Bennett, Benz, Eschenbacher, Fulk, Gabrielle, Marcano, Normandin, Shandra, Sinvula, Silinski, Sweet.

Major advisor of Undergraduate Honors theses:

1. 2006 J Connors. Quantifying associations for comparison of maps. Highest Honors.
 2. 2004 N Malizia. Effect of category aggregation on map comparison. Highest Honors.
 3. 2003 D Huffaker. The scale at which land change models are accurate. High Honors.
 4. 2003 P Morris. Measuring and predicting leakage from conservation projects. High Honors.
 5. 2002 S Aldrich. Water Quality as a function of land use. High Honors.
 6. 2002 E Frost. Phosphorous concentrations of Blackstone River. High Honors.
 7. 2002 J Hecht. Effects of land cover, precipitation and geology on low flows. Honors.
 8. 2002 E Shusas. Detecting the process in a pattern. High Honors.
 9. 2001 L Penniman. Sedimentation in the Tatnuck Brook Watershed. Highest Honors.
- Reader for Undergraduate Honors: McArdle, Shandra, Zarin.

ADVISEE AWARDS

1. 2008 C Brill. Urban and Regional Information and Systems Association 2nd Place Paper
2. 2008 O Kim. Association of American Geographers GIS/RS/Cartography 2nd Place Poster
3. 2007 S Al-Dwaik. Urban and Regional Information and Systems Association 1st Place Paper

4. 2007 B Parmentier. Association of American Geographers GIS Finalist Paper
5. 2007 M Millones. Association of American Geographers RS Honorable Mention Paper
6. 2006 J Connors. Association of American Geographers GIS/RS/Cartography 2nd Place Poster
7. 2004 N Malizia. Association of American Geographers GIS Finalist Paper
8. 2004 C Lippitt. Association of American Geographers Remote Sensing (RS) 1st Place Paper
9. 2004 E Fedorko. Association of American Geographers Water Resources 1st Place Poster

MAJOR UNIVERSITY SERVICE (YEARS)

Chair of Task Force to revise Clark University's undergraduate program
Member of Clark University Committee on Personnel (2005-2008) as chair in final year
Member of Clark University Steering Committee (2007-2008)
Member of Clark University Academic Affairs Committee (2007-2008)
Acting Director for Department of IDCE (2007)
Coordinator of Master of Arts program in GIS for Development and Environment (1998-2008)
Member of Clark University Research Board (2003)

MEMBERSHIPS

International Association for Landscape Ecology (IALE)
Association of American Geographers (AAG)
Massachusetts Audubon Society
Honor Society of Phi Kappa Phi
American Civil Liberties Union
Union of Concerned Scientists
The Population Connection

REFERENCES

- Dr. Billie Lee Turner II
Gilbert F. White Professor of Environment and Society
School of Geographical Sciences
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Arizona State University
Tempe AZ 85287-0104
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fax: 001 480 965 8313
- Dr. Charles S Hopkinson Jr
Professor of Marine Sciences
Director of Georgia Sea Grant College Program
University of Georgia
Athens GA 30602
USA
e-mail: chopkins@uga.edu
telephone: 001 706 542 1855
- Dr. A Tom Veldkamp
Professor in Laboratory of Soil Science and Geology
Wageningen University
P. O. Box 37
6700 AA Wageningen
The Netherlands

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fax: 64 9 373 7434

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Clark University
950 Main Street
Worcester MA 01610
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fax: 001 508 793 8881

Dr. William Fisher
Professor and Director
Department of International Development, Community, and Environment
Clark University
950 Main Street
Worcester MA 01610
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e-mail: wfisher@clarku.edu
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fax: 001 508 793 8820

Dr. Charles Hall
Doctoral Advisor
Professor of Environmental Forest Biology
State University of New York
College of Environmental Science and Forestry
302 Illick Hall
1 Forestry Drive
Syracuse NY 13210
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fax: 001 315 470 6934