

# LI AN

## *Curriculum Vitae*

April 2022

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California State University, San Diego (i.e., San Diego State University)

5500 Campanile Drive, San Diego, CA 92182-4493

Telephone: (619)594-5932 Fax: (619)594-4938

E-mail: [anli@complexities.org](mailto:anli@complexities.org)

### **HIGHER EDUCATION**

- Ph.D., Systems Modeling (Fisheries and Wildlife), Michigan State University, East Lansing, Michigan, 2003.
- M.S., Probability and Statistics, Michigan State University, East Lansing, Michigan, 2002
- M.S., Systems Ecology, Chinese Academy of Sciences, Beijing, China, 1992.
- B.S., Urban and Regional Planning (Economic Geography), Peking University, Beijing, China, 1989.

### **PROFESSIONAL APPOINTMENTS**

- Professor (tenured), Department of Geography, San Diego State University (SDSU), 2013 - present
- Founding director, Center for Complex Human-Environment Systems (CHES) at San Diego State University (USA), 2019-present
- Associate Professor (tenured), Department of Geography, San Diego State University, 2009 - 2013
- Assistant Professor, Department of Geography, San Diego State University, 2005 - 2009
- Postdoctoral Research Fellow, University of Michigan, Ann Arbor, Michigan, 2003 - 2005

### **RESEARCH PROFILE**

#### OVERALL RESEARCH GOALS

My research focuses on spatial data science, applied spatial statistics, artificial intelligence, and applications in complex human-environment systems in urban and regional contexts. Complexity theory, landscape ecology, sustainability science, geographic information science, and other relevant domain knowledge leverage theoretical, methodological, and empirical support toward this goal.

## SPECIFIC INTERESTS AND ACTIVITIES

1. Developing statistical and geospatial methods to facilitate space-time representation, visualization, analysis, computation, and micro-level simulation of various complex human-environment systems for improved understanding, envisioning, planning, and sustainability.
2. Science-informed conservation of environment and natural resources. Exemplar areas of interest
  - Exploring pathways toward improved biodiversity, public health, and ecosystem services using a hybrid of artificial intelligence and data science approach.
  - Revealing dynamics and mechanisms of urban and regional systems.
  - Performing hazard analysis for improved planning, management, and recovery.
  - Understanding the past, present, and future of urban, exurban, and rural landscapes and dwellers on them in the context of socio-political and environmental challenges.
3. Spatial analysis and statistics, space-time analysis, and data mining methods or metrics in systems planning, engineering, conservation, and management.
4. Establishing and maintaining various research, education, and outreach networks through international, interdisciplinary, and inter-scale collaboration.

## **HONORS & AWARDS**

- Recipient of the 2022 Outstanding Service Award of the Spatial Analysis and Modeling (SAM) Specialty Group of the Association of American Geographers (AAG).
- Fellow of the Association of American Geographers (AAG) selected by AAG Fellows Selection Committee and the AAG Council (elected in 2021).
- Fellow of the American Association for the Advancement of Science (AAAS) for "distinguished contributions to complex human-environmental systems theory and methodological breakthroughs in modeling human decisions, agent-based modeling, land survival & latent trajectory analysis" (elected in 2020).
- Recipient of the Excellence in Research Award for the Humanities and the Social Sciences at College of Arts and Letters, San Diego State University, 2018.
- The 2013-2014 Outstanding International Scholar Award at San Diego State University, which annually recognizes a distinguished faculty member with demonstrated outstanding contributions to the international arena.
- Awardee of the SDSU President's Leadership Fund in 2014, which aims at "building on excellence" in support of student success, research and creative endeavors, and community and communication.
- Prominent faculty in 2013 recognized in The Campanile Foundation (TCF) Board Dinner, September 11, 2013 (by SDSU President Elliot Hirshman, Vice President for Research Stephen Welter, and Dean of College of Arts and Letters Paul Wong).
- Outstanding Paper Award in Landscape Ecology (2006): "Exploring Complexity in a Human-Environment System: An Agent-based Spatial Model for Multidisciplinary and Multiscale Integration" (by An et al. 2005 in *Annals of the Association of American Geographers* 95(1): 54-79). The US Chapter of the International Association of Landscape Ecologists. Reprinted in *Handbook of Applied System Science* (Routledge Handbooks) 1st Edition by Zachary P. Neal (Editor), 2016.
- Gill-Chin Lim Award for Outstanding Doctoral Dissertation in Global Studies, Michigan State University (2004).

- Dissertation Completion Fellowship for outstanding dissertations from College of Agriculture and Natural Resources, Michigan State University (2002).
- Thoman Fellowship from International Studies & Programs Office, designed for international students excellent in studies and research, Michigan State University (2001).
- Research Enhancement Fellowship from Michigan State University and Department of Fisheries and Wildlife, for “Workshop on Linking Household and Remotely Sensed Data: Methodological and Practical Problems, Honolulu, Hawaii” (2002).
- Travel Grant from Michigan State University, for the international Conference “Panda 2000: Conservation Priorities for the New Millennium, San Diego, CA” (2000).
- NASA-MSU Scholarship in Landscape Ecology from the National Aeronautics and Space Administration (NASA) and Michigan State University (1998).

## **MEDIA COVERAGE**

- News report at the San Diego State University’s *Strategic Communications and Public Affairs* Newsletter (as top news) titled "Li An Selected as American Association of Geographers Fellow" (January 24, 2022).
- Newsletter report by American Association of Geographers (AAG) that recognized Dr. Li An as one of the 2022 Class of AAG Fellows (January 18, 2022).
- News report at the San Diego State University’s NewsCenter (as front coverage) titled "Leading Scientist Elected as an AAAS Fellow" (December 2, 2020).
- News release by the American Association for the Advancement of Science (AAAS) that Dr. Li An has been elected to be a Fellow of AAAS (announced at the 27<sup>th</sup> November 2020 issue of *Science*).
- The NSF Award “CNH: Impacts of ecosystem service payments in coupled natural and human systems” has been reported by Daily Aztec (SDSU newspaper) and SDSU Website in 2012.
- The NSF Project on understanding micro human-environment interaction (Li Ab as Co-PI for agent-based modeling; dissertation of PhD student Alex Zvoleff) has been featured by the National Association of Science Writers in 2011 (<http://www.nasw.org/modeling-interplay-people-and-places>).
- Research on human-environment interaction in the golden money reserve has been reported by San Diego State University Website (front page) and The 360 Magazine (The Magazine of San Diego State University) in 2009.

## **RESEARCH ACTIVITIES AND OUTCOMES**

### GRANTS AND PROJECTS (as PI, Co-PI, or Senior Personnel):

- PI, National Science Foundation USA Award “CNH-L: People, place, and payments in complex human-environment systems” (BCS-1826839); Co-PIs: Douglas Stow, Rebecca Lewison, Fang Chiu, and Jennifer Glick; Senior personnel: Stuart Aitken, Minjuan Wang and Scott Yabiku. Total budget: \$1,450,000, 2018-2023.
- Project Director/Advisor, NASA Earth and Space Science Fellowship “Mapping and modeling the invasion of *mikania micrantha* in the Chitwan community forests, Nepal: A coupled human and

natural systems approach” (17-EARTH17F-337). PI: Jie Dai (PhD candidate). Total budget: \$84,612, 2017-2019.

- PI, University of Hradec Králové Grant “Simulation of migration theories –SioMiTe” (Czech Republic; Co-PIs: JiříŠedivý, Jan Österreicher, and Hana Tomášková), 1,553,600 Czech crowns (\$71,341), 2017-2018.
- PI, NSF project “ABM’17: The usefulness, uselessness, and impending tasks of agent-based models in social, human-environment, and life sciences” (BCS-1638446; Co-PIs: Piotr Jankowski, Steven Manson, B. L. Turner II, Shaowen Wang). Total budget: \$94,996, 2016-2018.
- PI, NSF project “CNH: Impacts of ecosystem service payments in coupled natural and human systems” (DEB-1212183; co-PIs: Douglas Stow, Stuart Aitken, Rebecca Lewison, Xiaodong Chen). Total budget: \$1,299,917, 2012-2017.
- PI, SDSU President’s Leadership Fund project “Cross the border: Immerse undergraduates in conservation” (2014). Total budget: \$7,500.
- Co-PI, NSF project “CNH: Feedbacks between human community dynamics and socio-ecological vulnerability in a biodiversity hotspot” (BCS-1211498; PI: Scott T. Yabiku at Arizona State University). Total budget: \$1,449,521, 2012-2016.
- Co-investigator, NASA project “The urban transition in Ghana and its relation to land cover and land use change through analysis of multi-scale and multi-temporal satellite image data” (11-IDS11-42; PI: Douglas Stow). Total budget: \$992,960, 2012-2015.
- Co-PI, NSF project “PIRE collaborative research and training in social context, population processes, and environmental change” (OISE-0729709; PI: William Axinn, University of Michigan). Total budget secured: \$2,500,000, 2007-2012 (with no-cost extension to 2013).
- Senior personnel, NSF CDI project “Mapping cyberspace to real-space: visualizing and understanding the spatiotemporal dynamics of global diffusion of ideas and the semantic web” (PI: Dr. Ming-Hsiang Tsou). Total budget: \$ 1,300,000, 2010-2015.
- PI, SDSU internal grant “Where are the golden monkeys? A predictive habitat analysis”. Total budget: \$5,068, 2009-2010.
- PI, SDSU internal grant “Sampling at what scales? A computational simulation approach”. Total budget: \$9,654, 2008-2009.
- PI, SDSU internal grant “Complexity science in support of disaster alleviation—preference, place, and promise”. Total budget: \$9,857, 2005-2006.
- PI, Zoological Society of San Diego grant “Does ecotourism help conserving the nature? A case study of the Fanjingshan National Nature Reserve, China”. Total budget: \$1,100, 2009-2010.
- Project director, Margot Marsh Biodiversity Foundation grant “Documenting impacts of illegal mining on the Guizhou golden monkey, *Rhinopithecus brelichi*, in Fanjingshan National Nature Reserve, China” (Student PI: Sarah Wandersee). Total budget: \$12,000, 2009-2010.
- PI, Shared Visions Grant, Department of Geography, San Diego State University. Total: \$2,160, 2005-2006.

#### GRANTS AND PROJECTS (as collaborator or consultant):

- Consultant, NIH R01 (APPLE CDS) Project “Assessment of policies/programs through prediction of long-term effects on cardiovascular disease using simulation” (PI: Yan Li). Total budget: \$3,150,000, 2018-2022.
- Collaborator, NIH project “Health, poverty, and place: modeling inequalities in Accra using RS and GIS” (PI: John. W. Weeks, SDSU). Total budget: 3,057,586, 2007-2012.

- Collaborator, NSF project “SI2-S2I2 Conceptualization: Geospatial software institute” (PI: Shaowen Wang, UIUC). Total budget: \$500,000, 2017-2018.

#### PROPOSALS IN REVIEW (as collaborator or consultant):

- Co-PI, DISES: Sustainable management of tele-coupled watershed and deltaic socio-environmental systems (PI: Erfan Goharian, University of South Carolina), submitted to NSF DISES program. Total requested budget: \$1,600,000 (\$240,293 for SDSU subcontract), 2022-2016.

#### PEER-REVIEWED JOURNAL ARTICLES (\*Graduate students working with or advised by Li An):

1. Giefer, M., and **L. An** (accepted). Divergent impacts of the grain to green program, landholdings, and demographic factors on livelihood diversification in rural China. *World Development*.
2. Bohnett, E. T., A. Coulibaly, D. Hulse, B. Ahmad, **L. An**, and R. Lewison (accepted). Understanding the impact of large-scale development on wildlife conservation: Identifying challenges and opportunities for China's Belt and Road Initiative. *Environmental Conservation*.
3. Yabiku, S.T., A. Sullivan, A. York, Q. Zhao, J.E. Glick, S.J. Hall, D.J. Ghimire, and **L. An** (2022). Drivers of prohibited natural resource collection in Chitwan National Park, Nepal. *Environmental Conservation*. doi: 10.1017/S0376892922000121.
4. **An, L.**, E. Bohnett, C. Battle, J. Dai, R. Lewison, P. Jankowski, N. Carter, D. Ghimire, M. Dhakal, J. Karki, and A. Zvoleff (2021). Sex-specific habitat suitability modeling for *Panthera tigris* in Chitwan National Park, Nepal: Broader conservation implications. *Sustainability* 13, 13885, <https://doi.org/10.3390/su132413885>.
5. **An, L.**, V. Grimm, A. Sullivan, B.L. Turner II., N. Malleson, A. Heppenstall, C. Vincenot, D. Robinson, X. Ye, J. Liu, E. Lindvist, and W. Tang (2021). Challenges, tasks, and opportunities in modeling agent-based complex systems. *Ecological Modeling* 457: 109685. doi: 10.1016/j.ecolmodel.2021.109685.
6. Zhang, H., **L. An**, V. Chu, D.A. Stow, X. Liu, and Q. Ding. (2021). Learning adjustable reduced downsampling network for small object detection in urban environments. *Remote Sensing* 13(18), doi: 10.3390/rs13183608.
7. Xiong, B., R. Chen, **L. An**, Q. Zhang, and Z. Xia (2021). Telecoupling urbanization and mountainous deforestation between 2000 and 2020: Evidence from Zhejiang Province, China. *Land Degradation & Development* 32 (16): 4727-4739.
8. Zhang, H.\*, **L. An**, R. Bilsborrow, Y. Chun, S. Yang, and J. Dai (2021). Neighborhood impacts on household participation in payments for ecosystem services programs. *Journal of Geographical Sciences* 31(6): 899-922.
9. Shen, M., J. Zu, C. K. Fairley, J. A. Pagán, Z. Du, Y. Guo, L. Rong, Y. Xiao, G. Zhuang, Y. Li, **L. An**, and L. Zhang (2021). Projected COVID-19 epidemic in the United States in the context of the effectiveness of a potential vaccine and implications for social distancing and face mask use. *Vaccine* 39(16): 2295-2302.
10. Giefer, M.M., **L. An**, and X. Chen (2021). Normative, livelihood, and demographic influences on enrollment in payment for ecosystem services programs. *Land Use Policy* 108 (2021), 105525.
11. Dai, J.\*, D. A. Roberts, D. A. Stow, **L. An**, and Q. Zhao (2020). Community forest green vegetation cover has steadily increased since their establishments in Western Chitwan, Nepal. *Remote Sensing* 12, 4071; doi:10.3390/rs12244071.
12. Dai, J.\*, D. A. Roberts, D. A. Stow, **L. An**, S. J. Hall, Scott T. Yabiku, and P. C. Kyriakidis (2020). Mapping understory invasive plant species with field and remotely sensed data in Chitwan, Nepal. *Remote Sensing of Environment*. 250 (December 1, 2020), doi:10.1016/j.rse.2020.112037.

13. Chen, H.L., R.L. Lewison, **L. An**, S. Yang, L. Shi, and W. Zhang (2020). Understanding direct and indirect effects of payment for ecosystem services on resource use and wildlife. *Anthropocene* 31 (September 2020), 100255.
14. Chen, H.L., R.L. Lewison, **L. An**, Y.H. Tsai, D. Stow, L. Shi, and S. Yang (2020). Assessing the effects of payments for ecosystem services programs on forest structure and species biodiversity. *Biodiversity and Conservation*. <https://doi.org/10.1007/s10531-020-01953-3>
15. Giefer, M., and **L. An** (2020). Synthesizing remote sensing and biophysical measures to evaluate human-wildlife conflicts: The case of wild boar crop raiding in rural China. *Remote Sensing* 12(4), 618.
16. **An, L.**, V. Grimm, B.L. Turner II (2020). Editorial: Meeting grand challenges in agent-based models. *The Journal of Artificial Societies and Social Simulation* (JASSS) 23/1/5, Special issue (An as leading guest-editor).
17. **An L.**, J. Mak, S. Yang, R. Lewison, D.A. Stow, H.L. Chen, W. Xu, L. Shi, and Y.H. Tsai (2020). Cascading impacts of payments for ecosystem services in complex human-environment systems. *The Journal of Artificial Societies and Social Simulation* (JASSS) 23/1/5, Special issue.
18. A. Ligmann-Zielinska, P. Siebers, N. Magliocchia, D. Parker, V. Grimm, E.J. Du, M. Cenek, V. Radchuk, N. Arbab, S. Li, U. Berger, R. Paudel, D.T. Robinson, P. Jankowski, **L. An**, and X. Ye (2020). 'One size does not fit all': a roadmap of purpose-driven mixed-method pathways for sensitivity analysis of agent-based models. *The Journal of Artificial Societies and Social Simulation* (JASSS) 23/1/6, Special issue.
19. Manson, S., **L. An**, K. C. Clarke, A. Heppenstall, J. Koch, F. Morgan, D. O'Sullivan, B. Runck, E. Shook, and L. Tesfatsion (2020). Methodological issues of spatial agent-based models. *The Journal of Artificial Societies and Social Simulation* 23/1/3, Special issue.
20. Yost, A.\* , **L. An**, R. Bilsborrow, L. Shi, X. Chen, and W. Zhang (2020). Linking concurrent payments for ecosystem services in a Chinese nature reserve. *Ecological Economics* 169, 106509.
21. Xu, W., S. Pimm, A. Du, Y. Su, X. Fan, **L. An**, J. Liu, and Z. Ouyang (2019). Transforming protected area management in China. *Trends in Ecology and Evolution* 34(9): 762-766.
22. Xu, W., X. Fan, J. Ma, S. L. Pimm, L. Kong, Y. Zeng, X. Li, Y. Xiao, H. Zheng, J. Liu, B. Wu, **L. An**, L. Zhang, X. Wang, and Z. Ouyang (2019). Hidden loss of wetlands in China. *Current Biology* 29: 1–7.
23. Tsai, Y.\* , R. Lewison, D. Stow, L. Shi, **L. An**, and H. Chen (2019). Monitoring land-cover and land-use dynamics in Fanjingshan Nation Nature Reserve. *Applied Geography* 111, 102077.
24. Gawron, J. Mark, A. Dodge, M. Tsou, B. Spitzberg, and **Li An** (2019). Linguistically guided community discovery. *Big Data & Society* January-June: 1-15. DOI: 10.1177/2053951719846634.
25. Aitken, S., **L. An**, and S. Yang\* (2019). Development and sustainable ethics in Fanjingshan National Nature Reserve, China. *Annals of Association of American Geographers* 109(2): 661-672.
26. Wang, C., H. Wang, J. Pi, and **L. An** (2019). A Park Recommendation Algorithm based on User Reviews and Ratings. *International Journal of Performability Engineering* 15(3): 803-812.
27. Sullivan, A.\* , A.M. York, and **L. An** (2018). Which perspective of institutional change best fits empirical data? An agent-based model comparison of rational choice and cultural diffusion in invasive plant management. *Journal of Artificial Societies and Social Simulation* 21(1):5.
28. Tsai, Y.\* , D. Stow, H. Chen, R. Lewison, **L. An**, and L. Shi (2018). Mapping vegetation and land cover types in Fanjingshan National Nature Reserve using Google Earth Engine. *Remote Sensing* 2018, 10, 927. doi:10.3390/rs10060927.
29. Freeman, M., D\* . Stow, and **L. An** (2017). Patterns of mortality in a montane mixed-conifer forest in San Diego County, California. *Ecological Application* 27(7): 2194-2208.
30. Lewison, R., **L. An**, and X. Chen (2017). Reframing the payments for ecosystem services framework in a coupled human and natural systems context: Strengthening the integration between ecological

- and human dimensions. *Ecosystem Health and Sustainability* 3(5), 2017, 1335931. <https://doi.org/10.1080/20964129.2017.1335931>
31. Sullivan, A. \*, A.M. York, **L. An**, S.T Yabiku, and S.J. Hall (2017). How does perception at multiple levels influence collective action in the commons? The case of *Mikania micrantha* in Chitwan, Nepal. *Forest Policy and Economics* 80:1-10.
  32. **An, L.**, M. Tsou, B. Spitzberg, J.M. Gawron, and D.K. Gupta (2016). Latent trajectory models for space-time analysis: An application in deciphering spatial panel data. *Geographical Analysis* 48 (3): 314–336 (<http://dx.doi.org/10.1111/gean.12097>).
  33. Tsai, Y\*, D. Stow, L. Shi, R. Lewison, and **L. An** (2016). Quantifying canopy fractional cover and change in Fanjingshan National Nature Reserve, China using Multi-temporal Landsat imagery. *Remote Sensing Letters* 7(7): 671-680.
  34. Luo, N.\*, **L. An**, A. Nara, X. Yan, and W. Zhao (2016). GIS-based multi-element source analysis of dustfall in Beijing: A study of 40 major and trace elements. *Chemosphere* 152: 123-131.
  35. Crook, S.E.S.\*, **L. An**, D.A. Stow, and J.R. Weeks (2016). Latent trajectory modeling of spatiotemporal relationships between land cover and land use, socioeconomics, and obesity in Ghana. *Spatial Demography* 4(3): 221-244. (DOI 10.1007/s40980-016-0024-6).
  36. Chin, A., **L. An**, J. Florsheim, L. Laurencio, R. Marston, A. Parker, G. Simon, and E. Wohl (2016). Feedbacks in human-landscape systems: lessons from the Waldo Canyon Fire of Colorado, USA. *Geomorphology* 252(2016): 40-50. <http://dx.doi.org/10.1016/j.geomorph.2015.07.030>
  37. **An, L.**, M. Tsou, S. Crook\*, B. Spitzberg, J.M. Gawron, and D.K. Gupta (2015). Space-time analysis: Concepts, methods, and future directions. *Annals of Association of American Geographers* 105(5): 891-914.
  38. Liu, J., V. Hull, J. Luo, W. Yang, W. Liu, A. Viña, C. Vogt, Z. Xu, H. Yang, J. Zhang, **L. An**, X. Chen, S. Li, W. McConnell, Z. Ouyang, W. Xu, and H. Zhang (2015). Multiple telecouplings and their complex interrelationships. *Ecology and Society* 20(3):44.
  39. Chen, X., A. Viña, A. Shortridge, **L. An**, and J. Liu (2014). Assessing the effectiveness of payments for ecosystem services: an agent-based modeling approach. *Ecology & Society*. 19(1):7
  40. Aslam, A. A., M. H. Tsou, B. Spitzberg, **L. An**, J. M. Gawron, D.K. Gupta, K. M. Peddecord, A. C. Nagel, C. Allen, J. Yang, and S. Lindsay (2014). The Reliability of Tweets as a Supplementary Method of Seasonal Influenza Surveillance. *Journal of Medical Internet Research*.
  41. **An, L.**, A. Zvoleff, J. Liu, and W. Axinn (2014). Agent based modeling in coupled human and natural systems (CHANS): Lessons from a comparative analysis. *Annals of Association of American Geographers* 104(4): 723–745. Reprinted in Handbook of Applied System Science (Routledge Handbooks) 1st Edition by Zachary P. Neal (Editor), 2016.
  42. Zvoleff, A. \*, and **L. An** (2014). The effect of reciprocal connections between demographic decision-making and land use on decadal dynamics of population and land use change. *Ecology and Society* 19(2): 31.
  43. Zvoleff, A. \*, and **L. An**. (2014). Analyzing human-landscape interactions: tools that integrate. Special issue on “The Future of Human-Landscape Interactions: Drawing on the Past, Anticipating the Future” (eds: A. Chin, K. Galvin, A. Gerlak, and E. Wohl), *Environmental Management* 53: 94-111.
  44. Wang, N.\*, D. G. Brown, **L. An**, S. Yang, and A. Ligmann-Zielinska (2013). Comparative performance of logistic regression and survival analysis for detecting spatial predictors of land-use change. *International Journal of Geographic Information Science* 27(10): 1960-1982. <http://dx.doi.org/10.1080/13658816.2013.779377>.
  45. Nagel, A. C., M. H. Tsou, B. Spitzberg, **L. An**, J. M. Gawron, D.K. Gupta, J. Yang, S. Han, K. M. Peddecord, S. Lindsay, and M.H. Sawyer (2013). The complex relationship of real-space events and

- messages in cyberspace: a case study of influenza and pertussis using tweets. *Journal of Medical Internet Research* 15(10): e237. <http://www.jmir.org/2013/10/e237/>
46. Spitzberg, B., M.H. Tsou, **L. An**, D. Gupta, and J.M. Gawron (2013). The Map is not which territory? Speculating on the geospatial diffusion of ideas in the Arab Spring of 2011. *Studies in Media and Communication* 1(1): 101-115.
  47. Tsou, Ming-Hsiang, J. Yang, D. Lusher, S. Han, B. Spitzberg, J. M. Gawron, D. Gupta, and **L. An** (2013). Mapping social activities and concepts with social media (twitter) and web search engines (Yahoo and Bing): A case study in 2012 U.S. presidential election. In 2012 AutoCarto Conference Special Issue. *Cartography and Geographic Information Science* 40(4): 337–348. <http://dx.doi.org/10.1080/15230406.2013.799738>.
  48. Tsou, M.H., I.H. Kim, S. Wandersee\*, D. Lusher, **L. An**, B. Spitzberg, D. Gupta, J. Gawron, J. Smith, J.A. Yang, and S. Y. Han (2013). Mapping ideas from cyberspace to realspace: visualizing the spatial context of keywords from web page search results. *International Journal of Digital Earth* 7(4): 316-335 (Special Issue on Analytical Geospatial Digital Earth). DOI: 10.1080/17538947.2013.781240.
  49. **An, L.**, D. López-Carr (2012). Editorial: Understanding human decisions in coupled human-nature systems. *Ecological Modelling* 229(24): 1-4.
  50. **An, L.** (2012). Modeling human decisions in coupled human and natural systems: review of agent-based models. *Ecological Modelling* 229(24): 25-36.
  51. Wandersee, S.M.\*, **L. An**, D. López-Carr, Y. Yang (2012). Perception and decisions in modeling coupled human and natural systems: a case study from Fanjingshan National Nature Reserve, China. *Ecological Modelling* 229(24): 37-49.
  52. Chen, X., F. Lupi, **L. An**, R. Sheely, A. Viña, J. Liu. (2012). Modeling the effects of social norms on enrollment in payments for ecosystem services. *Ecological Modelling* 229(24): 16-24.
  53. Aitken, S.C., and **L. An** (2012). Figured worlds: Environmental complexity and affective ecologies in Fanjingshan, China. *Ecological Modelling* 229(24): 5-15.
  54. **An, L.**, D. G. Brown, J. Nassauer, and B. Low (2011). Variations in development of exurban residential landscapes: Timing, location, and driving forces. *Journal of Land Use Science* 6 (1): 13–32.
  55. **An, L.**, and J. Liu (2010). Long-term effects of family planning and other determinants of fertility on population and environment: agent-based modeling evidence from Wolong Nature Reserve, China. *Population and Environment* 31:427–459.
  56. He, G., M. Colunga, S. Bearer, **L. An**, M. Linderman, S. Zhou, J. Huang, S. Gage, Z. Ouyang, J. Liu (2009). Spatial and temporal patterns of fuelwood collection in a nature reserve: implications for panda conservation. *Landscape and Urban Planning* 92(1): 1-9.
  57. **An, L.**, and D. G. Brown (2008). Survival analysis in land-change science: integrating with GIScience to address temporal complexities. *Annals of Association of American Geographers* 98(2): 323-344.
  58. Rindfuss, R. R., B. Entwisle, S. J. Walsh, **L. An**, D. G. Brown, P. Deadman, T. P. Evans, et al (2008). Land use change: Complexity and comparisons. *Journal of Land Use Science* 3(1): 1-11.
  59. Parker, D. C., B. Entwisle, R. R. Rindfuss, L. K. VanWey, S. M. Manson, E. Moran, **L. An**, P. Deadman, T. Evans, M. Linderman, and G. Malanson (2008). Case studies, cross-site comparisons, and the challenge of generalization: Comparing agent-based models of land-use change in frontier regions. *Journal of Land Use Science* 3(1): 41-72.
  60. Bearer, S. L., M. Linderman, J. Huang, **L. An**, G. He, and J. Liu (2008). Effects of fuelwood collection and timber harvesting on giant panda habitat use. *Biological Conservation* 141(2): 385-393.
  61. Brown, D. G., D.T. Robinson, J.I. Nassauer, and **L. An**, S.E. Page, B. Low, W. Rand, M. Zellner, R. Riolo, and J.J. Taylor (2008). Exurbia from the bottom-up: confronting empirical challenges to characterizing a complex system. *GeoForum* 39(2): 805-818.



62. Viña, A., S. Bearer, X. Chen, G. He, M. Linderman, **L. An**, H. Zhang, Z. Ouyang, and J. Liu (2007). Temporal changes in connectivity of giant panda habitat across the boundaries of Wolong Nature Reserve (China). *Ecological Applications* 17(4): 1019-1030.
63. **An, L.**, G. He, Z. Liang, and J. Liu (2006). Impacts of demographic and socioeconomic factors on spatio-temporal dynamics of panda habitats. *Biodiversity and Conservation* 15: 2343-2363.
64. Linderman, M., **L. An**, S. Bearer, G. He, Z. Ouyang, and J. Liu (2006). Interactive effects of natural and human disturbances on vegetation dynamics across landscapes. *Ecological Applications* 16(2): 452-463.
65. **An, L.**, M. Linderman, J. Qi, A. Shortridge, and J. Liu (2005). Exploring complexity in a human-environment system: an agent-based spatial model for multidisciplinary and multi-scale integration. *Annals of Association of American Geographers* 95 (1): 54-79. Reprinted in Handbook of Applied System Science (Routledge Handbooks) 1st Edition by Zachary P. Neal (Editor), 2016.
66. Linderman, M., **L. An**, S. Bearer, G. He, Z. Ouyang, and J. Liu (2005). Modeling the spatio-temporal dynamics and interactions of households, landscapes, and giant panda habitat. *Ecological Modelling* 183(1): 47-65.
67. Linderman, M., S. Bearer, **L. An**, Y. Tan, Z. Ouyang, and J. Liu (2005). The effects of understory bamboo on broad-scale estimates of giant panda habitat. *Biological Conservation* 121 (2005): 383-390.
68. Linderman, M., J. Liu, J. Qi, Z. Ouyang, **L. An**, J. Yang, and Y. Tan (2004). Using artificial neural networks to map the spatial distribution of understory bamboo from remote sensing data. *International Journal of Remote Sensing* 25 (9): 1685-1700.
69. **An, L.**, A. Mertig, and J. Liu (2003). Adolescents' leaving parental home in Wolong Nature Reserve (China): psychosocial correlates and implications for panda conservation. *Population and Environment: A Journal of Interdisciplinary Studies* 24 (5): 415-444.
70. **An, L.**, F. Lupi, J. Liu, M. Linderman, and J. Huang (2002). Modeling the choice to switch from fuelwood to electricity: implications for giant panda habitat conservation. *Ecological Economics* 42(3): 445-457.
71. Ouyang Z., Z. Li, J. Liu, **L. An**, H. Zhang, and Y. Tan (2002). The recovery processes of giant panda habitat in Wolong Nature Reserve, Sichuan, China. *Acta Ecologica Sinica* 22: 1840-1849 (in Chinese with English abstract).
72. **An, L.**, J. Liu, Z. Ouyang, M. Linderman, S. Zhou, and H. Zhang (2001). Simulating demographic and socioeconomic processes on household level and implications for giant panda habitats. *Ecological Modelling* 140: 31-49.
73. Liu, J., M. Linderman, Z. Ouyang, and **L. An** (2001). The pandas' habitat at Wolong Nature Reserve -- response. *Science* 293: 603-605.
74. Liu, J., M. Linderman, Z. Ouyang, **L. An**, J. Yang, and H. Zhang (2001). Ecological degradation in protected areas: the case of Wolong Nature Reserve for giant pandas. *Science* 292: 98-101.

PEER-REVIEWED BOOK CHAPTERS (\*Graduate students advised by Li An):

75. **An, L.** (accepted). Complexity, in *Handbook of Spatial Analysis in the Social Sciences* (Sergio Rey and Rachel Franklin, editors), Edward Elgar Publishing Ltd.
76. Tang, W., V. Grimm, L. Tesfatsion, E. Shook, D. Bennett, **L. An**, Z. Gong, and X. Ye (2020). Code reusability and transparency of agent-based modeling: A review from a cyberinfrastructure perspective. In Tang, W. and Wang, S. (Editors): *High Performance Computing for Geospatial Applications* ([https://link.springer.com/chapter/10.1007%2F978-3-030-47998-5\\_7](https://link.springer.com/chapter/10.1007%2F978-3-030-47998-5_7)), pp. 115-134; Springer: Switzerland.

77. Dai, J\*, and **L. An** (2018). Time geography. In *GIS principles and technical designs of GIS*, edited by T.J. Cova and M. Tsou, a volume in *Comprehensive Geographic Information Systems* (editor B. Huang), Elsevier. Springer: Switzerland
78. **An, L.**, and J. Dai\* (2017). Space time analysis. In H. Lin, X. Shi, X. Ye, and Y. Guan (Editors): *Frontiers in Geographic Information Science* (in Chinese). Advanced Education Press: Beijing.
79. **An, L.**, and S. Crook (2016). Spatiotemporal analysis. Entry for *The International Encyclopedia of Geography: People, the Earth, Environment, and Technology* (section editor: Mei-Po Kwan; general editor: Michael Goodchild).
80. **An, L.**, W. Yang, and J. Liu (2016). Demographic decisions and cascading consequences. Book chapter (#8) in Liu et al.: *Pandas and People: Coupling Human and Natural Systems for Sustainability*. Oxford, UK: Oxford University Press.
81. Aitken, S.C., **L. An**, S. Allison, and S. Yang (2016). Nature's legacy: Children, development and urban access in Fanjingshan, China. Chapter prepared for Murnaghan, A.M.F., and L.J. Shillington (editors): *Children, Nature, and Cities*. Ashgate Publishing Ltd.
82. Weeks, J.R., D. Stow, and **L. An** (2016). Demographics, health drivers & impacts on land cover and land use change in Ghana. Chapter for Stephen J. Walsh (ed.), *Remote Sensing Applications for Societal Benefits* (Comprehensive Remote Sensing Vol. 9), Elsevier.
83. Liu, J., V. Hull, W. Yang, A. Viña, **L. An**, N. Carter, X. Chen, W. Liu, Z. Ouyang, and H. Zhang (2016). Lessons from local studies for global sustainability. Book chapter (#18) in Liu et al.: *Pandas and People: Coupling Human and Natural Systems for Sustainability*. Oxford, UK: Oxford University Press.
84. Liu, J., V. Hull, J. Luo, W. Yang, W. Liu, A. Viña, C. Vogt, Z. Xu, H. Yang, J. Zhang, **L. An**, X. Chen, S. Li, Z. Ouyang, W. Xu, and H. Zhang (2016). Human-nature interactions over distances. Book chapter (#17) in Liu et al.: *Pandas and People: Coupling Human and Natural Systems for Sustainability*. Oxford, UK: Oxford University Press.
85. Chen, X., W. Yang, V. Hull, **L. An**, T. Dietz, K. Frank, F. Lupi, and J. Liu (2016). Social capital and social norms shape human-nature interactions. Book chapter (#11) in Liu et al.: *Pandas and People: Coupling Human and Natural Systems for Sustainability*. Oxford, UK: Oxford University Press.
86. Carter, N., **L. An**, and J. Liu (2016). Cross-site synthesis of complexity in coupled human and natural systems. Book chapter (#16) in Liu et al.: *Pandas and People: Coupling Human and Natural Systems for Sustainability*. Oxford, UK: Oxford University Press.
87. Gupta, D. K., B. Spitzberg, M.H. Tsou, **L. An**, and J. M. Gawron (2014). Of mining and mine fields revolution in paradigms of data analysis and interpretation. In L. Fenstermacher (ed): *Countering Violent Extremism: A Multidisciplinary Perspective*. Maxwell AFB, AL: Air University Press.
88. Zvoleff, A.\*, S. M. Wandersee, **L. An**, and D. López-Carr (2014). Land use and land cover change. *Oxford Bibliographies*. <http://oxfordindex.oup.com/view/10.1093/obo/9780199874002-0105>
89. Aitken, S. C., **L. An**, S. Wandersee, and Y. Yang (2014). Renegotiating local values: The case of Fanjingshan Reserve, China (book chapter). In Cathrine Brun, Piers Blakie and Mike Jones (editors): *Unravelling Marginalisation, Voicing Change: Alternative Geographies of Development*. Aldershot: Ashgate Press.
90. Zvoleff, A.\*, **L. An**, J. Stoler, and J. R. Weeks (2013). What if neighbors' neighborhoods differ? The influence of neighborhood definition on health outcomes in Accra. Book chapter for *Spatial Inequalities: Health, Poverty and Place in Accra, Ghana* (editors John R. Weeks, Allan G. Hill), Springer.
91. Gupta, D., B. H. Spitzberg, M-H. Tsou, **L. An**, and J. M. Gawron (2011). Tracking the spread of violent extremism. In L. Fenstermacher & S. Canna (Eds.), *Countering Violent Extremism: Scientific Methods & Strategies* (Topical strategic multi-layer assessment [SMA] multi-agency and Air Force Research

Laboratory multi-disciplinary white papers in support of counter-terrorism and counter-WMD); pp. 47-58.

92. **An, L.**, M. Linderman, Guangming He, Z. Ouyang, and J. Liu (2011). Long-term ecological effects of demographic and socioeconomic factors in Wolong Nature Reserve (China). In *Human Population: Its Influences on Biological Diversity* (Richard P. Cincotta, and L. J. Gorenflo, eds., Springer-Verlag).
93. Liu, J., **L. An**, S. S. Batie, S. Bearer, X. Chen, R. E. Groop, G. He, Z. Liang, M. A. Linderman, A. G. Mertig, Z. Ouyang, J. Qi, H. Zhang, and S. Zhou (2005). Beyond population size: Examining intricate Interactions among population structure, land use, and environment in Wolong Nature Reserve (China). In: *Population, Land Use, and Environment – Research Directions* (report of the National Research Council, Barbara Entwisle and Paul Stern, editors, The National Academies Press, Washington, D.C.; pages 217-237).
94. Liu, J., Z. Ouyang, M. Linderman, **L. An**, S. Bearer, and G. He (2003). A new paradigm for panda research and conservation: Integrating ecology with human demography, behavior, and socioeconomics. In *Giant Pandas: Biology and Conservation* (Donald G. Lindburg and Karen Baragona, eds., University of California Press, Berkeley).
95. Liu, J., **L. An**, S. Batie, R. Groop, Z. Liang, M. Linderman, A. Mertig, Z. Ouyang, and J. Qi (2002). Human impacts on land cover and panda habitat in Wolong Nature Reserve: linking ecological, socioeconomic, demographic, and behavioral data. In *People and the Environment: Approaches for Linking Household and Community Surveys to Remote Sensing and GIS* (Jeff Fox, Vinod Mishra, Ron Rindfuss, and Steve Walsh, eds., Kluwer Academic Publishers).

#### BOOKS

96. **An, L.** (in revision). Data mining methods in spatial data science (based on the teaching notes of relevant courses in quantitative methods, spatial statistics, space-time modeling, and systems simulation). Springer Nature Switzerland (agreement signed & book completed).
97. **An, L.**, C. Song, Q. Zhang, and E. Bohnett (in press). Conservation effectiveness and concurrent green initiatives (most recent findings about spillover effects between conservation programs). Proposal accepted by Routledge Taylor & Francis Group.

#### BOOK PLANS

98. Complexities in payments for ecosystem services programs (tentative title). A book based on the symposium Li An organized at the annual meeting of the North American Regional Association of the International Association for Landscape Ecology (tentative contributors: Conghe Song, Qi Zhang, Robert Gilmore Pontius Jr., et al.). Publisher to be decided.

#### PEER-REVIEWED CONFERENCE PAPERS (\*Graduate students advised by Li An):

99. Gupta, D., B. Spitzberg, M. Tsou, M. Gawron, **L. An** (2015). Revolution in social science methodology and pitfalls. International Studies Association's 56<sup>th</sup> Annual Convention, February 18th-21st, 2015, New Orleans, Louisiana. [http://www.isanet.org/annual\\_convention](http://www.isanet.org/annual_convention).
100. Tsou, M-H., D. Lusher, J-A. Yang, D. Gupta, J.M. Gawron, B.H. Spitzberg, **L. An**, and S. Wandersee (2012). Mapping social activities and concepts with social media (Twitter) and web search engines

(Yahoo and Bing): A case study in 2012 U.S. presidential election. In Sarah Battersby edited, AutoCarto International Symposium on Automated Cartography Proceedings (Columbus, OH): Mt. Pleasant, South Carolina, Cartography and Geographic Information Society.

101. Wang, N.\*, and **L. An** (2012). Use GeoSimulation data to assess the inferential power of statistics. GIScience 2012, September 18-21, 2012, Columbus, Ohio.
102. **An, L.** (2011). Modeling human decisions in coupled human and natural systems: review of agent-based models. Annual meeting of American Association for the Advancement of Science (AAAS), February 17-21, Washington, D.C.
103. **An, L.,** D. G. Brown, S. E. Page, and W. Rand (2005). What statistical models can better detect land-change mechanisms? (<http://www.geocomputation.org/2005/An.pdf>) The 2005 GeoComputation conference, August 1-3, 2005, Ann Arbor, Michigan.
104. Wang, N.\*, and **L. An** (2010). What statistical model can better detect land-change drivers? A comparative study of survival analysis, logistic regression and multivariate linear regression. SAM Student Paper Competition (I). The 2010 AAG annual conference, April 12-16, Seattle, Washington.
105. Gawron, J.M., D. Gupta, K. Stephens, M-H. Tsou, B. H. Spitzberg, and **L. An** (2012). Using group membership markers for group identification. Paper presented and published in the Proceedings of the Sixth International AAAI Conference on Weblogs and Social Media (ICWSM) Conference, Dublin, Ireland.
106. Gawron, J. Mark, A. Dodge, M. Tsou, B. Spitzberg, and **Li An** (2016). Improving community detection with linguistic information. The North American Chapter of the Association for Computational Linguistics (NAACL), San Diego, California, June 12 to June 17, 2016.

JOURNAL PAPERS OR BOOK CHAPTERS IN REVIEW OR IN REVISION (\*Graduate students advised by Li An):

1. **An, L.,** V. Grimm, A. Sullivan, B.L. Turner II., N. Malleson, Heppenstall, C. Vincenot, D. Robinson, X. Ye, J. Liu, E. Lindvist, W. Tang (in revision). Agent-based modeling in the light of data science and artificial intelligence. Intended for *Environmental Modeling & Software*.
2. Blount, D., E. Bohnett, J. Holmberg, J. Parham, S.P. Faryabi, Ö. Johansson, **L. An**, B. Ahmad, W. Khan, S. Ostrowski. Comparison of two individual identification algorithms for snow leopards after automated detection. *Methods in Ecology and Evolution*.
3. **An, L.,** B.L. Turner II., J. Liu, V. Grimm, Z. Wang, R. Huang (under internal review). Agent-based complex systems science in the era of global sustainability crisis.
4. **An, L.,** J. Liu, Q. Zhang, C. Song, D. Ezzine-de-Blas, J. Dai, H. Zhang, R. Lewison, E. Bohnett, D. Stow, W. Xu, B.A. Bryan (in review by editors). Global hidden spillover effects among concurrent green efforts.
5. Lawyer, C., **L. An**, E. Goharian (in review). Climate change & coastal community response: an overview of agent-based modeling applications. *Earth Interaction*.
6. Clark, M., Q. Zhao, A. Sullivan, S. Yabiku, A. York, D. Ghimire, **L. An**, J. Dai, S. Murphy, S.J. Hall. Ecological and social drivers of invasive plant abundance in buffer zone community forests within a subtropical biodiversity hotspot. *Forest Ecology and Management*.
7. Patton, J.M., **L. An**, J.F. O'Leary, and A.M. Kinoshita (in review). Seedling survivorship following post-fire reforestation in a mixed conifer forest in Cuyamaca Rancho State Park, Southern California, USA. *Forest Ecology and Management*.
8. Shih, H., **L. An**, J. R. Weeks, and D. A. Stow (in revision). Addressing spatial autocorrelation in space-time analysis: a case study of southeastern Ghanaian women's body mass index.

9. Mysicka, S., **L. An**, J. Kuhnova, O. Dolezal, H. Tomaskova, R. Cimler, and D. Cimr (in review). Political violence in contemporary China: Future development using the system dynamics. *Comparative Political Studies*.
10. Mirka, B., D. Stow, G. Paulus, A. Loerch, L. Coulter, and **L. An** (in revision). Evaluation of thermal infrared imaging from unmanned aerial vehicles for arboreal wildlife surveillance.
11. Liu, Y.\*, Dai, J.\*, S. Yang, R. Bilsborrow, M. Wang, and **L. An** (in revision). Neighborhood impacts on household out-migration from Fanjingshan National Nature Reserve, China.

**PEER-REVIEWED PAPERS IN PREPARATION** (\*Graduate students advised by Li An):

12. **An, L.**, E. Bohnett, M. Tsou, T.P. Evans, B. Spitzberg, J. Dai\*, N. Wang\*, et al. (in preparation). Perception of global warming: impact of change in climate.
13. Yang, S. et al. (in preparation). What influences decisions of local people to out-migrate under Payments for Ecosystem Services (PES)? Evidence from a Nature Reserve in China.

**OTHER PAPERS IN PREPARATION OR IN REVIEW** (\*Graduate students advised by Li An):

[None for now]

**PRESENTATIONS**

Available upon request.

**PROFESSIONAL MEMBERSHIPS**

- American Association for the Advancement of Science (AAAS)
- Association of American Geographers (AAG)
- Population Association of America (PAA)
- International Association for Landscape Ecology (IALE), US Chapter
- The International Association of Chinese Professionals in Geographic Information Sciences (CPGIS; lifetime member)

**TEACHING AND MENTORING**

**COURSES**

1. Quantitative Methods in Geographic Research (GEOG 585; Upper Division Undergraduate and Graduate Course).
2. Spatial Data Analysis (GEOG 385; Lower Division Undergraduate Course).
3. Spatial Modeling and Simulation (GEOG 780; Graduate Course)

4. Landscape Ecology (GEOG 506, previously GEOG 596; Upper Division Undergraduate and Graduate Course)
5. Geographic Information Science (GEOG 104; Lower Division Undergraduate Course)
6. Understanding the Chinese World (AS 150; Lower Division Undergraduate Course; team-teaching with about other colleagues)

### ADVISING

- Postdoctoral fellows: Dr. Hsiang Ling Chen, Dr. Eve Bohnett (co-advised with Dr. Rebecca Lewison, SDSU Department of Biology)
- Ph.D. students: Sarah Wandersee (2013), Alex Zvoleff (2013), Ninghua Wang (2013), Shuang Yang, Jie Dai (2020), Huijie Zhang (current), Ren Cao (current).
- M.S. students: Susan Whitford (2008), Jennifer Vaughan (2010), Kristin Meseck (2013), Curtis Battle (2016), Judy Mak (2018), William Orihuela, Jeanne Patton (2020, co-advised with John O’Leary), Alexandra Yost (2020), Yanjing (Tracy) Liu (current), Daniel Ochoa (current), Aidan Patterson (current).
- As doctoral student committee member: Arika Ligmann-Zielinska (2008), Mary Freeman (2012), Justin Stoler (2012), Xinyue Ye (2009), Abigail Sullivan (Arizona State University; 2016), Yu Hsin (Cindy) Tsai, Yihui Wang (SDSU Ecology).
- As M.S./M.A. committee member: Jing-Yi Chen (2006), Sarah Hinton (2007), Xuening Li (2007), Mersee J. Madison\_Villar (Biology; 2007), Hua Liu (Civil and Environmental Engineering; 2007), Anna Mittelberg (Biology; 2008), Wyson Pang (2008), Adam Wagschal (2009), Kira Withy-Allen (Biology; 2009), Wei Chen (Statistics; 2009), Jeffrey LaMantia-Bishop (2010), Jeanie Gaudette (2010), Jeremy Hamm (2010), Kelly Tait (Biology; 2010), Alexander Gaos (Biology; 2011), Heather D’Anna (Biology; 2011), Danna Hinderle (Biology; 2011), Bradley McDonald (Biology; 2011), Doug Wylie (2012), Daniel Lusher (2013), Joelle Andrews (Biology; 2013), Kalee Koeslag (Biology), Julia Smith (Biology), Kylie Curtis (Biology), Blair Mirka (2020), Joseph Agenbroad (2021).

### INVITED CONFERENCE PARTICIPATION AND KEYNOTE LECTURES

- Invited panelist on Symposium on Data-Intensive Geospatial Understanding in the Era of AI and CyberGIS at the 2022 Association of American Geographers (AAG) annual meeting (virtual), February 27, 2022.
- Invited virtual speech entitled “Leveraging concurrent green efforts in the pandemic shadowed world” at the "International Symposium on the Dynamics of Integrated Socio-Environmental Systems: Implications for Natural Resource Management in Asia" on Nov 6, 2021 at University of North Carolina, Chapel Hill (Invited by Dr. Conghe Song, symposium organizer).
- Keynote speech entitled “Advancing agent-based complex systems science with data science and artificial intelligence” at the 16th annual Social Simulation Conference (at the Cracow University of Economics, Poland), September 20-24, 2021, organized by European Social Simulation Association (ESSA).
- Invited speech titled “Spillover effects among global green efforts in a COVID-19 spreading world” (invited, online talk). The International Forum on Big Data for Sustainable Development Goals, September 8, Beijing, China.

- Keynote speech entitled “The third way of doing science in agent-based complex systems”, presented at International Symposium on Social Simulation 2020, August 6, 2020, Wuhan, Huazhong Agricultural University, China.
- Invited seminar titled “Space-time data mining: theory, methodology, and applications”, presented (invited by Prof Yu Liu) at College of Earth and Spatial Sciences at Peking University, May 10, 2019, Peking University, Beijing.
- Invited seminar “Complex Human-Environment Systems: Commonalities and Uniquenesses” at the *First PKU-SDSU Forum on Spatial Data and Complex Human-Environment Systems* (March 27, 2019), Peking University, Beijing, China
- Invited seminar "Understanding and envisioning complex human-environment systems: A multi-scale integrated approach" as part of the *Geography and Environment Forum*, Peking University, December 1, 2018 (organized by PKU's College of Urban and Environmental Sciences).
- Invited seminar “Spatial spillover effects and policy coordination”, presented on November 3, 2018 at *Modernization of Spatial Governance Forum*, School of Government, Peking University.
- Invited lectures at Peking University's Overseas Scholar Program, entitled “Understanding and envisioning complex human-environment systems: A multi-scale integrated approach” (October 26, 2018) and “Agent-based models in social and human-environment sciences: Achievements, challenges, and policy implications” (November 2, 2018), at School of Government, Peking University.
- Invited lecture entitled "Payments for Ecosystem Services (PES): 1 + 1 < 2?" at the SDSU Discovery Slam (organized by Stephen Welter, SDSU Vice President for Research and Dean of Graduate Affairs), February 22, 2017.
- Invited lecture entitled “Agent-based modeling of the impact of social norms on PES effectiveness” for GEOG 694, Portland State University, March 5, 2015, 10:00 - 11:50 am, Cramer Hall 409, Portland, Oregon.
- Invited workshop on agent-based modeling for The American Society for Photogrammetry and Remote Sensing (ASPRS) PSU chapter, Portland State University, March 5, 2015, 2:00 - 3:30 pm, MCB 123, Portland, Oregon.
- Invited lecture (part of the IGERT program) entitled “Payments for ecosystem services: Always a path toward sustainability?” ESM 507, Portland State University, March 5, 2015, 4:00 - 5:00 am Portland, Oregon.
- Invited presentation “People, pandas, and tigers: Mutual influences crossing the border”, at the 2014 Outstanding International Scholar Award reception, March 6, 2014, Scripps Cottage, San Diego State University.
- Invited lecture “All is about time: Latent trajectory models for space-time analysis”, the 2<sup>nd</sup> International Conference on CyberGIS and Geodesign (CyberGIS'14) and Redlands, August 19-21, 2014.
- Invited poster “The Clock is Ticking for the Golden Monkeys” (An, L and S. Yang) to introduce the NSF Project *CNH: Impacts of Payments for Ecosystem Services in Coupled Natural and Human Systems*, September 11, 2013 (invited by SDSU President Elliot Hirshman, Vice President for Research Steve Welter, and Dean of College of Arts and Letters Paul Wong).
- Invited panelist (travel award from the Dr. Anne Chin's NSF Grant) in the NSF-sponsored Workshop *Landscapes in the “Anthropocene”: Exploring the Human Connections*, University of Oregon, March 4-6, 2010.
- Guest lectures for the *Seminar in Development of Geographic Thought* (GEOG 701) at San Diego State University in 2005, 2006, 2007, 2008, 2013, 2016, and 2017.

- Guest lectures for GEOG 395 *Introduction to The Major* at San Diego State University from 2014 to 2017.
- Guest lectures for *Conservation Ecology* (BIOL 540) “understanding the impact of human activities on the Guizhou golden monkey habitat: A complex systems approach” at San Diego State University in 2009 and 2013.
- Invited colloquium at Department of Geography, University of California Santa Barbara: “Did the model or data lie to us? Pseudo-history survival analysis in LUCC”, January 15, 2009, Santa Barbara, California.
- Invited participation in the Workshop on *Agent-Based Modeling of Complex Spatial Systems*, Santa Barbara, California, National Center for Geographic Information and Analysis, April 14-16, 2007 (workshop sponsor: Dr. Michael Goodchild).
- Invited participation in an NIH-supported Roadmap Workshop, May 17-19, 2006 in Honolulu at the East-West Center.
- Invited seminar “Exploring landscape complexity: patterns, processes, and dynamics” in 2006 at Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences.
- Invited investigator in an NIH-supported Roadmap Workshop, April 27-29, 2005, Chapel Hill at University of North Carolina (Co-organizers: Ronald Rindfuss and Steve Walsh). Topics: (1) the advantages and disadvantages of different modeling approaches in land-change science; (2) linking social and spatial data; and (3) developing a meta-data collection, integration, and analysis protocol to facilitate multi-site comparison, multi-disciplinary integration, and multi-level geospatial analysis.
- Guest lecture for the 2005 GIS day at San Diego State University in 2005 fall: “Human-environment complexity: What can GIS and agent-based modeling help with?”
- Guest lecture for the course *International Forestry* (FOR 450) at Michigan State University in 2002 fall: “Simulating spatio-temporal dynamics of households, forests, and their interactions in Wolong Nature Reserve for giant pandas”.
- Guest lecture for the course *Ecological Problem Solving* (FW 364) (April 22, 2002): “Simulating demographic and socioeconomic processes on household level using STELLA”.
- Guest lecture for the course *International Forestry* (FOR 450) at Michigan State University in 2001 fall: “Integrating socioeconomic, ecology, and computer modeling in habitat research and wildlife conservation—case study: simulating demographic and socioeconomic processes on household level and their impacts on giant panda habitats”.

## SERVICE

### DEPARTMENT SERVICE

- Internal Resources Committee (2005 - 2006; 2008 – 2010; as chair 2010 – 2011; 2016-2018).
- Computing Committee (2017-2018, Chair)
- Speakers and Community Relations Committee (2005 – 2006; as chair 2006 – 2007).
- Speakers Committee (as chair 2013 - 2014).
- Personnel Committee (2014-2015; 2019-2020; 2020-2021; as chair 2021-2022).
- Master’s Advising Committee member (2007- 2010).
- Curriculum Committee member and chair (2007- 2010; 2020-2021).
- Computing Committee member (2010–2013; 2014-2015) and chair (2016 – 2017).
- Student Outcomes Committee member (2010- 2011)



## COLLEGE, UNIVERSITY, AND COMMUNITY SERVICE

- Founding director (SDSU side) of Complex Human-Environment Systems (CHES) Center, an international research hub for integrating complex systems theory and human-environment science.
- San Diego State University senator (elected; 2020-present)
- Member of San Diego State University Research Council (2020-present)
- SDSU Faculty Statutory Grievance Hearing Committee (ad hoc committee; 2017)
- SDSU Committee for the Master of Science in Big Data Analytics program (2015-present)
- SDSU Student Research Symposium Committee (2008 – 2011)
- The College of Arts and Letters (CAL) Research Committee (2015-2016; 2019-present)
- Member of the San Diego GIS force group
- Advisor/Co-advisor of SDSU Chinese Students & Scholars Association, 2009-2018

## SERVICE IN PROFESSIONAL COMMUNITIES

- Councilor-at-large (elected) and member of the 2020-2022 Executive Committee of the International Association of Landscape Ecology - North America (IALE-NA).
- Committee member of the 2022 organizing committee of the International Association of Landscape Ecology - North America (IALE-NA) annual meeting (changed to virtual)
- Co-organizer (with Conghe Song and Madeline M. Gieffer) and co-chair of symposium (April 13, 2021) "Complexities in payments for ecosystem services programs" at annual (virtual) meeting of the International Association for Landscape Ecology--North American, April 12-15, 2021.
- Member of the host committee of the 2022 International Association of Landscape Ecology - North America annual meeting, Riverside, California (G. Darrel Jenerette, Janet Franklin, et al.).
- Co-organizer and co-chair of the First PKU-SDSU Forum on Spatial Data and Complex Human-Environment Systems (March 27, 2019), Peking University, Beijing, China.
- Co-organizer (with Eric Shook) and chair of Panel Session "Agent-based modeling: challenges and opportunities" (panelists: Steven M. Manson, Wenwu Tang, Dawn C. Parker, Tom Evans), 12:40 pm - 2:20 pm in Suffolk, Marriott, Boston, the 2017 Annual meeting of the Association of American Geographers, April 5, 2017, Boston, Massachusetts.
- Scientific Steering Committee member of The International Society for Ecological Modeling Global Conference 2016 (8-12 May 2016, Baltimore, Maryland) and organizer of the symposium titled "Modeling human behaviors/decisions and their impacts on the environment".
- Scientific Advisory Board member of the GeoComputation 2015 Conference, May 20-23, 2015, Dallas, Texas, USA.
- Program Committee of the 23<sup>rd</sup> International Conference on Geoinformatics (Geoinformatics 2015), co-organized by China University of Geosciences and The International Association of Chinese Professionals in Geographic Information Sciences (CPGIS), June 19-21, 2015, Wuhan, China.
- Chair of Spatial Analysis and Modeling (SAM) Specialty Group (elected), the Association of American Geographers, 2012-2015.
- Program Committee of The Second International Conference on CyberGIS and Geodesign (CyberGIS'14) and invited presentation *All is about time: Latent trajectory models for space-time analysis*, Redlands, August 19-21, 2014.
- Invited panelist for Science with CyberGIS at The NSF-funded CyberGIS Project All-Hands Meeting on September 15-16, 2013, Seattle, Washington.

- Panelist in Session 4584: NSF IGERT, GK-12, PIRE, REU, and GDEP Grants: Strategies for successful proposals and projects that can boost your research and strengthen your department. The 2011 Annual Meeting of the Association of American Geographers, April 12-16, 2011, Seattle, Washington.
- Co-organizer and co-chair of Sessions “Payments for Ecosystem Services: Paths toward Sustainability—I (2102) and II (2611)”, April 10, 2013, The 2013 Annual meeting of The Association of American Geographers, Los Angeles, California.
- Organizer and speaker of 2011 The American Association for the Advancement of Science (AAAS) symposium "Mapping and disentangling human decisions in complex human-nature systems", Feb. 17-21, 2011, Washington, D.C.
- Judge for the Spatial Analysis and Modeling Specialty Group Student Paper Competition, Annual meetings for the Association of American Geographers, 2011-2015.
- Organizer of Session 5108 “Perspectives on Geographic Complexity I: Theory”, April 19, 2008, The 2008 Annual meeting of The Association of American Geographers, Boston, Massachusetts.
- Chair of Session 5408 “Perspectives on Geographic Complexity III: Applications I—Land Use”, April 19, 2008, The 2008 Annual meeting of The Association of American Geographers, Boston, Massachusetts.
- Chair of Session “Species in urban landscapes”, April 10, 2007 the 22<sup>nd</sup> Annual Symposium of the International Association for Landscape Ecology (IALE), US Chapter, Tucson, Arizona.
- Chair of Session “Habitat models”, March 31, 2006 in the 21<sup>st</sup> Annual Symposium of the International Association for Landscape Ecology (IALE), US Chapter. San Diego, California.

## EDITORIAL SERVICE

- Editorial Board Member of
  - *Annals of the American Association of Geographers*, the flagship journal in geography (2013-2018).
  - *International Journal of Geospatial and Environmental Research* (2013-present).
  - *Ecological Modelling*, an international journal on ecological modelling and systems ecology (2013-present).
  - *The Journal of Artificial Societies and Social Simulation* (2020-present).
  - *Remote Sensing* (the Environmental Remote Sensing Section; 2022-2024).
- Member of the Editorial Board of book series (in Chinese): *Fanjingshan Moss* (Yuanxin Xiong and Lei Shi, 2014; Guizhou Science and Technology Press), *China’s Fanjingshan Fungi* (Xingliang Wu et al., 2014; China Science and Technology Press); *Chinese Medicinal Herbs in Fanjingshan* (Chuangdong Yang, Lei Shi, and Xiaoping Lei, 2016; Guizhou Science and Technology Press); *Birds at Fanjingshan* (Zhongfan Kuang, Kefeng Niu, 2017; Guizhou Science and Technology Press).
- Guest-editor of a special issue entitled "Mapping and disentangling human decisions in complex human-nature systems" for the journal *Ecological Modelling* (co-editor: David López-Carr; 2012).
- Guest-editor of a special issue entitled "Meeting grand challenges in agent-based complex systems" for the *Journal of Artificial Societies and Social Simulation (JASSS)* (co-editors: Volker Grimm, Billie L. Turner II, 2020).
- Guest-editor of a special issue entitled "Understanding complex human-environment systems: theoretical and application issues" for *Earth Interactions*, the Journal under American Meteorological Society (co-editors: Conghe Song and Dapeng Li; 2020-2021).

- Co-guest editor of a special issue “Biodiversity and ecosystem services in forest ecosystems and species biodiversity” in the journal *Sustainability* (with guest editor: Dr. Eve Bohnett; 2021).
- Co-guest editor of a special issue “Landscape Ecology in Remote Sensing” in the journal *Remote Sensing* (with guest editor: Dr. Jie Dai; 2021).
- Co-guest editor of a special issue “Political effects on biodiversity conservation policies” in the journal *Frontiers* (with guest editors Timothy Haas and Ralph Adler; 2022-2023)

#### SERVICE AS GRANT PROPOSAL REVIEWER AND PANELIST

National Geographic Society (2007); NSF Geography and Regional Science (GRS; now Geography and Spatial Science) and Anthropology Programs (2006 – 2010); The Managed Ecosystem Panel of USDA's National Research Initiative program (2007). The United Nations Environment Programme's Global Environment Outlook Series (Geo-5; 2011); NSF Geography and Spatial Science (GSS) program's Doctoral Dissertation Research Improvement Program (2011-2013), Hong Kong Research Grants Council (2010-2013), NSF Coupled Natural and Human (CNH) Program's Proposal Review Panel (2015).

#### REVIEWER FOR TENURE OR PROMOTION

- The University of Oklahoma (Department of Geography and Environmental Sustainability; 2021)
- Peking University (Institute of Ecology; 2020)
- Peking University Shenzhen Graduate School (School of Urban Planning and Design; 2018)
- University of Tennessee (Department of Geography; 2016)
- Virginia Polytechnic Institute and State University (also known as Virginia Tech; Department of Geography, 2016)
- University of Waterloo (School of Planning; 2015)
- The University of Texas at Dallas (School of Economic, Political and Policy Sciences; 2014; 2019)

#### PAPER REVIEW FOR PEER-REVIEWED JOURNALS (alphabetical order)

Acta Ecologica Sinica, Annals of Association of American Geographers, Computers, Environment and Urban Systems, Ecological Economics, Ecological Modelling, Ecology and Society, Environmental Management, Environmental Modelling & Software, Environment & Planning B, GeoJournal, Geographical Analysis, GeoJournal, International Journal of Geographical Information Science, International Journal of Geospatial and Environmental Research, International Regional Science Review, Journal of Artificial Societies and Social Simulation, Journal of Geographical Systems, Journal of Plant Ecology, Landscape Ecology, Photogrammetric Engineering and Remote Sensing, Plant Ecology, The Professional Geographer, PLOS ONE, Professional Geographer, Population and Environment, Stochastic Environmental Research & Risk Assessment, Proceedings of National Academy of Sciences of the United States of America, Sustainability, Land Use Policy, Spatial Cognition and Computation: An Interdisciplinary Journal, Agricultural Systems

BOOK PROPOSAL REVIEW FOR PUBLISHERS

Higher Education Press (China)  
Routledge | Taylor & Francis Group (United Kingdom)

Personal website

<http://complexities.org/An>



Group website at

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