

Dr. Andrew Thomas Crooks

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EDUCATION

- 2003-2007 ***PhD in Geography: Experimenting with Cities: Utilizing Agent-Based Models and GIS to Explore Urban Dynamics.***
Centre for Advanced Spatial Analysis, University College London, UK.
(Mike Batty and Paul Longley principal advisers)
- 2001-2002 ***MSc in Geographical Information Science.***
The University of Edinburgh, UK.
- 1996-2000 ***2:1 B.Sc. (Hons) Geology and Physical Geography.***
The University of Edinburgh, UK.

RESEARCH INTERESTS & AREAS OF EXPERTISE

Dr. Crooks has over 170 peer reviewed journal articles, book chapters, reports and conference proceedings. Google Scholar lists his citation count to be over 10,000 with a H-index of 49 and an I-index of 116. His areas of expertise specifically relate to integrating agent-based modeling (ABM) and geographic information systems (GIS) to explore human behavior. Moreover, his research focuses on exploring and understanding the natural and socio-economic environments specifically urban areas using GIS, spatial analysis, social network analysis (SNA), Web 2.0 technologies and ABM methodologies. His research has resulted in more than \$7 Million of external funding as PI or Co-PI. More information about this work can be seen at: <http://www.gisagents.org>.

SELECTED EMPLOYMENT

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| From Sep 2020 | <i>Professor.</i>
Department of Geography, College of Arts and Sciences, University at Buffalo, NY, USA. |
| Aug 2015-Aug 2020 | <i>Associate Professor.</i>
Computational Social Science Program, Department of Computational and Data Sciences ¹ , and Department of Geography and GeoInformation Science (Joint appointment), College of Science, George Mason University, VA, USA. |
| July 2019-Aug 2020 | <i>Co-Director.</i>
Center for Social Complexity, George Mason University, VA, USA. |
| Aug 2009-Aug 2015 | <i>Assistant Professor.</i>
Department of Computational Social Science, Krasnow Institute for Advanced Study, George Mason University, VA, USA. |

¹In 2015 the Department of Computational Social Science was merged into the Department of Computational and Data Sciences.

Aug 2011- Aug 2020	<i>Affiliated Faculty.</i> Center for Geospatial Intelligence, George Mason University, VA, USA
Aug 2009- July 2019	<i>Researcher.</i> Center for Social Complexity, George Mason University, VA, USA.
Sept 2007- July 2009	<i>GLA Economics Research Fellow in Urban Systems.</i> Centre for Advanced Spatial Analysis, University College London, UK
Oct 2004- Mar 2007	<i>Tutor / Teaching Assistant / Demonstrator to 2nd Year Undergraduate and MSc Courses.</i> Department of Geography, University College London, UK.
Jan 2003- Aug 2003	<i>Research and Information Officer.</i> Social Work Department, City of Edinburgh Council, Edinburgh, UK.

GRANTS

External Grants

April 2023- Apr 2026	Intelligence Advanced Research Projects Activity (IARPA), “ <i>METROPOL (Modeling and Encoding TRajectories Of Patterns Of Life)</i> ” (\$558,191) UB PI: Crooks, A.T.
Sep 2022- Aug 2023	National Science Foundation, “ <i>PIPP Phase I: Center for Ecosystems Data Integration and Pandemic Early Warning.</i> ” (\$1,000,000), PI: Surtees, J. Co – PI, Pitman, B., Dong, W., Tumiel-Berhalter, L., Yinyin Y.E., Key Personal: Bard, J., Bradley, I., Crooks, A.T. , Feeley, T., Gokcumen, O., Jacobs, A., Masuda, N., Orom, H., Sariyuce, A.H. and Xu, J.
Sep 2021- Aug 2023	Department of Homeland Security, “ <i>Detecting Criminal Disruption of Supply Chains Study</i> ” (\$1,000,000). PI: Domeniconi C. Co-PIs: Crooks, A.T. , Kavak, H., Luke, S.
Sep 2021- Aug 2024	Defense Threat Reduction Agency “ <i>Modeling Human-Infrastructure Interactions Following Nuclear Detonations</i> ” (\$600,000, my share: \$48,154). PI: Kennedy, W., Co-PI: Kavak, H., Consultant: Crooks, A.T.
Oct 2019- Oct 2020	Department of Homeland Security “ <i>A Crowdsourced Gazetteer for Monitoring Cartel Activity</i> ” (\$199,850) PI: Croitoru, A. Co-PI: Crooks, A.T.
Dec 2017- June 2020	Defense Advanced Research Projects Agency “ <i>A Ground-truth Simulator for Spatio-Social Alternate Worlds (GT-S3).</i> ” (\$1,544,290). PI: Zufle, A., Co-PIs: Pfoser, D., Crooks, A.T. and Wenk, C.
Sep 2017- Aug 2022	National Science Foundation “ <i>CI-EN: Enhancement of a Large-scale Multiagent Simulation Tool</i> ” (\$896,303). PI: Luke S., Co-PIs: Crooks, A.T. and Simon, R.P.
Feb-July 2017	Defense Advanced Research Projects Agency “ <i>Megacities Command and Control Assessment Capability.</i> ” (\$375,000). PI: Hieb, M.R., Co-PIs: Allbeck, J., Crooks, A.T. , Pullen, M., Maxwell, D. and Riecken, M.
Jan 2017- Aug 2019	National Geospatial Intelligence Agency “ <i>Generation and Management of Crowdsourced Place Gazetteers</i> ” (\$284,963).

May 2016- May 2020 PI: Pfoser, D. Co-PIs: **Crooks, A.T.**, Croitoru, A. and Stefanidis, A. Defense Threat Reduction Agency “*Nuki: A Framework for Modeling Society Following a Nuclear WMD Event*” (\$611,956).
 Sep 2014- Sep 2016 PI: Kennedy, W. Co-PI: **Crooks, A.T.** National Geospatial Intelligence Agency “*Crowdsourced Gazetteers to Communicate Place Dynamics*” (\$297,915).
 Sep 2012- Sep 2015 PI: Pfoser, D. Co-PIs: Stefanidis, A., Croitoru, A. and **Crooks, A.T.** U.S. Army Engineer Research and Development Center (ERDC) “*Hi-Span: Hierarchical Multiscale Structure of Spatiotemporal Neighborhoods in Human Terrain.*” (\$218,997).
 Sep 2012- Aug 2013 PI: Stefanidis, A. Co-PI: **Crooks, A.T.** National Science Foundation “*An Integrated Simulation Framework to Explore Spatio-temporal Dynamics of Slum Formation in Ahmedabad, India.*” (\$99,205).
 Sep 2012- Aug 2013 PI: **Crooks, A.T.** Co-PI: Koizumi, N. U.S. Agency for International Development (USAID) “*Agent-Based Modeling Simulations for Solving Pakistan’s Urban Challenges.*” (\$40,000).
 July 2012- June 2013 PI: Root, H. Co-PI: **Crooks, A.T.** Draper Laboratory “*Geosocial Analysis of Social Media Feeds.*” (\$124,998).
 May 2012- Oct 2013 PI: Stefanidis, A. Co-PIs: Croitoru, A. and **Crooks, A.T.** EADS North America “*Social Modeling for Homeland Security Applications.*” (\$333,987).
 June 2011- Nov 2011 PI: Latek, M.M. Co-PI: **Crooks, A.T.** EADS North America “*Computational Science Modeling of US Southern Border Security.*” (\$67,498).
 Apr 2008 PI: **Crooks, A.T.** Co-PI: Latek, M.M. UCL funding to attend the AAG Annual Meeting (£715).
 Sep 2006 UCL funding to attend Agent 2006 (£620).
 Aug 2006 RGS Quantitative Methods Research Group Travel Bursary (£150).
 2003-2007 ESRC funding for tuition fees and living costs during my PhD.

Total amount of externally funded research as PI , Co-PI, Senior Personal or consultant:
\$7,701,307.

Internal Grants

Sep 2018- Aug 2019 Volgenau School of Engineering and College of Science and Seed Grant, George Mason University, “*Human-Error Detection Framework (HEDF).*” (\$10,000).
 Sep 2016- Aug 2017 PI: Esmaeili, B. Co-PIs: **Crooks, A.T.** and Peterson, M. College of Science Seed Grant, George Mason University, “*Exodus 2.0: Mass Migration in the Digital Era.*” (\$9,750).
 Sep 2015- Aug 2016 PI: Croitoru, A. Co-PIs: **Crooks, A.T.**, Pfoser, D., Stefanidis, A. and Zufle, A. Provost Multidisciplinary Research Initiative, George Mason University, “*A Multidisciplinary Approach to Understanding Health-Related Information Generation and Dissemination in Social Media.*” (\$50,000).
 PI: Stefanidis, A. Co-PIs: Jacobsen, K.H., Croitoru, A., **Crooks, A.T.**, Pfoser, D. and Vraga, E.

AWARDS

Nov 2023	Best Paper Award at the 2023 <i>Conference of the Computational Social Science Society of the Americas</i> .
	Best Data & Resource Paper Award at the 2023 ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems.
Nov 2022	Best Paper Award at the 5th <i>ACM SIGSPATIAL International Workshop on Geospatial Simulation</i>
Aug 2020	Second prize for Best Review Paper Award in <i>Land</i> 2019.
May 2020	Best Paper Award Runner-Up at the 2020 <i>Spring Simulation Conference</i> .
Aug 2019	Best Vision Paper Award Runner-Up at the 16th <i>International Symposium on Spatial and Temporal Databases</i> .
July 2018	Best Paper at the 9th <i>International Conference on Social Media & Society</i> .
Oct 2012	2012 United States Geospatial Intelligence Foundation (USGIF) Achievement Award for Academic Research.

PUBLICATIONS

Table 1: Summary of Publications and Impact

	Total
Publications	182
Journal Papers	83
Book Chapters	26
Fully Refereed Conference Publications	73
Citations²	10,983
h-index	49
i10 Index	116

Journal Articles (†Denotes graduate student collaborator)

†Adegbola, F., **Crooks, A.T.** and Evans, S.M. (2025) Crowdsourcing Dust Storms in the United States Utilizing Social Media Data, *GeoJournal*, 90(3): 1-18.

†Chen, Q., Poorthuis A. and **Crooks, A.T.**, (2025), Mapping the Invisible: Decoding Perceived Urban Smells through Geosocial Media in New York City, *Annals of the American Association of Geographers*. Available at <https://doi.org/10.1080/24694452.2025.2485233>.

†Chen, Q., **Crooks, A.T.**, †Sullivan, A.J., Surtees, J.A., and Tumiel-Berhalter, L. (2025), From Print to Perspective: A mixed-method analysis of the convergence and divergence of

² Citations, h-index and i10-index are based on Google Scholar: <http://tinyurl.com/acrooks-GScholar>

COVID-19 topics in newspapers and interviews, *PLOS Digital Health*. Available at <https://doi.org/10.1371/journal.pdig.0000736>.

See, L., Bayas, J.C.L., [†]Chen, Q., **Crooks, A.T.**, Fraisl, D., Fritz, S., Georgieva, I., Hager, G., Hofer, M., Lesiv, M., Malek, Z., Milenković, M., Moorthy, I., Orduña-Cabrera, F., Pérez-Guzmán, K., Schepaschenko, D., Shchepashchenko, M., Steinhauser, J., McCallum, I. (2025), New Directions in Mapping the Earth's Surface with Citizen Science and Generative AI, *iScience*, 28(3): 111919. Available at <https://doi.org/10.1016/j.isci.2025.111919>.

Jiang, N., Yin, F., [†]Wang, B. and **Crooks, A.T.** (2024), A Large-Scale Geographically Explicit Synthetic Population with Social Networks for the United States, *Scientific Data*, 11, 1204. <https://doi.org/10.1038/s41597-024-03970-1>

Bard, J.E., Jiang, N., Emerson, J., Bartz, M., Lamb, N.A., Marzullo, B.J., Pohlman, A., Boccolucci, A., Nowak, N.J., Yergeau, D.A., **Crooks, A.T.** and Surtees, J. (2024), Genomic Profiling and Spatial SEIR Modeling of COVID-19 Transmission in Western New York, *Frontiers in Microbiology*, 15. <https://doi.org/10.3389/fmicb.2024.1416580>

Züfle, A., Pfoser, D., Wenk, C., **Crooks, A.T.**, Kavak, H., Anderson, T., Kim, J-S., Holt, N. and Diantonio, A. (2024), In Silico Human Mobility Data Science: Leveraging Massive Simulated Mobility Data, *Transactions on Spatial Algorithms and Systems*, 10(2):13. Available at <https://doi.org/10.1145/3672557>.

Sasse, K., Mahabir, R., Gkountouna, O., **Crooks, A.T.** and Croitoru, A. (2024), Understanding the Determinants of Vaccine Hesitancy in the United States: A Comparison of Social Surveys and Social Media, *PLoS ONE*, 19(6): e0301488. Available at: <https://doi.org/10.1371/journal.pone.0301488>.

[†]Yin, F., **Crooks, A.T.** and Yin, L. (2024), How Information Propagation in Hybrid Spaces Affects Decision-making: Using ABM to Simulate Covid-19 Vaccine Uptake, *International Journal of Geographical Information Science*, 38(6): 1109-1135. Available at: <https://doi.org/10.1080/13658816.2024.2333930>.

[†]Choi, M., **Crooks, A.T.**, Wan, N., Brewer, S., Cova, T.J. and Hohl, A. (2024), Addressing Equifinality in Agent-based Modeling: A Sequential Parameter Space Search Method Based on Sensitivity Analysis, *International Journal of Geographical Information Science*, 38(6): 1007-1034. Available at: <https://doi.org/10.1080/13658816.2024.2331536>.

[†]Chen, Q., [†]Wang, B. and **Crooks, A.T.** (2024), Community Resilience to Wildfires: A Network Analysis Approach by Utilizing Human Mobility Data, *Computers, Environment and Urban Systems*, 110: 102110.

Jiang, N., **Crooks, A.T.**, Kavak, H. and Wang, W. (2024), Leveraging Newspapers to Understand Urban Issues: A Longitudinal Analysis of Urban Shrinkage in Detroit, *Environment and Planning B*, 51(5): 1089-1103.

Ullah, K.M., Gbadebo G.A., and **Crooks, A.T.** (2023), Evaluating the Incentive for Soil Organic Carbon Sequestration from Carinata Production in the Southeast United States, *Journal of Environmental Management*, 348: 119418. Available at <https://doi.org/10.1016/j.jenvman.2023.119418>

[†]Chen, Q., Croitoru, A. and **Crooks, A.T.** (2023), A Comparison between Online Social Media Discussions and Vaccination Rates: A Tale of Four Vaccines, *Digital Health*, 7. Available at <https://doi.org/10.1177/205520762311556>.

Züfle, A., Wenk, C., Pfoser, D., **Crooks, A.T.**, Kavak, H., Kim, J-S. and Jin, H. (2023), Urban Life: A Model of People and Places, *Computational & Mathematical Organization Theory*, 29: 20-51.

[†]Shapiro, B. and **Crooks, A.T.** (2023), Drone Strikes and Radicalization: An Exploration Utilizing Agent-Based Modeling and Data Applied to Pakistan, *Computational and Mathematical Organization Theory*, 29: 415-433.

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[†]Yin, F., **Crooks, A.T.** and Yin, L. (2022), Information Propagation on Cyber, Relational and Physical Spaces about Covid-19 Vaccine: Using Social Media and the Splatial Framework, *Computers, Environment and Urban Systems*, 98: 101887.

[†]Chen, Q. and **Crooks, A.T.** (2022), Analyzing the Vaccination Debate in Social Media Data Pre- and Post-COVID-19 Pandemic, *International Journal of Applied Earth Observation and Geoinformation*, 110: 102783.

[†]Jiang, N., **Crooks, A.T.**, Kavak, H., [†]Burger, A. and Kennedy, W.G. (2022), A Method to Create a Synthetic Population with Social Networks for Geographically Explicit Agent-Based Models, *Computational Urban Science*, 2:7.

Kang, J-Y., Michels, A., **Crooks, A.T.**, Aldstradt, J. and Wang, S. (2022), An Integrated Framework of Global Sensitivity Analysis and Calibration for Spatially Explicit Agent-Based Models, *Transactions in GIS*, 26 (1): 100-128.

[†]Yuan, X., Mahabir, R., **Crooks, A.T.** and Croitoru, A. (2022), Achieving Situational Awareness of Drug Cartels with Geolocated Social Media, *GeoJournal*, 87: 3453–3471.

[†]Hemmati, M., Hussam N., Ellingwood B.R. and **Crooks, A.T.** (2021), Unraveling the Complexity of Human Behavior and Urbanization on Community Vulnerability to Floods, *Scientific Reports*, 11, 20085. Available at: <https://doi.org/10.1038/s41598-021-99587-0>

[†]Hemmati, M., Hussam N., Ellingwood B.R. and **Crooks, A.T.** (2021), Shaping Urbanization to Achieve Sustainable Communities Resilient to Floods, *Environmental Research Letters*, 16, 094033.

[†]Burger, A., Kennedy, W.G. and Crooks A.T. (2021), Organizing Theories for Disasters into a Complex Adaptive System Framework, *Urban Science*, 5(3), 61.

Lee, J. and **Crooks A.T.** (2021), Youth and their Artificial Social Environmental Risk and Promotive Scores (Ya-TASERPS): An Agent-Based Model of Interactional Theory of Delinquency, *Journal of Artificial Societies and Social Simulation*. 24 (4) 2. Available at: <https://www.jasss.org/24/4/2.html>

[†]Jiang, N., **Crooks, A.T.**, Wang, W. and Xie, Y. (2021), Simulating Urban Shrinkage in Detroit via Agent-Based Modeling, *Sustainability*, 13, 2283.

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- [†]Yuan X., **Crooks, A.T.** and Züfle, A. (2020), A Thematic Similarity Network Approach for Analysis of Places Using Volunteered Geographic Information, *ISPRS International Journal of Geo-Information*, 9(6), 385.
- Mahabir, R., [†]Schuchard, R., **Crooks, A.T.**, Croitoru, A. and Stefanidis, A. (2020), Crowdsourcing Street View Imagery: A Comparison of Mapillary and OpenStreetCam, *ISPRS International Journal of Geo-Information*, 9(6), 341.
- Lopez, B.E., Minor, E.S. and **Crooks, A.T.** (2020), Insights into Human-wildlife Interactions in Cities from Bird Sightings Recorded Online, *Landscape and Urban Planning*, 196: 103742.
- Croitoru, A., Kien, S., Mahabir, R., [†]Radzikowski, J., **Crooks, A.T.**, [†]Schuchard, R., Begay, T., Lee, A., Bettios, A. and Stefanidis, A. (2020), Responses to Mass Shooting Events: The Interplay Between the Media and the Public, *Criminology & Public Policy*, 19(2): 335-360.
- Mahabir, R., Agouris, P., Stefanidis, A., Croitoru, A. and **Crooks, A.T.** (2020), Detecting and Mapping Slums using Open Data: A Case Study in Kenya, *International Journal of Digital Earth*, 13(6): 683-707.
- [†]Schuchard, R., **Crooks, A.T.**, Croitoru, A. and Stefanidis, A. (2019) Bots Fired: Examining Social Bot Evidence in Online Mass Shooting Conversations, *Palgrave Communications*, 5: 158. Available at <https://doi.org/10.1057/s41599-019-0359-x>.
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- [†]Schuchard, R., **Crooks, A.T.**, Stefanidis, A. and Croitoru, A. (2019), Bot Stamina: Examining the Influence and Staying Power of Bots in Online Social Networks, *Applied Network Science*, 4: 55.
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- Vraga, E., Stefanidis, A., Lamprianidis, G., Croitoru, A., **Crooks, A.T.**, Delamater, P.L., Pfoser, D., [†]Radzikowski, J. and Jacobsen, K.H. (2018), Cancer and Social Media: A Comparison of Traffic about Breast Cancer, Prostate Cancer, and Other Reproductive Cancers on Twitter and Instagram, *Journal of Health Communication*, 3(2): 181-189.
- Vraga, E., [†]Radzikowski, J., Stefanidis, A., Croitoru, A., **Crooks, A.T.**, Delamater, P.L., Pfoser, D. and Jacobsen, K.H. (2017), Social Media Engagement with Cancer Awareness Campaigns Declined During the 2016 U.S. Presidential Election, *World Medical & Health Policy*, 9(4): 456–465.
- Stefanidis, A., Vraga, E., Lamprianidis, G., [†]Radzikowski, J., Delamater, P.L., Jacobsen, K.H., Pfoser, D., Croitoru, A. and **Crooks, A.T.** (2017), Zika in Twitter: Temporal Variations of Locations, Actors, and Concepts, *JMIR Public Health and Surveillance*, 3(2): e22.
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- Jacobsen, K.H., Aguirre, A.A., Bailey, C.L., Baranova, A.V., **Crooks, A.T.**, Croitoru, A., Delamater, P.L., Gupta, J., Kehn-Hall, K., Narayanan, A., Pierobon, M., Rowan K.E.,

- Schwebach, J.R., Seshaiyer, P., Sklarew, D.M., Stefanidis, A. and Agouris, P. (2016), Lessons from the Ebola Outbreak: Action Items for Emerging Infectious Disease Preparedness and Response, *EcoHealth*, 13(1): 200-212.
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- Crooks, A.T.**, Croitoru, A., [†]Lu, X., [†]Wise, S., Irvine, J. and Stefanidis, A. (2015), Walk this Way: Improving Pedestrian Agent-Based Models through Scene Activity Analysis, *ISPRS International Journal of Geo-Information*, 4(3): 1627-1656.
- [†]Alizadeh, M., Cioffi-Revilla, C. and **Crooks, A.T.** (2015), The Effect of In-group Favoritism on the Collective Behavior of Individuals' Opinions, *Advances in Complex Systems*, 18 (1): 02.
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- [†]Mullen, W., [†]Jackson, S. P., Croitoru, A., **Crooks, A. T.**, Stefanidis, A. and Agouris, P., (2015), Assessing the Impact of Demographic Characteristics on Spatial Error in Volunteered Geographic Information Features, *GeoJournal*, 80(4): 587-605.
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- [†]Burger, A., Kennedy, W.G., **Crooks, A.T.**, [†]Jiang, N. and [†]Guillen-Piazza, D. (2019), Modeling Society Reacting to a Nuclear Weapon of Mass Destruction Event, *2019 International Conference on Social Computing, Behavioral-Cultural Modeling & Prediction and Behavior Representation in Modeling and Simulation*, Washington DC.
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- [†]Schuchard, R., **Crooks, A.T.**, Stefanidis, A. and Croitoru, A. (2018), Bots in Nets: Empirical Comparative Analysis of Bot Evidence in Social Networks, in Aiello, L.M., Cherifi, C. Cherifi, H., Lambiotte, R., Lió, P. and Rocha, L.M. (eds.), *Volume 2, Proceedings of the 7th International Conference on Complex Networks and Their Applications*, Cambridge, United Kingdom, Springer, pp 424-436.
- [†]Wang, H., [†]Wei, E., Simon, R., Luke, S., **Crooks, A.T.**, [†]Freelan, D. and Spagnuolo, C. (2018), Scalability in the MASON multi-agent simulation system, in Besada, E., Polo, Ó.R., De Grande, R. and Risco J.L (eds.). *Proceedings of the 22nd International Symposium on Distributed Simulation and Real Time Applications*, Madrid, Spain, pp. 135-144.
- Luke, S., Simon, R., **Crooks, A.T.**, [†]Wang, H., [†]Wei, E., [†]Freelan, D., Spagnuolo, C., Scarano, V., Cordasco, G. and Cioffi-Revilla, C. (2018), The MASON Simulation Toolkit: Past, Present, and Future, in Davidsson, P. and Verhagen, H. (eds.), *Proceedings of the 19th International Workshop on Multi-Agent-Based Simulation*, Stockholm, Sweden, pp. 75-86.
- [†]Yuan, X. and **Crooks, A.T.** (2018), Examining Online Vaccination Discussion and Communities in Twitter, *Proceedings of the 9th International Conference on Social Media & Society*, Copenhagen, Denmark, pp.197-206. **Awarded Best Paper.**
- [†]Burger, A., [†]Oz, T., Crooks, A.T. and Kennedy, W.G. (2017). Generation of Realistic Mega-City Populations and Social Networks for Agent-Based Modeling, *The Computational Social Science Society of Americas Conference*, Santa Fe, NM.
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- [†]Yuan, X. and **Crooks, A.T.** (2017), From Cyber Space Opinion Leaders and the Spread of Anti-Vaccine Extremism to Physical Space Disease Outbreaks, in Lee, D., Lin, Y., Osgood, N. and Thomson, R. (eds.) *Proceedings of the 2017 International Conference on Social Computing, Behavioral-Cultural Modeling, & Prediction and Behavior Representation in Modeling and Simulation*, Springer, New York, NY., pp. 114-119.

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†Pires, B. and **Crooks, A.T.** (2016), The Geography of Conflict Diamonds: The Case of Sierra Leone, in Xu, K. S., Reitter, D., Lee, D. and Osgood, N. (eds.), *Proceedings of the 2016 International Conference on Social Computing, Behavioral-Cultural Modeling, & Prediction and Behavior Representation in Modeling and Simulation*, Washington, DC., pp. 335-345.

†Panteras, G., †Lu, X., Croitoru, A., **Crooks, A.T.** and Stefanidis, A. (2016), *Accuracy Of User-Contributed Image Tagging In Flickr: A Natural Disaster Case Study*. The 2016 International Conference on Social Media & Society, London, UK (Acceptance rate 39%).

Crooks, A.T. and †Hailegiorgis, A. (2013), *Disease Modeling Within Refugee Camps: A Multi-agent Systems Approach*. in Pasupathy, R., Kim, S.-H., Tolk, A., Hill, R. and Kuhl, M. E. (eds.), *Proceedings of the 2013 Winter Simulation Conference*, Washington, DC, pp. 1697-1706.

†Lu, X., Croitoru, A., †Radzikowski, J., **Crooks, A. T.** and Stefanidis, A. (2013), *Comparing the Spatial Characteristics of Corresponding Cyber and Physical Communities: A Case Study*, 6th ACM SIGSPATIAL International Workshop on Location-Based Social Networks, Orlando, FL, pp. 11-14.

†Patel, A., **Crooks, A.T.** and Koizumi, N. (2012), *Simulating Spatio-Temporal Dynamics of Slum Formation in Ahmedabad, India*. 6th Urban Research and Knowledge Symposium - Rethinking Cities: Framing the Future, Barcelona, Spain.

†Łatek, M.M., †Mussavi Rizi, S.M., **Crooks, A.T.** and Fraser, M. (2012), *A Spatial Multiagent Model of Border Security for the Arizona-Sonora Borderland*. The Computational Social Science Society of America Conference, Santa Fe, NM.

†Hailegiorgis, A. and **Crooks, A.T.** (2012), *Agent-based Modeling for Humanitarian Issues: Disease and Refugee Camps*. The Computational Social Science Society of America Conference, Santa Fe, NM.

Wayant, N., **Crooks, A.T.**, Stefanidis, A., Croitoru, A., †Radzikowski, J., Stahl, J. and Shine, J. (2012), *Spatiotemporal Clustering of Social Media Feeds for Activity Summarization*. GI Science (7th International Conference for Geographical Information Science), Columbus, OH.

†Łatek, M.M., †Mussavi Rizi, S.M., **Crooks, A.T.** and Fraser, M. (2012), *Social Simulations for Border Security*. Workshop on Innovation in Border Control 2012, Co-located with the European Intelligence and Security Informatics Conference (EISIC 2012), Odense, Denmark, pp. 340-345.

Croitoru, A., Stefanidis, A., †Radzikowski, J., **Crooks, A.T.**, Stahl, J. and Wayant, N. (2012), *Towards a Collaborative GeoSocial Analysis Workbench*. COM-Geo, Washington, DC.

Gulden, T., †Cotla, C.R., †Hailegiorgis, A. and **Crooks, A.T.** (2011), *A Generic Vegetation Growth Sub-model in a Large Human/Environment Interaction Model of East Africa*. The Computational Social Science Society of America Conference, Santa Fe, NM.

- Gulden, T., †Harrison, J.F. and **Crooks, A.T.** (2011), *Modeling Cities and Displacement through an Agent-based Spatial Interaction Model*. The Computational Social Science Society of America Conference, Santa Fe, NM.
- †Wise, S. and **Crooks, A.T.** (2011), *Agent Based Modelling and GIS for Community Resource Management: Acequia-based Agriculture*. Proceedings of the 11th International Conference on Geocomputation, University College London, London, England, pp. 388-394.
- Crooks, A.T.** and †Wise, S. (2011), *Modelling the Humanitarian Relief through Crowdsourcing, Volunteered Geographical Information and Agent-based Modelling: A test Case – Haiti*. Proceedings of the 11th International Conference on Geocomputation, University College London, London, England, pp. 183-187.
- †Pint, B., **Crooks, A.T.**, and Geller, A. (2010), *Exploring the Emergence of Organized Crime in Rio de Janeiro: An Agent-Based Modeling Approach*. 2nd Brazilian Workshop on Social Simulation, Sao Bernardo do Campo, Brazil, pp. 7-14.
- †Rouly, O.V. and **Crooks, A.T.** (2010), *A Prototype, Multi-agent System for the Study of the Peopling of the Western Hemisphere*. in Ernst, A. and Kuhn, S. (eds) Proceedings of the 3rd World Congress on Social Simulation (WCSS2010): Scientific Advances in Understanding Societal Processes and Dynamics, Kassel, Germany.
- Hudson-Smith, A., Milton, R., **Crooks, A.T.** and Batty, M. (2009), *Crowd Sourced Data for the Social Sciences: Web Based Services and Real-Time Geographic Surveys*. 5th International Conference on e-Social Science, Cologne, Germany.
- Crooks, A.T.**, Hudson-Smith, A., Milton, R., and Batty, M. (2009), *Crowdsourcing Spatial Surveys and Mapping*. in Fairbairn, D. (ed.), Proceedings of the 17th Geographical Information Systems Research UK Conference, Durham University, England, pp 263-269.
- Slingsby, A., Dykes, J., Wood, J. and **Crooks, A.T.** (2009), *The Role of Layout and Order in Treemaps for Showing Spatial and Temporal Variation in House Prices*. GeoViz, Hamburg, Germany.
- Crooks, A.T.**, Smith, D.A., and Theseira, M. (2008), *The Fine Scale Spatial Dynamics of the Greater London Housing Market*. in Lambrick, D. (ed.), Proceedings of the 16th Geographical Information Systems Research UK Conference, UNIGIS, Manchester Metropolitan University, England, pp. 117-124.
- Crooks, A.T.**, Castle, C.J.E., and Batty, M. (2007), *Key Challenges in Agent-Based Modelling for Geo-spatial Simulation*. in Demšar, U (ed.), Proceedings of the 9th International Conference on Geocomputation, National Centre for Geocomputation, National University of Ireland, Maynooth, Ireland.
- Crooks, A.T.** (2006), *Exploring Cities using Agent-Based Models and GIS*, in Sallach, D., Macal, C.M. and North, M.J. (eds.), Proceedings of the Agent 2006 Conference on Social Agents: Results and Prospects, University of Chicago and Argonne National Laboratory, Chicago, IL, pp. 125-132.
- Crooks, A.T.** (2006), *Experimenting with Cities Using Agent Based Models*. in Priestnall, G., and Aplin, P. (eds.), Proceedings of the 14th Geographical Information Systems Research UK Conference, The University of Nottingham, England, pp. 240-243.

Castle, C. J. E., **Crooks, A.T.**, Longley, P.A., and Batty, M. (2006), *Agent-Based Modelling and Simulation using Repast: A Gallery of GIS Applications from CASA*. in Priestnall, G., and Aplin, P. (eds.), Proceedings of the 14th Geographical Information Systems Research UK Conference, The University of Nottingham, England, pp. 237-239.

Theseira, M. and **Crooks, A.T.** (2005), *The Relationship between Population, Employment and Accessibility in London*. in Billen, R., Drummond, J., Forrest, D., and Joao, E. (eds.), Proceedings of the 13th Geographical Information Systems Research UK Conference, University of Glasgow, Scotland, pp. 169-174.

Invited Presentations, Talks and Panels

Crooks, A.T. and Heppenstall, A. (2025), *A Discussion on Agent-based modeling in Geography*, Computational Social Science Society of the Americas, 21st May, Online.

Crooks, A.T., (2025), *Artificial intelligence and Urban Analytics: Opportunities and Challenges*, AI and Cities: An International Forum for Innovation and Collaboration, School of Landscape Architecture and Planning, University of Florida 9th–10th May, Online.

Crooks, A.T., (2025), *Monitoring and Analysing Cities through the Lens of Urban Analytics*, Department of Geography & Spatial Sciences, University of Delaware, 28th April, Newark, DE.

Crooks, A.T., (2024), *Exploring Cities through the lens of Urban Analytics*, Department of City and Regional Planning, University of Pennsylvania, 20th November, Philadelphia, PA.

Heppenstall, A. and **Crooks, A.T.** (2024), *GIS and Spatial Simulation for Evidenced-based Decision Making*, GIS Day Department of Civil Engineering and Geomatics, Cyprus University of Technology, 20th November, Online.

Crooks, A.T., (2024), *Exploring the World from the Bottom Up with GIS and Agent-based Models: Past, Present and Future*. The 19th Annual Social Simulation Conference, 16th – 20th September, Cracow, Poland.

Li, W., **Crooks, A.T.**, Christopher, C., Heppenstall, A. and Arundel, S. (2024), *Future Map: The Convergence of Generative GeoAI, Population Synthesis, and Agent-Based Modeling to Develop Geographic Futures for Climate and Sustainability Assessments*, Panel Session, The Association of American Geographers (AAG) Annual Meeting, 23rd–27th April, Honolulu, HI.

Crooks, A.T. (2024), *GIS and Agent-based Modeling: Exploring the World from the Bottom Up*, Department of Geography, McGill University, Montreal, Canada, 12th January.

Crooks, A.T. (2023), *Social Data Mining*, Department of Computational and Data Sciences (CSI-777: Principles of Knowledge Mining), George Mason University, 9th November, Online.

Crooks, A.T. (2023), *Spatial Modeling: GIS and Agent-based Integration*, Department of Computational and Data Sciences (CSS-600: Introduction to Computational Social Science), George Mason University, 30th October, Online.

Crooks, A.T. (2023), *An Introduction to GIS and Agent-based Modeling*, Department of Geography (GEO-493/593: Dynamic Modeling of Human & Environmental Systems), University at Buffalo, 31st October, Buffalo, NY.

Crooks, A.T. (2023), *An Introduction to Cellular Automata*, Department of Geography (GLY-573: Introduction to Computational Earth Science), University at Buffalo, 24th October, Buffalo, NY.

Crooks, A.T. (2023), *GIS and Agent-based Modeling: Exploring cities from the bottom up*, Computational and Data Science Seminar Series, The Department of Computational and Data Sciences, George Mason University, 6th October, Online.

Heppenstall, A. and **Crooks, A.T.** (2021), *GIS and Agent-Based-Modelling: Past, Present and Future*, 2021 International Conference on Geospatial Information Sciences, 3rd – 5th November, 2021, Online.

Crooks, A.T. (2021), *Opportunities & Challenges of Exploring Cities through Urban Analytics: Data and Models*, Edinburgh Earth Observatory Seminar, School of GeoSciences, The University of Edinburgh, 29th October, Online.

Crooks, A.T., Grignard, A., and Taillandier, P. (2021), *Agent-based Simulation Challenges*, Panel Session, GAMA Days 2021, 25th June, Online.

Rossi, M., Peele, C., **Crooks, A.T.** and Nalam, P. (2021), *Using the Lens of Data for Discovery*, Panel Session, 2021 Erich Bloch Symposium, University at Buffalo, 7th June, Online.

Metcalf, S. and **Crooks, A.T.** (2021), *Introduction to Agent Based Models*, Institute for Computational and Data Sciences, University at Buffalo, 31st March, Online.

Crooks, A.T. (2021), *Analyzing and Modeling Urban Systems Utilizing Computational Social Science: Opportunities, Examples, and Challenges*, GIScience Research Group, Royal Geographical Society with IBG, 31st March, Online.

Crooks, A.T. (2019), *The Role of Social Media on Public Health*, Health Policy Seminar Series, The Department of Health Administration and Policy, George Mason University, 21st November, Fairfax, VA.

Crooks, A.T. (2019), *Utilizing Agent-based Models and Open Data to Examine the Movement of People and Information: A Gallery of Applications*, The Criminal Investigations and Network Analysis (CINA) Center, 17th of October, Fairfax, VA.

Crooks, A.T. (2019), *Analyzing and Modeling Urban Systems Utilizing Computational Social Science: Opportunities, Examples, and Challenges*, The Department of Geography and the National Center for Geographic Information and Analysis, University at Buffalo, 6th February, Buffalo, NY.

Crooks, A.T. (2019), *Utilizing Open Data: From mapping Slums and Refugee Camps to Cities*, World- Wide Human Geography Data Working Group 23rd April 2019. Talk available at <https://wwhgd.org>.

Crooks, A.T. (2018), *Geosimulation: A Gallery of Applications*, 1st International Workshop on Geospatial Simulation at ACM SIGSPATIAL 2018, 6th-9th 2018, November, Seattle, WA.

Crooks, A.T. (2018), *GeoSocial Analysis: From Natural Disasters to Urban Areas*, College of Mining and Geomatics, Hebei University of Engineering, 28th September, Handan, China.

Crooks, A.T. (2018), *Utilizing Computational Social Science for Analyzing and Modeling Urban Systems*, The International Conference on Geo-informatics in Sustainable Ecosystem and Society (GSES-2018), 24th-26th September, Handan, China. **Keynote speaker.**

Crooks, A.T. (2018), *Computational Modelling of Slums / Informal Settlements: Progress & Challenges*, University of Amsterdam Institute for Advanced Study, 2nd July, Amsterdam, The Netherlands.

Kennedy, W.G. and **Crooks, A.T.** (2017), *A Framework for Modeling Society Following a Nuclear WMD Event*, Army Science Board Study on Mega Cities, 26th April, Arlington, VA.

[†]Mahabir, R. and **Crooks, A.T.** (2015), *Challenges and Opportunities of Mapping and Modeling Slums in a Digital Big Data Era*, Inter-American Development Bank, 4th November, Washington, DC.

Crooks, A.T. (2015), *Computational Social Science for Urban Dynamics*, JASON Study Group, 18th June, La Jolla, CA.

Crooks, A.T. (2015), *Crowdsourced Data for Agent-based modeling: Opportunities, Examples and Challenges*, Advanced Computing and Informatics Laboratories, The Virginia Bioinformatics Institute, 26th May, Arlington, VA.

Crooks, A.T. (2015), *Agent-based Modeling for Urban Planning: A Gallery of Applications*, School of Policy, Government, and International Affairs (PUBP 733-001: Urban Politics and Policy), George Mason University, 14th April, Arlington, VA.

Crooks, A.T. (2015), *The Evolution of the GeoWeb & Social Media*, Department of Geography and GeoInformation Science (GG5 590- Geosocial Analysis), George Mason University, 3rd February, Fairfax, VA.

Crooks, A.T. (2014), *GeoSocial Analysis: From Natural Disasters to Protests*, Department of Geographical Sciences, University of Maryland in College Park, 17th April, College Park, MD.

Crooks, A.T., An, L., Metcalf, S., Magliocca, N. and Zellner M.P. (2014), *How Can We Make Agent-based Models More Relevant?*, Panel Session, The Association of American Geographers (AAG) Annual Meeting, 11th April, Tampa, FL.

Crooks, A.T. (2014), *Disasters and Diseases: An Agent-based Modeling Perspective*, Department of Geography and GeoInformation Science (GG5 759- Topics in Earth Systems Science), George Mason University, 11th February, Fairfax, VA.

Crooks, A.T. (2013), *Agent-based Models for Humanitarian Assistance and Diseases*, Department of Global And Community Health (GCH 605 - Social Epidemiology), George Mason University, 19th November, Fairfax, VA.

Crooks, A.T. (2013), *Computational Social Science and Geographic Information*, Department of Geography and GeoInformation Science, (GG5 759 - Topics in Earth Systems Science), George Mason University, 23rd April, Fairfax, VA.

- Crooks, A.T.** (2012), *Geosocial Analysis for Urban Operations*, The Science and Technology Board (STB) Symposium on Science and Technology for Urban Operations, 10th September, Norfolk, VA.
- Crooks, A.T.** (2012), *Pedestrians to Cities with Agent-Based Modeling and GIS*, Geometry, Graphics, Robotics, AI, Algorithms, and Data Mining (GRAND) Seminar Series, Department of Computer Science, George Mason University, 3rd April, Fairfax, VA.
- Crooks, A.T.** (2012), *Pedestrians to Cities with Agent-Based Modeling and GIS*, National Geospatial Intelligence Agency (NGA), 6th March, Springfield, VA.
- Crooks, A.T.** (2011), *Agent-based Modeling*, (GGS 684: Select Topics in Geospatial Intelligence), US Army Corps of Engineers Geospatial Center, 7th and 16th June, Alexandria, VA.
- Crooks, A.T.** (2011), *Spatial Agent-based Modeling*, Department of Geography and GeoInformation Science, (GGS 684: Select Topics in Geospatial Intelligence), George Mason University, 21st April, Fairfax, VA.
- Crooks, A.T.** (2011), *Social Network Analysis and Geography*, Department of Computational Social Science, (CSS 692: Social Network Analysis), George Mason University, 19th April, Fairfax, VA.
- Crooks, A.T.** (2011), *Agents in the City: Modeling, Visualizing, and Communicating Emergent Phenomena Utilizing GIS and Agent-Based Modeling*, Center for Urban Environmental Research and Education, University of Maryland, Baltimore County, 4th March, Baltimore, MD.
- Crooks, A.T.** and †Latek, M.M. (2011), *Use of Agent Based Modeling on Transportation and Health*, School of Public Policy, (PUBP714-002/003: Transportation & Health), George Mason University, 2nd March, Arlington, VA.
- Torrens, P., **Crooks, A.T.** and Guerin, S. (2010), *The Exultation and Agony of Combining GIS and ABM Panel*, 2010 Computational Social Science Society Conference, 5th - 6th November, Tempe, AZ.
- Crooks, A.T.** (2010), *GIS and Agent-based Modeling*, NGA funded Mentor Protégé Program: Northrop Grumman – CSSS Yr 4 Training Workshop, School of Public Policy, George Mason University, 3rd September, Arlington, VA.
- Crooks, A.T.** (2006), *Social Science Applications Utilising GIS at the Centre for Advanced Spatial Analysis*, Innovative methods Seminar: the role of Geographic Information Systems (GIS) in Government Social Research. Scottish Executive, 15th November, Edinburgh, Scotland. Keynote speaker.
- Crooks, A.T.** (2006), *Understanding how Cities Work – Using Agent-Based Modelling to Simulate Urban Change*, London and the Local Economy, Greater London Authority Economics Unit Seminar, 1st June, London, England.

Working Papers & Technical Reports (†Denotes graduate student collaborator)

Domeniconi, C., Rana, A., Patel, R., Jones, J., Kavak, H., Luke, S., Menkov, V., Roberts, F., Baveja, A., Chen, W., Egan, D., Goswami, A., Lei, R., Marsh, P., Melamed, B., Narayan, V. and **Crooks, A.T.** (2023), *Detecting Criminal Disruption of Supply Chains Study: Report: General Methodology and Tools*, The Command, Control

and Interoperability Center for Advanced Data Analysis (CCICADA), Rutgers, the State University of New Jersey, Piscataway, NJ.

Kennedy, W.G., **Crooks, A.T.**, [†]Burger, A., [†]Oz, T., [†]Yuan, X. and [†]Jiang, N. (2021), *Modeling Society Following a Nuclear Weapon of Mass Destruction (WMD) Event: An Agent-Based Modeling Approach*, Final report of basic research sponsored by the Defense Threat Reduction Agency (DTRA), Center for Social Complexity, George Mason University, Fairfax, VA.

Kim, J-S., Kavak, H., [†]Rouly, C.O., Jin, H., **Crooks, A.T.**, Pfoser, D., Wenk, C. and Züfle, A. (2020), Location-Based Social Simulation for Prescriptive Analytics of Disease Spread, *SIGSPATIAL Special*, 12(1): 53-61.

Kim, J-S., Kavak, H., Pfoser, D., **Crooks, A.T.**, Wenk, C. and Wise, S. (2019), GeoSim 2019 Workshop Report: The 2nd ACM SIGSPATIAL International Workshop on Geospatial Simulation, *SIGSPATIAL Special*, 11(3): 20-22.

Heppenstall, A., **Crooks, A.T.**, Malleon, N., Manley, E., Ge J. and Batty, M. (2019), *Agent-Based Models for Geographical Systems: A Review*. Centre for Advanced Spatial Analysis (University College London): Working Paper 214, London, England.

Kim, J. S., Kavak, H., Züfle, A., **Crooks, A.T.**, Manzoor, U. and Torrens, P. M. (2019). GeoSim 2018 Workshop Report the 1st ACM SIGSPATIAL International Workshop on Geospatial Simulation. *SIGSPATIAL Special*, 10(3): 28-29.

Kim, J-S., Kavak, H. and **Crooks A.T.** (2018), Procedural City Generation Beyond Game Development, *SIGSPATIAL Special*, 10(2): 34-41.

[†]Parrett, C.M., **Crooks, A.T.** and [†]Pike, T. (2018), *The Future of GEOINT: Data Science Will Not Be Enough*. The State and Future of GEOINT 2018 Report, The United States Geospatial Intelligence Foundation, Herndon, VA. pp. 12-15.

[†]Malik, A.A., **Crooks, A.T.** and Root, H.L. (2013), *Can Pakistan have Creative Cities? An Agent Based Modeling Approach with Preliminary Application to Karachi*. Pakistan Strategy Support Program Working Paper 13, International Food Policy Research Institute (IFPRI), Washington, DC.

Crooks, A.T., Hudson-Smith, A. and [†]Patel, A. (2010), *Building 3D Agent-Based Models for Urban Systems*. Centre for Advanced Spatial Analysis (University College London): Working Paper 161, London, England.

Crooks, A.T. (2010), *Using Geo-spatial Agent-Based Models for Studying Cities*. Centre for Advanced Spatial Analysis (University College London): Working Paper 160, London, England.

Anand, S., Batty, M., **Crooks, A.**, Hudson-Smith, A., Jackson, M., Milton, R. and Morley, J. (2010), *Data Mash-ups and the Future of Mapping*. Joint Information Systems Committee (JISC) Technology & Standards Watch (TechWatch) Horizon Scanning report 10_01, Bristol, England. (**Commissioned and peer reviewed**).

Smith, D.A. and **Crooks, A.T.** (2010), *From Buildings to Cities: Enabling the Multi-Scale Analysis of Urban Form and Function through the integration of Geographical and Geometric Methods*. Centre for Advanced Spatial Analysis (University College London): Working Paper 155, London, England.

Masucci, A.P., Smith, D., **Crooks, A.T.** and Batty, M. (2009), *Random Planar Graphs and the London Street Network*, Centre for Advanced Spatial Analysis (University College London): Working Paper 146, London, England.

Hudson-Smith, A., Batty, M., **Crooks, A.T.**, and Milton, R. (2008), *Mapping for the Masses: Accessing Web 2.0 through Crowdsourcing*, Centre for Advanced Spatial Analysis (University College London): Working Paper 143, London, England.

Hudson-Smith, A. and **Crooks, A.T.** (2008), *The Renaissance of Geographic Information: Neogeography, Gaming and Second Life*, Centre for Advanced Spatial Analysis (University College London): Working Paper 142, London, England.

Crooks, A.T. (2008), *Constructing and Implementing an Agent-Based Model of Residential Segregation through Vector GIS*, Centre for Advanced Spatial Analysis (University College London): Working Paper 133, London, England.

Crooks, A.T. (2007), *Experimenting with Cities: Utilizing Agent-Based Models and GIS to Explore Urban Dynamics*, PhD Thesis, University College London, London, England.

Crooks, A.T. (2007), *The Repast Simulation/Modelling System for Geospatial Simulation*, Centre for Advanced Spatial Analysis (University College London): Working Paper 123, London, England.

Crooks, A.T., Castle, C.J.E. and Batty, M. (2007), *Key Challenges in Agent-Based Modelling for Geo-Spatial Simulation*, Centre for Advanced Spatial Analysis (University College London): Working Paper 121, London, England.

Castle, C.J.E. and **Crooks, A.T.** (2006), *Principles and Concepts of Agent-Based Modelling for Developing Geospatial Simulations*, Centre for Advanced Spatial Analysis (University College London): Working Paper 110, London, England.

Crooks, A.T. (2006), *Exploring Cities Using Agent-Based Models and GIS*, Centre for Advanced Spatial Analysis (University College London): Working Paper 109, London, England.

Crooks, A.T. (2002), *Mapping out the Future: Extending the Mapping Capabilities of the Gazetteer for Scotland*, MSc Thesis, University of Edinburgh, Edinburgh, Scotland.

Non-Peer Reviewed Presentations/Conferences (†Denotes graduate student collaborator)

Lin, X. Wu, T., Li, M., †Wang, B., **Crooks, A.T.** and Song, S. (2024), Exploring the Potential of Geospatial Agent-Based Models for Digital Earths: A Socio-Ecological Systems Approach, *14th International Symposium on Digital Earth*, 21st-25th April, Chongqing, China.

†Wang, B., **Crooks, A.T.**, Anderson, T. and Züfle, A. (2025), PySGN: A Python Package for Constructing Synthetic Geo-social Networks. *The Association of American Geographers (AAG) Annual Meeting*, 24th –28th March, Detroit, MI.

†Chen, Q., See, L. and **Crooks, A.T.** (2025), Utilizing Streetview Images for Mapping Building Attributes with ChatGPT, *The Association of American Geographers (AAG) Annual Meeting*, 24th –28th March, Detroit, MI.

[†]Chen, Q. and **Crooks, A.T.** (2025), Multi-sensory Experiences: The Connection Between the Smell and Vision in Understanding Urban Environments, *The Association of American Geographers (AAG) Annual Meeting*, 24th –28th March, Detroit, MI.

[†]Zhou, Y. and **Crooks, A.T.** (2025), Identifying Environmental Characteristics That Influence Perceived Safety in Urban Spaces, *The Association of American Geographers (AAG) Annual Meeting*, 24th –28th March, Detroit, MI.

Jiang, N., [†]Wang, B. and **Crooks, A.T.** (2025), Large Language Models for Conceptualizing, Designing, and Generating Agent-based Models, *The Association of American Geographers (AAG) Annual Meeting*, 24th –28th March, Detroit, MI.

Yin, F., Laurian, L., **Crooks, A.T.** and Boamah, E.F. (2025), Analysis of Online Mutual Aid Network during Buffalo Blizzard 2022: Actors and Weak Ties, *The Association of American Geographers (AAG) Annual Meeting*, 24th –28th March, Detroit, MI.

Evans, S., [†]Adegbola, F. and **Crooks, A.T.** (2024), Mining Unconventional Data Sources: Creating a Social Media-based Catalog of Dust Events in the Western US, *American Geophysical Union (AGU) Fall Meeting*, 9th–13th December, Washington, DC.

Crooks, A.T., Jiang, N., Yin, F. and [†]Wang, B. (2024), A Framework for Populating Urban Digital Twins with Agents, *American Geophysical Union (AGU) Fall Meeting*, 9th–13th December, Washington, DC.

[†]Yin, F., **Crooks, A.T.** and Laurian, L. (2024), Mapping Resilience: How Facebook Promotes Mutual Aid during Blizzards, *Association of Collegiate Schools of Planning Annual Conference*, 7th –9th November, Seattle, WA.

[†]Yin, F., **Crooks, A.T.** and Laurian, L. (2024), Mapping Resilience on Social Media: How Online Interactions are Translated into Mutual Aid Behaviors During the 2022 Buffalo Blizzard, *The 2024 Cartography and Geographic Information Society (CaGIS) and the University Consortium for Geographic Information Science (UCGIS) Symposium*, 3rd –6th June, Columbus, OH.

Evans, S., [†]Adegbola, F. and **Crooks, A.T.** (2024), Mining unconventional data sources: creating a social media-based catalogue of dust events in the Western US, *Beyond the Haze: A Symposium on Dust Impacts on Climate, the Environment and Human Health*, 15th May, UC Davis, Davis, CA.

[†]Yin, F., Jiang, N. and **Crooks, A.T.** (2024), Modeling Covid Vaccination uptake in New York State: An Agent-based Modeling Perspective, *The Association of American Geographers (AAG) Annual Meeting*, 23rd –27th April, Honolulu, HI.

Jiang, N., **Crooks, A.T.**, [†]Wang, B. and [†]Yin (2024), Populating Digital Twins with Humans: A Framework Utilizing Artificial Agents, *The Association of American Geographers (AAG) Annual Meeting*, 23rd –27th April, Honolulu, HI.

[†]Chen, C., Poorthuis, A. and **Crooks, A.T.** (2024), Mapping the Invisible: Decoding Perceived Urban Smells through Geosocial Media in New York City, *The Association of American Geographers (AAG) Annual Meeting*, 23rd –27th April, Honolulu, HI.

[†]Wang, B. and **Crooks, A.T.** (2024), Simulating Urban Flows with Geographically Explicit Synthetic Populations, *The Association of American Geographers (AAG) Annual Meeting*, 23rd –27th April, Honolulu, HI.

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Jiang, N., and **Crooks A.T.**, (2023), Leveraging Newspapers to Understand Urban Issues: A Longitudinal Analysis of Urban Shrinkage in Detroit, *The Association of American Geographers (AAG) Annual Meeting*, 23rd –27th March, Denver, CO.

†Yin, F., **Crooks, A.T.** and Yin, L. (2023), How Information Propagation in Physical, Relational and Cyber Spaces Affects Covid-19 Vaccine Uptake: Evidence from Rural County, *The Association of American Geographers (AAG) Annual Meeting*, 23rd –27th March, Denver, CO.

†Wang, B. and **Crooks, A.T.** (2023), Do People Care About Others' Opinions of Places? Utilizing Crowdsourced Data and Deep Learning to Model Peoples' Review Patterns, *The Association of American Geographers (AAG) Annual Meeting*, 23rd –27th March, Denver, CO.

†Chen, Q., †Wang, B. and **Crooks, A.T.** (2023), Community Resilience to Wildfires: A Network Analysis Approach Utilizing Human Mobility Data, *The Association of American Geographers (AAG) Annual Meeting*, 23rd –27th March, Denver, CO.

†Yin, F., **Crooks, A.T.** and Yin, L. (2022), Information Propagation on Cyber, Relational and Physical Spaces about Covid-19 Vaccines: Using Social Media and Splatial Framework, The 2022 Association of Collegiate Schools of Planning Annual Conference, November 3rd -5th, November, Toronto, Canada.

†Chen, Q and **Crooks, A.T.** (2022), Tracking the Dynamics of Vaccination Sentiment in Large-Scale Social Media Data, *The Association of American Geographers (AAG) Annual Meeting*, 25th February -1st March, Online.

†Hemmati, M., Mahmoud, H., Ellingwood, B.R. and **Crooks, A.T.** (2021), The Role of Human Behavior in Achieving Sustainable Communities Resilient to Floods, *American Geophysical Union (AGU) Fall Meeting*, 13th-17th December, New Orleans, LA.

†Jiang, N., †Burger, A. and **Crooks, A.T.** (2021), Generation of Reusable Synthetic Population and Social Networks for Agent-Based Modeling, *The Association of American Geographers (AAG) Annual Meeting*, 7th-11th, April, Online.

†Hemmati, M., Mahmoud, H., Ellingwood, B.R. and **Crooks, A.T.** (2020), Revealing the Complex Role of Human Behavior in Urbanization and Resilience of Communities under Flood Risk, *American Geophysical Union (AGU) Fall Meeting*, 7th-11th December, Online.

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[†]Hemmati, M., Mahmoud, H., Ellingwood, B.R. and **Crooks, A.T.** (2019), Impact of Urban Growth on Future Flood Risk and Resilience of the Built Environment, American Geophysical Union (AGU) Fall Meeting, 9th-13th December, San Francisco, CA.

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Crooks A.T., [†]Burger, A., [†]Jiang, N., [†]Guillen-Piazza, D. and Kennedy W.G. (2018), *Decision-making in Times of Crisis: An Agent-Based Model of Disaster*, The Association of American Geographers (AAG) Annual Meeting, 3rd-7th, April, Washington, DC.

[†]Zhang, R., Tian, Q., Jiang, L., **Crooks A.T.**, Qi, S. and Yang, R. (2019), Projecting Cropping Patterns around Poyang Lake and Prioritizing Areas for Policy Intervention to Promote Rice: A Cellular Automata Model, The Association of American Geographers (AAG) Annual Meeting, 3rd-7th, April, Washington, DC.

[†]Burger, A., Kennedy, W.G. and Crooks, A.T. (2018), *Generation of Realistic Routine Behavior in Mega-City Populations*, The Computational Social Science Society of Americas Conference, 25th-28th October, Santa Fe, NM.

[†]Burger, A., [†]Oz, T., [†]Yuan, X., **Crooks, A.T.** and Kennedy, W.G. (2018), *Agent-Based Models for Megacities and Social Networks in Disaster*, International Sociological Association World Congress of Sociology, 15th-21st, July, Toronto, Canada.

Crooks A.T. and [†]Wise, S. (2018), *Leveraging Open Data for Urban Agent-based Models: Examples and Challenges*, Conference on Modelling Complex Urban Environments, 21st-22nd, June, Waterloo, Canada.

Crooks A.T., [†]Burger, A., [†]Yuan, X. and Kennedy W.G. (2018), *The Generation and Application of Large Scale Synthetic Populations for Disease Outbreaks and Disasters*, The Association of American Geographers (AAG) Annual Meeting, 10th-14th, April, New Orleans, LA.

Crooks A.T., Kennedy W.G., [†]Burger, A., [†]Oz, T. and Heppenstall, A. (2017), *Megacities through the Lens of Computational Social Science*, The Association of American Geographers (AAG) Annual Meeting, 5th-9th, April, Boston, MA.

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[†]Mahabir, R. Agouris, P., **Crooks A.T.**, Stefanidis, A. and Croitoru, A. (2016), *Challenges and Opportunities of Mapping and Modeling Slums in a Digital Big Data Era*, The Association of American Geographers (AAG) Annual Meeting, 29th March- 2nd, April, San Francisco, CA.

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Crooks, A.T., Croitoru, A., Pfoser, D. and Stefanidis, A. (2014) *Crowd-sourcing Urban Morphology: Opportunities and Challenges*, 61st Annual North American Meetings of the Regional Science Association International, 12th -15th, November, Washington, DC.

[†]Patel, A., **Crooks, A.T.** and Koizumi, N. (2014), *Simulating Slum Policies Using a Spatial Multi--Agent Decision Support System*, 61st Annual North American Meetings of the Regional Science Association International, 12th -15th, November, Washington, DC.

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[†]Pint, B. and **Crooks, A.T.** (2013), *The Impact of a Slum's Social Dynamics and Geospatial Landscape on the Emergence of Riots: The Case of Kibera*, The Association of American Geographers (AAG) Annual Meeting, 9th -13th, April, Los Angeles, CA.

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[†]Hailegiorgis, A., **Crooks, A.T.** and Cioffi, C. (2013), *Agent-Based Modeling for Analyzing HADR Issues: Disease in Refugee Camps*, Pacific Operational Science and Technology Conference, 5th - 8th March, Honolulu, HI.

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†Wise, S. and **Crooks A.T.** (2012), *Fire Flight: An Agent-Based Model of Citizen Response to the Colorado Wildfires*, 4th Annual Complexity in Business Conference, 9th November, Washington, DC.

†Masad, D. and **Crooks A.T.** (2012), *Towards Arms and Influence Networks: A Network Analysis of International Arms Transfers*, 4th Annual Complexity in Business Conference, 9th November, Washington, DC.

†Patel, A., **Crooks, A.T.** and Koizumi, N. (2012), *Integrating GIS and ABM to Explore Spatio-temporal Dynamics of Slum Formation in Ahmedabad, India*, 59th Annual North American Meetings of the Regional Science Association International, 7th -10th, November, Ottawa, Canada.

Crooks, A.T. and †Hailegiorgis, A. (2012), *The Spread of Cholera in Dadaab Refugee Camps: An Agent Based Modeling Perspective*, 59th Annual North American Meetings of the Regional Science Association International, 7th -10th, November, Ottawa, Canada.

Croitoru, A., Stefanidis, A., **Crooks, A.T.**, †Radzikowski, J., Wayant, N. and Irvine, J. (2012), *Event Vision: Social Media Feeds For Event Monitoring*, Applied Imagery Pattern Recognition 2012, Computer Vision: Time for Change Workshop, 9th-11th, October, Washington, DC.

†Latek, M., **Crooks, A.T.**, †Rizi, S. and Fraser, M. (2012), *Social Simulations For Border Security*, 4th International Conference on Applied Human Factors and Ergonomics, 21st-25th, July, San Francisco, CA.

Gulden, T. †Cotla C. and **Crooks, A.T.** (2012), *The Climate for Refugees: An Integrated Model of Human/Environment Interaction and Migration Under Stress*, 4th International Conference on Applied Human Factors and Ergonomics, 21st-25th, July, San Francisco, CA.

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†Patel, A., **Crooks, A.T.** and Koizumi, N. (2012), *Integrating GIS and ABM to Explore Spatio-temporal Dynamics of Slum Formation in Mumbai, India*, The Association of American Geographers (AAG) Annual Meeting, 24th -28th, February, New York, NY.

Cioffi-Revilla, C., **Crooks, A.T.**, De Jong, K., Gulden, T., Kennedy, W. Luke, S. and †Coletti, M. (2012), *MASON RiftLand: An Agent-Based Model for Analyzing Conflict, Disasters, and Humanitarian Crises in East Africa*, The Association of American Geographers (AAG) Annual Meeting, 24th -28th, February, New York, NY.

Crooks, A.T., †Coletti, M., †Wise, S. and Sullivan, K. (2012), *GeoMason: Integrating GIS and Agent-based modeling - A Gallery of Applications*, The Association of American Geographers (AAG) Annual Meeting, 24th -28th, February, New York, NY.

†Patel, A., Koizumi, N. and **Crooks, A.T.** (2011), *Defining Slum Severity in Indian Mega-cities: a Comparison of Mumbai and Kolkata*, Joint North American Meetings of the

Regional Science Association International (RSAI) and Second Conference of the Regional Science Association, 9th-12th, November, Miami, FL.

Crooks, A.T., †Latek, M.M. and †Mussavi Rizi, S.M. (2011), *Computational Social Modeling of the Security of the Southern US Border*, EADS North America Innovation Forum. 28th September, Arlington, VA.

Crooks, A.T. and †Wise, S. (2011), *From the Micro Movement of Pedestrians to the Macro Growth of Cities: Geographically Explicit Agent-Based Modeling with GeoMASON*, Franco-American Workshop on Spatial Models of Social Complexity, 17th -18th, March, Paris, France.

Crooks, A.T. and †Wise, S. (2011), *Modeling the Consequences of Natural Disasters Through Crowdsourcing, Volunteered Geographic Information and Agent-Based Modeling: The Case of Haiti*, Franco-American Workshop on Spatial Models of Social Complexity, 17th -18th, March, Paris, France.

†Rouly, O.V. and **Crooks, A.T.** (2010), *Late Pleistocene Human Migrations: An Agent-based Modeling Approach*. 2010 Computational Social Science Society Conference, 5th - 6th, November, Tempe, AZ.

Crooks, A.T. (2010) *GIS and Agent-based Modeling: From the Past to Present*, Future Research Directions in Agent Based Modelling Workshop. University of Leeds, 15th June, Leeds, England.

Crooks, A.T. and Smith, D. (2010), *From Buildings to Cities: Techniques for the Multi-Scale Analysis of Urban Form and Function*, The Association of American Geographers (AAG) Annual Meeting, 14th -18th, April, Washington, DC.

Torrens, P., Batty, M., **Crooks, A.** and Hudson-Smith, A. (2009), *Visualization in Agent-Based Modeling*, North American Association for Computational Social and Organization Sciences (NAACSOS) Annual Conference, 23rd -24th, October, Tempe, AZ.

Masucci, A.P., Smith, D., **Crooks, A.T.** and Batty, M. (2009), *Random Planar Graphs and the London Street Network*, International Conference on Network Science, 2nd -3rd July, Venice, Italy.

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Crooks, A.T. and Hudson-Smith, A. (2009), *Agents in the City: Modeling and Visualizing Emergent Phenomena*, The Association of American Geographers (AAG) Annual Meeting, 22nd -27th, March, Las Vegas, NV.

Crooks, A.T. and Hudson-Smith, A. (2008), *Techniques and Tools for Three Dimensional Visualisation and Communication of Spatial Agent-Based Models*, Agent Based Spatial Simulation International Workshop, 24th -25th, November, Paris, France.

Crooks, A.T. and Smith, D.A. (2008), *Exploring London's Housing Market and Built Environment through Fine Scale Modelling*, 2008 ESRI Europe, Middle East and Africa International User Conference, 26th - 28th, October, London, England.

Crooks, A.T. and Smith, D.A. (2008), *Mapping and Visualizing Fine-scale Data*, Social Infrastructure Planning and the Community Infrastructure Levy: Providing a Robust Evidence Base Workshop, University of East London, 17th, October, London, England.

Hudson-Smith, A. and **Crooks, A.T.** (2008), *Neogeography, Gaming and Virtual Environments*, Association of Geographic Information (AGI) GeoCommunity '08 Conference, 24th - 25th, September, Stratford-upon-Avon, UK.

Batty, M. and **Crooks, A.T.** (2008), *Visualisation, Simulation and Agents: New Techniques for the Visualisation and Communication of Models*, Digital Geography in a Web 2.0 World, 15th September, Urbis Museum in Manchester, England.

Batty, M., Hudson-Smith, A., Milton, R., Dearden, J., and **Crooks, A.T.** (2008), *Neogeography: Disseminating Geographic Content with Web 2.0 Technologies*, Royal Geographical Society (with the Institute of British Geographers) Annual International Conference 2008, 27th -29th, August, London, England.

Crooks, A.T. (2008), *The Building Blocks of the City: Points, Lines and Polygons*, Royal Geographical Society (with the Institute of British Geographers) Annual International Conference 2008, 27th -29th, August, London, England.

Crooks, A.T. (2008), *Using Geographically Explicit Agents to Explain and Explore Urban Phenomena*, The Association of American Geographers (AAG) Annual Meeting, 15th – 19th April, Boston, MA.

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Batty, M. and **Crooks, A.T.** (2007), *Validating and Verifying Agent-Based Models: For Planning and Public Policy Analysis*, e-Social Science Agenda Setting Workshop: "Improving Evidence Based Policy Decisions: Piloting the Application of Advanced Computer Modelling Techniques to Real Life Policy Problems", 9th February University of Birmingham, England.

Castle, C.J.E. and **Crooks, A.T.** (2006), *From Pedestrians to Cities: Exploring Urban Systems through Agent-Based Modelling*, in Jost, J., Reed-Tsochas, F. and Schuster, P. (eds.), *Complexity and Dynamics: Volatility and Stability in City and Regional Systems* Workshop at the European Conference on Complex Systems: Towards a Science of Complex Systems, 25th -29th, September, Oxford, England.

Crooks, A.T. (2006), *Integration of Agent-Based Simulation and GIS: Applied to Segregation*, Royal Geographical Society (with the Institute of British Geographers) Annual International Conference, 30th August -1st September, London, England.

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Articles in Professional Magazines (†Denotes graduate student collaborator)

†Mahabir, R. and **Crooks, A.T.** (2018), *Mapping and Monitoring of Slums in 5 Steps - Define, Data, Map, Analyse, Model*, GIM International, March 1st, Available at

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Stefanidis, A., [†]Cotnoir, A., Croitoru, A., **Crooks, A.T.**, [†]Radzikowski, J. and Rice, M. (2013), Demarcating New Boundaries: Mapping Virtual Polycentric Communities through Social Media Content, *IQT Quarterly*, 5 (2): 12-14.

[†]Jackson, S. P., [†]Mullen W., Agouris, P., **Crooks, A. T.**, Croitoru, A. and Stefanidis, A. (2013), Assessing Completeness and Spatial Error of Features in Volunteered Geographic Information, *IQT Quarterly*, 5 (2): 22-26.

Batty, M., Hudson-Smith, A., **Crooks, A.T.**, Milton R. and Smith D. (2009), New Developments in GIS for Urban Planning, *Geospatial Today*, June: 40-43.

Articles and Interviews About My Work

Goldbaum, E. (2022), NSF awards \$1 million grant to UB to help prepare for next pandemic, *UB Now*, Available at <https://www.buffalo.edu/ubnow/stories/2022/09/surtees-pandemic-preparedness.html>

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Rogers, J. (2017), Union City Blues: Scientists Simulate Nuclear Attack on New York, *The Express*, Available at <http://www.express.co.uk/news/world/781093/New-York-Manhattan-nuclear-attack-scientists-George-Mason>.

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Tilton, L. (2013), Spotlight: USGIF Award Winner – Linking Human Geography and Social Media, *Trajectory Magazine.com*, 29th August 2013: <http://trajectorymagazine.com/got-geoint/item/1565-spotlight-usgif-award-winner.html>.

Metcalf, M. (2012), The Bounds of Rationality, *UP Magazine*, May, Issue 5: 40-43.

Trajectory Magazine (2012), USGIF 2012 Awards Program, *Trajectory Magazine*, Winter, 8.

Quinn, K. (2012), Visualizing the Invisible: GMU Pioneers a New Approach to Harvesting GEOINT, *Trajectory Magazine*, Fall, 11-12.

UNIVERSITY SERVICE

University Service at the University at Buffalo

- Ad hoc Coordination Committee for AI Course Development, College of Arts and Sciences (2024)
- Department of Geography PhD Applicant Reviewer (2023, 2024)
- External Search Committee member for Department of Geology (2023).
- Department of Geography Discretionary Award Committee (2021, 2022).
- Department of Geography Mentoring Committee (2023).
- Co-lead of Renewable Energy and Sustainable Communities focus area at for the RENEW institute (2022-present).

University Service at George Mason University

- Creator and Chair of the Computational Social Science Department Web Site Committee (2009-2015).
- Founder and maintainer of the Computational Social Science Program Facebook page and Twitter account (2013- 2020).
- Director of Graduate Studies, Department of Computational Social Science (2012- 2015).
- Computational Social Science Graduate Coordinator (2015- 2016, 2017- 2020).
- Computational and Data Sciences Curriculum Committee Member (2015-2020).
- Krasnow Institute for Advanced Study Seminar Committee Member (2011-2012, 2015-2016).
- Krasnow Institute for Advanced Study Curriculum Committee Member (2013-2015).
- Department Computational and Data Sciences of Curriculum Committee Member (2015-2020).
- Computational and Data Sciences Faculty Search Committee Member (2015-2016, 2 Searches).
- Chair of Computational and Data Sciences Faculty Search Committee (2017-2018, 3 Searches).
- Chair of Computational and Data Sciences Term Faculty Search Committee (2019, 1 Search).
- Computational and Data Sciences Level 1 Promotion and Tenure Committee (2017, 2 cases).
- Master of Arts in Interdisciplinary Studies (MAIS) Executive Committee Member and CSS Concentration Head (2012-2020).
- Distinguished Mentoring Fellow for the Mason's Faculty Mentoring Communities Program (2018-2019).

- Computational and Data Sciences 3rd Year Review Committee (2018, 2019).
- MAIS Director Review Committee Member (2020).

TEACHING AND ADVISING

University Teaching Activities at the University at Buffalo

- GEO 281: *Web-Based GIS* (Undergraduate class), Fall 2020, Fall 2022, Fall 2024.
- GEO 120: Maps: Earth from Above (Undergraduate class), Spring 21, Fall 21, Spring 2023, Spring 2024.
- GEO 503: Spatial Simulation (Graduate class), Spring 21, Spring 22, Spring 24.
- GEO 199: Cities and Complexity (Undergraduate class), Fall 21, Fall 22, Fall 2024.

University Teaching Activities at George Mason University

- CSS 739: *Agent-based Modeling of Urban Systems* (Graduate class), Fall 09.
- CSS 645: *Spatial Agent-based Models of Human-Environment Interactions* (Graduate class), Spring 10, Spring 11, Spring 12, Spring 14, Spring 15, Spring 16, Spring 18, Spring 19, Spring 20.
- CSS 643: *Land-use Modeling Techniques and Applications* (Graduate class), Spring 10, Fall 10.
- CSS 739: *Geographical Information Systems and Agent-based Modeling* (Graduate class), Fall 10.
- CSS 739: *Building Virtual Worlds* (Graduate class), Spring 12.
- CSS 600: *Introduction to Computational Social Science* (Graduate class), Fall 11, Fall 12, Fall 13, Fall 14, Fall 15, Fall 16, Fall 17, Fall 18, Fall 19.
- CSS 739: *Urban Analytics* (Graduate class), Spring 16.
- CSS 899: *Introduction to NetLogo* (Graduate class, 1 credit hour), Fall 11, Fall 13, Fall 14.
- CSS 899: *Introduction to MASON* (Graduate class, 1 credit hour), Spring 14.
- CSS 898: *Research Colloquium in CSS* (Graduate class, 1 credit hour), Spring 11, Fall 13, Spring 15, Spring 16.
- CDS 201: *Introduction to Computational Social Science* (Undergraduate class), Fall 16, Fall 17.

Student Advising

- **Completed PhD. Student Advisor:**
 - Sarah Wise; Computational Social Science; Ph.D. awarded Spring 2014 (Currently a Associate Professor at the Centre for Advanced Spatial Analysis, University College London).
 - Title: *Using Social Media Content to Inform Agent-based Models for Humanitarian Crisis Response.*
 - Ovi Chris Rouly; Computational Social Science; Ph.D. awarded Fall 2015 (First Position: Postdoctoral Fellow at ETH Zurich).
 - Title: *Towards Emergent Social Complexity.*

- Bianica Pires (Pint); Computational Social Science; Ph.D. awarded Summer 2014 (First Position: Postdoctoral Associate at Virginia Tech, currently Lead Modeling & Simulation Engineer at MITRE).
 - Title: *When People Rebel: A Computational Approach to Violent Collective Action*.
- Ross Schuchard; Computational Social Science; Ph.D. awarded Summer 2019 (First Position: Assistant Professor at Naval Postgraduate School).
 - Title: *Examining Adaptation in Complex Online Social Systems*.
- Melanie Swartz; Computational Social Science; Ph.D. awarded Summer 2020 (Data Scientist at the Department of Defense).
 - *Exploring Symbolic Representation of Identity and Collective Behavior in Social Media: Emoji Use in Twitter*.
- Xiaoyi Yuan; Computational Social Science; Ph.D. awarded Summer 2020 (First Position: Data Scientist at FINRA).
 - Title: *Geo-textual Data Analytics Exploring Places and their Connections*.
- Annetta Burger; Computational Social Science; Ph.D. awarded Fall 2020 (First Position: Postdoctoral Associate at New York University)
 - Title: *Disaster through the Lens of Complex Adaptive Systems: Exploring Emergent Groups Utilizing Agent Based Modeling and Social Networks*.
- Talha Oz; Computational Social Science; Ph.D. awarded Fall 2020 (First Position: Computational Social Scientist at Humanyze).
 - Title: *Collective Stress in the Digital Age*.
- Brandon Shapiro, Computational Social Science; Ph.D. awarded Spring 2021 (Current Position: researcher at the Institute for Defense Analyses).
 - Title: *Kinetic Action and Radicalization: Theory, Data, and Model*.
- Carmen Iasiello, Computational Social Science; Ph.D. awarded Spring 2021 (Current Position: Senior Analyst, United States Department of Defense).
 - Title: *An Agent-Based Modeling Approach for Human Resource Management*.
- Yang Zhou; Computational Social Science; Ph.D. awarded Spring 2021 (First Position: Research Analyst at Independent Project Analysis).
 - Title: *Exploring Human Activities in Cities Using Data and Model*.
- **Current PhD students Advising**
 - Qingqing Chen, Geography, UB.
 - Jie He, Computational and Data-Enabled Sciences and Engineering (CDSE), UB.
 - Boyu Wang, Geography, UB.
 - Ying Zhou, Geography, UB.
- **Current Masters students Advising**
 - Zijun Wang, Geography, UB.

- **Current PhD. Candidates Dissertation Committee Member:**
 - Navid Mahdizadeh Gharakhanlou, Geography, Université de Montréal.
 - Suiyuan Wang, Geography, UB.
 - Adam Grodek, Geography, UB.
 - Adam Seybert, Computational Science and Informatics, GMU.
- **Past PhD. Students' Dissertation Committee Member (sorted by date):**
 - Roberto Canavosio-Zuzelski; Geography and Geoinformation Sciences, GMU; Ph.D. awarded Spring 2012.
 - Seyed Mussavi Rizi; Computational Social Science, GMU; Ph.D. awarded Spring 2012.
 - Amit Patel; School of Public Policy, GMU; Ph.D. awarded Summer 2012.
 - Jonathan Clarke; Geography and Geoinformation Sciences, GMU; Ph.D. awarded Fall 2012.
 - Chris Oxendine; Geography and Geoinformation Sciences, GMU; Ph.D. awarded Spring 2013.
 - Atesmachew Hailegiorgis; Computational Social Science, GMU; Ph.D. awarded Fall 2013.
 - Steven Jackson; Geography and Geoinformation Sciences, GMU; Ph.D. awarded Spring 2014.
 - William Mullen; Geography and Geoinformation Sciences, GMU; Ph.D. awarded Spring 2014.
 - Amy Cotnoir; Geography and Geoinformation Sciences, GMU; Ph.D. awarded Fall 2014.
 - George Panteras; Geography and Geoinformation Sciences, GMU; Ph.D. awarded Fall 2014.
 - Xu Lu; Geography and Geoinformation Sciences, GMU; Ph.D. awarded Fall 2014.
 - Ammar Malik; School of Policy, Government, and International Affairs, GMU; Ph.D. awarded Spring 2015.
 - Ernesto Carrella; Computational Social Science, GMU; Ph.D. awarded Summer 2015.
 - Nathan Palmer; Computational Social Science, GMU; Ph.D. awarded Fall 2015.
 - Cristina Metgher; Computational Social Science, GMU; Ph.D. awarded Spring 2016.
 - Hugh McFarlane; Computational Social Science, GMU; Ph.D. awarded Spring 2016.
 - Thomas Dover; Computational Social Science, GMU; Ph.D. awarded Spring 2016.
 - Steve Scott; Computational Social Science, GMU; Ph.D. awarded Spring 2016.
 - Andrew Jenkins; Geography and Geoinformation Sciences, GMU; Ph.D. awarded Fall 2016
 - David Masad; Computational Social Science, GMU; Ph.D. awarded Spring 2016.
 - Holly Russo; Computational Social Science, GMU; Ph.D. awarded Spring 2016.
 - Meysam Alizadeh; Computational Social Science, GMU; Ph.D. awarded Fall 2016.
 - Ron Mahabir; Geography and Geoinformation Sciences, GMU; Ph.D. awarded Fall 2016.
 - Kevin Comer; Computational Social Science, GMU; Ph.D. awarded Spring 2017.
 - Elaine Reed; Computational Social Science, GMU; Ph.D. awarded Fall 2017.
 - Ahmad Aburizaiza; Geography and Geoinformation Sciences, GMU; Ph.D. awarded Fall 2017.

- Shawn Bucholtz; Computational Social Science, GMU; Ph.D. awarded Fall 2017.
- Peter Revay; Computational Social Science, GMU; Ph.D. awarded Fall 2017.
- Matthew Oldham; Computational Social Science, GMU; Ph.D. awarded Spring 2019.
- Chad Bates; Geography and Geoinformation Sciences, GMU; Ph.D. awarded Spring 2019.
- Michael Wolf; Geography and Geoinformation Sciences, GMU; Ph.D. awarded Spring 2019.
- Manqi Li; Geography and Geoinformation Sciences, GMU; Ph.D. awarded Spring 2019.
- Christine Harvey; Computational Science and Informatics, GMU; Ph.D. awarded Fall 2019.
- Chun-Yi Yang; Computational Social Science, GMU; Ph.D. awarded Fall 2019.
- Aisha Sikder; Geography and Geoinformation Sciences, GMU; Ph.D. awarded Spring 2019.
- Mojtaba Zare; Health Services Research, GMU; Ph.D. awarded Summer 2020.
- Katherine (Raven) Russell, Computer Science, GMU; Ph.D. awarded Fall 2020.
- Melonie Richey; Computational Social Science, GMU; Ph.D. awarded Fall 2020.
- Paul Cummings; Computational Social Science, GMU; Ph.D. awarded Fall 2020.
- Troy Curry; Geography and Geoinformation Sciences, GMU; Ph.D. awarded Spring 2021.
- Mona Hemmati; Civil and Environmental Engineering, Colorado State University; Ph.D. awarded Summer 2021.
- Harold Walbert; Computational Social Science, GMU; Ph.D. awarded Summer 2021.
- Farzaneh Davari; Computational Social Science, GMU; Ph.D. awarded Fall 2021.
- Ajay Kulkarni; Computational Science and Informatics; Ph.D. awarded Spring 2022, GMU.
- Jarrod Grewe; Computational Science and Informatics, GMU; Ph.D. awarded Summer 2022.
- Farshid Shoushtarian; Environmental Science and Technology, University of Maryland, College Park. Ph.D. awarded Summer 2022.
- Han Zhang, Geography; Ph.D. awarded Spring 2023, UB.
- Dale Brearcliffe; Computational Social Science; GMU; Ph.D. awarded Fall 2023.
- Moongi Choi, Geography; Ph.D. awarded Spring 2024; University of Utah.
- Amira Al-Khulaidy Stine; Computational Social Science; GMU; Ph.D. awarded Spring 2024.
- Ciara Sibley; Computational Social Science; GMU; Ph.D. awarded Spring 2024.
- Niloofar Bagheri Jebelli; Computational Social Science; GMU; Ph.D. awarded Spring 2024.
- Jay Roorbach, Geography; Ph.D. awarded Summer 2024, UB.
- Salwa Ismail; Computational Social Science; GMU; Ph.D. awarded Summer 2024.
- Fuzhen Yin, Urban and Regional Planning, UB; Ph.D. awarded Summer 2024.
- Collin O'Connor, Geography; Ph.D. awarded Spring 2025, UB.
- **Completed Masters Student Advisor (sorted by date):**
 - Ross Schuchard; Computational Social Science, GMU; Degree Awarded Spring 2015.

- Melanie Swartz; Computational Social Science, GMU; Degree Awarded Spring 2015.
 - Brent Auble; Computational Social Science, GMU; Degree Awarded Spring 2015.
 - Stefani Fournier; Computational Social Science, GMU; Degree Awarded Fall 2015.
 - Justin Brandenburg; Computational Social Science, GMU; Degree Awarded Spring 2016.
 - Paul Cummings; Computational Social Science, GMU; Degree Awarded Fall 2016.
 - Eric Hanson; Computational Social Science, GMU; Degree Awarded Spring 2017.
 - Devin Bright; Computational Social Science, GMU; Degree Awarded Spring 2017.
 - Niloofar Bagheri Jebelli; Computational Social Science, GMU; Degree Awarded Fall 2017.
 - Dale Brearcliffe; Computational Social Science, GMU; Degree Awarded Fall 2017.
 - Yao Houkpati; Computational Social Science, GMU; Degree Awarded Spring 2018.
 - Noelle Douglas; Computational Social Science, GMU; Degree Awarded Spring 2020.
 - Yixuan Zhao, Geographic Information Science, UB; Degree Awarded Spring 2023.
 - Yon-Chien Huang, Geographic Information Science, UB; Degree Awarded Spring 2023.
 - Satya Venkata Siddhartha Bokka, Geographic Information Science, UB; Degree Awarded Spring 2025.
 - Stephen Sanders, MA in Geography, UB; Degree Awarded Spring 2025.
 - Zhongyu Zhou, Geographic Information Science, UB; Degree Awarded Spring 2025.
- **Completed Masters Students' Thesis Committee Member (sorted by date):**
 - Eileen Flynn; Environmental Science & Policy, GMU; Degree Awarded Spring 2012.
 - Kevin Glodava; Geography and Geoinformation Sciences, GMU; Degree Awarded Fall 2014.
 - Tom Holby; Geography and Geoinformation Sciences, GMU; Degree Awarded Fall 2014.
 - Andrew Jenkins; Geography and Geoinformation Sciences, GMU; Degree Awarded Fall 2012.
 - Stephanie Parker; Geography and Geoinformation Sciences, GMU; Degree Awarded Spring 2014.
 - Richard Rodriguez; Geography and Geoinformation Sciences, GMU; Degree Awarded Summer 2014.
 - Gary Esworthy; Geography and Geoinformation Sciences, GMU; Degree Awarded Spring 2016.
 - Matthew Oldham; Computational Social Science, GMU; Degree Awarded Spring 2016.
 - Stefan McCabe; Computational Social Science, GMU; Degree Awarded Spring 2016.
 - Kathryn Kash; Geography and Geoinformation Sciences, GMU; Degree Awarded Spring 2016.
 - Scott Heneghan; Geography and Geoinformation Sciences, GMU; Degree Awarded Spring 2017.

- John J Naylor; Geography and Geoinformation Sciences, GMU; Degree Awarded Spring 2017.
- Reynaldo Molina; Geography and Geoinformation Sciences, GMU; Degree Awarded Summer 2017.
- David Novak; Geography and Geoinformation Sciences, GMU; Degree Awarded Summer 2017.
- Katie Thomas; Geography and Geoinformation Sciences, GMU; Degree Awarded Spring 2018.
- Peter Thomas; Geography and Geoinformation Sciences, GMU; Degree Awarded Spring 2018.
- Jacqueline Hunke; Geography and Geoinformation Sciences, GMU; Degree Awarded Spring 2018.
- Charlie Roe; Computational Social Science, GMU; Degree Awarded Spring 2019.
- Jared Campbell; Geography and Geoinformation Sciences, GMU; Degree Awarded Summer 2019.
- Molly Phillips; Geography and Geoinformation Sciences, GMU; Degree Awarded Fall 2019.
- **Completed Masters Students' Project Committee Member (sorted by date):**
 - Jessica Hughes; Computational Social Science, GMU; Degree Awarded Spring 2014.
 - Mike Livermore; Computational Social Science, GMU; Degree Awarded Spring 2015.
 - Rui Zhang; Computational Social Science, GMU; Degree Awarded Spring 2016.
 - Marta Hansen; Computational Social Science, GMU; Degree Awarded Fall 2016.
 - Tung-Lin Liu; MAIS in Computational Social Science, GMU; Degree Awarded Spring 2018.
 - Fahad Aloraini; Computational Social Science, GMU; Degree Awarded Fall 2019.

- **Other:**

- Thomas Jefferson High School for Science and Technology Mentorship Program (2013-2014)
 - Student subsequently won second place in the Computer Science category of the Intel International Science and Engineering Fair.
- Aspiring Scientists Summer Internship Program Mentor (2015, 2016).
 - One student subsequently won the ACM and the Computer Science Teachers Association 2017 Cutler-Bell Prize in High School Computing

PROFESSIONAL SERVICE

Reviews & Editorial Boards

Editorial Service:

- Co-editor of Environment and Planning B: Urban Analytics and City Science (2020-present).
- Co-editor of Cartographica: The International Journal for Geographic Information and Geovisualization (2010-2012).

Editorial Boards:

- Future Internet Journal (2009-present).
- Big Data & Society: Critical Interdisciplinary (2014-2021).
- Cartographica (2014-present).
- Journal of Artificial Societies and Social Simulation (2014-present).
- Geographical Analysis (2017-present).
- International Journal of Geographical Information Science (2019-present).
- Computers, Environment and Urban Systems (2019-present).
- ISPRS International Journal of Geo-Information (2019-present).
- Annals of the American Association of Geographers (2023-present).

Reviewed Papers for the Following Journals:

- Annals of the American Association of Geographers.
- Annals of GIS.
- Artificial Intelligence for Engineering Design, Analysis and Manufacturing.
- Applied Geography.
- Applied Spatial Analysis and Policy.
- Big Data & Society.
- Cartographica.
- Computational and Mathematical Organization Theory.
- Computers, Environment and Urban Systems.
- Digital Health.
- Disasters Journal.
- Earth Science Informatics.
- Ecology and Society.
- Environmental Earth Sciences.
- Environment and Planning: A.
- Environment and Planning: B.
- Environmental Modelling & Software.
- European Journal of GIS and Spatial Analysis.
- Land.
- Landscape Ecology; Landscape and Urban Planning.
- Geographical Analysis.
- IEEE Pervasive Computing.
- International Journal of Geographical Information Science.
- ISPRS International Journal of Geo-Information.
- Journal of the American Society for Information Science and Technology.
- Journal of Artificial Societies and Social Simulation.
- Journal of Computational Science.
- Journal of Environmental Management.
- Journal of Geographical Systems.
- Journal of Urban Health.
- Marine Policy.
- Nature Scientific Reports.
- Open Archaeology.
- Proceedings of the National Academy of Sciences.
- Progress in Human Geography.

- Systems.
- Simulation: Transactions of the Society for Modeling and Simulation International.
- Social Science Computer Review.
- Stochastic Environmental Research and Risk Assessment.
- Transactions in GIS.
- Transactions on Information Systems.
- Transactions on Spatial Algorithms and Systems.
- Urban and Regional Information Systems Association Journal.

Reviewed Conference Papers for:

- GeoComputation (2011).
- Behavior Representation in Modeling and Simulation Conference (2011, 2012, 2013, 2015).
- International Conference on Design Computing and Cognition (2012, 2014, 2016).
- International Conference on Social Computing, Behavioral-Cultural Modeling, & Prediction and Behavior Representation in Modeling and Simulation (SBP-BRiMS, 2018).
- IEEE International Conference on Intelligent Transportation Systems (2019)
- Winter Simulation Conference (2013,2019).

Program / Scientific Review Committee:

- The Computational Social Science Society of the Americas Conference (2011, 2015, 2016, 2017, 2019, 2022, 2023, 2024).
- Epistemological Perspectives on Simulation (EPOS 5, 2012).
- Intelligent Agents in Urban Simulations and Smart Cities workshop (2012).
- SLACTIONS (2012, 2013).
- International Workshop on Multi-Agent-Based Simulation (MABS, 2013).
- National Socio-Environmental Synthesis Center (SESYNC) Scientific Review Committee (2014-2018).
- 5th World Congress on Social Simulation (WCSS, 2014).
- SocInfo (2014, 2017, 2018, 2019, 2020).
- Conferences on Complex Systems (CCS, 2015).
- Social Simulation Conference (SSC, 2016, 2018, 2020, 2022, 2023, 2024).
- The International Conference on Complex Information Systems (COMPLEXIS, 2016, 2017, 2018).
- International Conference on Social Computing, Behavioral-Cultural Modeling, & Prediction and Behavior Representation in Modeling and Simulation (SBP-BRiMS, 2016, 2019, 2021, 2022, 2023, 2024).
- International Symposium on Location-Based Social Media and Tracking Data (2017).
- Agent Directed Simulation (ADS) Symposium at SpringSim (2017).
- Agent-Based Modelling of Urban Systems (ABMUS) Workshop (2017, 2018, 2019).
- European Symposium Series on Societal Challenges in Computational Social Science (2017).
- Annual International Conference on Computational Social Science (IC2S2, 2018, 2019, 2020).
- Rethinking the ABCs: Agent-Based Models and Complexity Science in the age of Big Data Workshop at GIScience 2018.
- International Workshop on Geospatial Simulation at ACM SIGSPATIAL (2018, 2019, 2020, 2021, 2022, 2023,2024).

- Annual Simulation Symposium track at the 2019 Spring Simulation Conference.
- International Workshop on Location-based Recommendations, Geosocial Networks and Geoadvertising (2019, 2020).
- AI and Simulation (AIS) Track, Annual Modeling (formally Spring) and Simulation Conference (2020, 2021, 2022).
- Data Science for Simulation Track, Winter Simulation Conference (2020, 2021, 2022, 2023, 2024).
- Agent-Based Simulation Track, Winter Simulation Conference (2020, 2021, 2022, 2023, 2024).
- Modeling Methodology Track, Winter Simulation Conference (2024).
- Humans, Societies, and Artificial Agents (HSAA) Track, Annual Modeling and Simulation Conference (2022, 2023, 2024).

Reviewed Grant Applications for:

- National Science Foundation (2010, 2012, 2013, 2014, 2016, 2018, 2021, 2023, 2025).
- Economic and Social Research Council, UK (2010, 2011, 2014).
- U.S. Department of Energy (2011).
- Advanced Research Projects Agency – Energy (2015)
- Marie Curie Individual Fellowship (2011).
- Mitacs, Canada (2014, 2021).
- Technology Foundation STW, The Netherlands (2013).
- National Socio-Environmental Synthesis Center (2014, 2015).
- Government of Ontario (2014).
- The Netherlands Organisation for Scientific Research (2014, 2019).
- European Research Council (2015, 2017).
- Israel Science Foundation (2016).
- Natural Sciences and Engineering Research Council of Canada (2016).
- The Leverhulme Trust (2017).

External Promotion and Tenure Reviews

- University College London, Hong Kong University of Science and Technology (Guangzhou), University of Montreal, William and Mary, University of Southampton, Rochester Institute of Technology, Arizona State University, University of Florida, Boston University.

External PhD. Examiner:

- Jacobus Marthinus van Rooyen, Birkbeck, University of London (2021)
- Cheng Liu, The University of Auckland (2015).
- Anthony Jjumba, Simon Fraser University (2015).
- Sedar Olmez, University of Leeds (2024).
- Majeed Pooyandeh, University of Calgary (2014).
- Conrad Power, Memorial University of Newfoundland (2014).
- Alex Smith, Simon Fraser University (2022).

Organization

Co-organized 2 sessions entitled: *Geosimulations for Addressing Societal Challenges* at the The Association of American Geographers (AAG) Annual Meeting, 24th –28th March, Detroit, MI.

Co-organized 3 sessions entitled: *Geosimulations for Addressing Societal Challenges* at the Association of American Geographers (AAG) Annual Meeting, 16th-20th, April, 2024, Honolulu, HI.

Co-organized the Spatial Data Science for Disaster Resilience Session at the 2023 Spatial Data Science Symposium, 5th – 6th September, 2023 Virtual.

Co-organized a Symposium on “Why Agent-Based Modeling (ABM)?: ABM usefulness for Management theory creation and validation” at the Academy of Management Annual Meeting, 29th July – 4th August, 2021, Virtual.

Co-organized the Humans, Societies, and Artificial Agents (HSAA) track at 2021 Annual Modeling and Simulation Conference (ANNSIM), 19th-22nd 2021, July, Virtual.

Co-organized the Humans, Societies, and Artificial Agents (HSAA) track at 2020 Spring Simulation Conference (SpringSim’20), 19th-21st 2020, May, Virtual.

Co-organized the 1st International Workshop on Geospatial Simulation at ACM SIGSPATIAL 2018, 6th-9th 2018, November, Seattle, WA.

Co-organized 5 sessions entitled: *Innovations in Urban Analytics* at the Association of American Geographers (AAG) Annual Meeting, 10th-14th, April, 2018, New Orleans, LA.

Co-organized 2 sessions entitled: *Agents - the ‘atomic unit’ of social systems?* at the Association of American Geographers (AAG) Annual Meeting, 5th-9th, April, 2017, Boston, MA.

Co-organized 3 sessions entitled: *Urban Analytics* at the Association of American Geographers (AAG) Annual Meeting, 29th March - 2nd April, 2016, San Francisco, CA.

Co-organized 3 sessions entitled: *Geosimulation and Big Data: A Marriage made in Heaven or Hell?* at the Association of American Geographers (AAG) Annual Meeting, 21st -25th April, 2015, Chicago, IL.

Co-organized 4 sessions entitled: *Geocomputation* at the 61st Annual North American Meetings of the Regional Science Association International, 12th - 16th, November, 2014, Washington, DC.

Co-organized a 2.5 day workshop entitled: *How can social media can be used to explore coupled natural-human systems?*, at the National Socio-Environmental Synthesis Center, July 28th -30th July, 2014, Annapolis, MD. (Funds for the workshop were awarded through a competitive competition).

Co-organized 3 sessions entitled: *Geosimulation Models*, at the Association of American Geographers (AAG) Annual Meeting, 8th-12th April, 2014, Tampa, FL.

Co-organized 4 sessions entitled: *Agent-Based & Cellular Automata Models for Geographical Systems*, at the Association of American Geographers (AAG) Annual Meeting, 9th-13th April, 2013, Los Angeles, CA.

Co-organized 9 sessions entitled: *Agent-Based Models and Geographical Systems*, at the Association of American Geographers (AAG) Annual Meeting, 24th-28th February, 2012, New York, NY.

Co-organized 7 sessions entitled: *Perspectives on Geographic Complexity*, at the Association of American Geographers (AAG) Annual Meeting, 14th-18th April, 2010, Washington, DC.

Co-organized a session entitled: *Concepts, Tools and Applications: The Rise of Neogeography*, at the Association of American Geographers (AAG) Annual Meeting, 22nd -27th March, 2009, Las Vegas, NV.

Co-organized a 2 Day workshop at CASA exploring digital geography in the Web 2.0 world, and spatial analysis and modeling of urban systems. Over 150 people from the public and private sector attended the event. Part of the S4-European Modelling Tour, 8th-9th January, 2009, London, England.

Workshops

Invitations to teach classes at:

Crooks, A.T. (2015), *GIS and Agent-Based Modeling*, Computational Social Science: Algorithms, Data, and Models for Social and Urban System, Lipari, Italy, July 26th - August 1st.

Crooks, A.T. (2010), *GIS and Agent-based modeling for Exploring Human-Environment Interactions*, 4th Annual French Complex Systems Summer School, Paris, France, August 2nd-20th.

Batty, M. and **Crooks, A.T.** (2007), *Agent-Based Spatial Simulation Models*, Researcher School of the European Research Group (ERG-S4) Spatial Simulation for Social Sciences & of the Society for Economic Science with Heterogeneous Interacting Agents. La Londe, France, September 17th-22nd.

Executive Education

GeoSocial Analysis

- Combining social network analysis with social media and geography for the National Geospatial-Intelligence Agency (NGA) College.
 - Co-taught with Arie Croitoru and Anthony Stefanidis.