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 110 peer reviewed journal articles, book chapters, reports and conference proceedings. Google Scholar lists his citation count to be over 5200 with a H-index of 34 and an I-index of 64. 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 $5 Million of external funding as PI or Co-PI. More information about this work can be seen at: http://www.gisagents.org.

SELECTED EMPLOYMENT

From Sep 2020   ***Professor.***
Department of Geography, College of Arts and Sciences, University at Buffalo, NY, USA.

Aug 2015-Aug 2020   ***Associate Professor.***
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   ***Co-Director***
Center for Social Complexity, George Mason University, VA, USA.

Aug 2009-Aug 2015   ***Assistant Professor.***
Department of Computational Social Science, Krasnow Institute for Advanced Study, George Mason University, VA, USA.

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

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

GRANTS

External Grants

Oct 2019- Oct 2020	Department of Homeland Security "*A Crowdsourced Gazetteer for Monitoring Cartel Activity*" ($199,850) PI: Croitoru, A. Co-PI: **Crooks, A.T.**
Dec 2017- June 2020	Defense Advanced Research Projects Agency "A Ground-truth Simulator for Spatio-Social Alternate Worlds (GT-S3)." ($1,544,290). PI: Zufle, A., Co-PIs: Pfoser, D., **Crooks, A.T.** and Wenk, C
Sep 2017- Aug 2020	National Science Foundation "*CI-EN: Enhancement of a Large-scale Multiagent Simulation Tool*" ($896,303). PI: Luke S., Co-PIs: **Crooks, A.T.** and Simon, R.P.
Feb-July 2017	Defense Advanced Research Projects Agency "*Megacities Command and Control Assessment Capability.*" ($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 "*Generation and Management of Crowdsourced Place Gazetteers*" ($284,963). PI: Pfoser, D. Co-PIs**: Crooks, A.T.,** Croitoru, A. and Stefanidis, A.
May 2016- May 2020	Defense Threat Reduction Agency "*Nuki: A Framework for Modeling Society Following a Nuclear WMD Event*" ($611,956). PI: Kennedy, W. Co-PI: **Crooks, A.T.**
Sep 2014- Sep 2016	National Geospatial Intelligence Agency "*Crowdsourced Gazetteers to Communicate Place Dynamics*" ($297,915). PI: Pfoser, D. Co-PIs: Stefanidis, A., Croitoru, A. and **Crooks, A.T.**
Sep 2012- Sep 2015	U.S. Army Engineer Research and Development Center (ERDC) "*Hi-Span: Hierarchical Multiscale Structure of Spatiotemporal Neighborhoods in Human Terrain.*" ($218,997). PI: Stefanidis, A. Co-PI: **Crooks, A.T.**
Sep 2012- Aug 2013	National Science Foundation "*An Integrated Simulation Framework to Explore Spatio-temporal Dynamics of Slum Formation in Ahmedabad, India.*" ($99,205). PI: **Crooks, A.T.** Co-PI: Koizumi, N.
Sep 2012- Aug 2013	U.S. Agency for International Development (USAID) "Agent-Based Modeling Simulations for Solving Pakistan's Urban Challenges." ($40,000).

	PI: Root, H. Co-PI: **Crooks, A.T.**
July 2012- June 2013	Draper Laboratory "*Geosocial Analysis of Social Media Feeds.*" ($124,998). PI: Stefanidis, A. Co-PIs: Croitoru, A.and **Crooks, A.T.**
May 2012- Oct 2013	EADS North America "*Social Modeling for Homeland Security Applications.*" ($333,987). PI: Łatek, M.M. Co-PI: **Crooks, A.T.**
June 2011- Nov 2011	EADS North America "*Computational Science Modeling of US Southern Border Security.*" ($67,498). PI: **Crooks, A.T.** Co-PI: Łatek, M.M.
Apr 2008	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 or Co-PI: $5,094,962.

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). PI: Esmaeili, B. Co-PIs: **Crooks, A.T.** and Peterson, M.
Sep 2016- Aug 2017	College of Science Seed Grant, George Mason University, "*Exodus 2.0: Mass Migration in the Digital Era.*" ($9,750). PI: Croitoru, A. Co-PIs: **Crooks, A.T.**, Pfoser, D., Stefanidis, A. and Zufle, A.
Sep 2015- Aug 2016	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

May 2020	Best Paper Award Runner-Up at the 2020 Spring Simulation Conference.
Aug 2019	Best Vision Paper Award Runner-Up at the 16th International Symposium on Spatial and Temporal Databases.
July 2018	Best Paper at the 9th International Conference on Social Media & Society.
Oct 2012	2012 United States Geospatial Intelligence Foundation (USGIF) Achievement Award for Academic Research.

PUBLICATIONS

Table 1: Summary of Publications and Impact

	Total
Refereed Publications	**123**
Journal Publications	54
Book Chapters	22
Fully Refereed Conference Publications	47
Citations[2]	5246
h-index	34
i10 Index	64

Journal Articles ([†]Denotes graduate student collaborator)

[†]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. Available at https://doi.org/10.3390/ijgi9060385.

[†]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. Available at https://doi.org/10.3390/ijgi9060341.

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.

[†]Yuan, X., [†]Schuchard, R. and **Crooks, A.T.** (2019), Examining Emergent Communities and Detecting Social Bots within the Polarized Online Vaccination Debate in Twitter, *Social Media + Society*. Available at https://doi.org/10.1177/2056305119865465.

[†]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. Available at https://doi.org/10.1007/s41109-019-0164-x.

Lopez, B., Magliocca, N. and **Crooks, A.T.** (2019), Challenges and Opportunities of Social Media Data for Socio-environmental Systems Research, *Land,* 8(7), 107. Available at https://www.mdpi.com/2073-445X/8/7/107/htm.

†Burger, A., †Oz, T., Kennedy, W.G. and **Crooks, A.T.** (2019), Computational Social Science of Disasters: Opportunities and Challenges, *Future Internet,* 11(5): 103; Available at https://doi.org/10.3390/fi11050103.

†Curry, T., Croitoru, A., **Crooks, A.T**. and Stefanidis, A. (2019), Exodus 2.0: Crowdsourcing Geographical and Social Trails of Mass Migration, *Journal of Geographical Systems,* 21 (1): 161-187.

†Mahabir, R., Croitoru, A., **Crooks, A.T.**, Agouris, P. and Stefanidis, A. (2018), News Coverage, Digital Activism, and Geographical Saliency: A Case Study of Refugee Camps and Volunteered Geographical Information, *PLoS ONE*, 13(11): e0206825.

†Hailegiorgis, A.B., **Crooks, A.T.** and Cioffi-Revilla, C. (2018), An Agent-Based Modeling of Rural Households' Adaptation to Climate Change*, Journal of Artificial Societies and Social Simulation,* 21 (4): 4. Available at http://jasss.soc.surrey.ac.uk/21/4/4.html.

†Zhang, R., Tian, Q., Jiang, L., **Crooks, A.T.,** Qi, S. and Yang, R. (2018), Projecting Cropping Patterns around Poyang Lake and Prioritizing Areas for Policy Intervention to Promote Rice: A Cellular Automata Model, *Land Use Policy*, 74: 248-260.

†Mahabir, R., Croitoru, A., **Crooks, A.T.,** Agouris, P. and Stefanidis, A. (2018), A Critical Review of High and Very High Resolution Remote Sensing Approaches for Detecting and Mapping Slums: Trends, Challenges and Emerging Opportunities, *Urban Science*, 2(1): 8; DOI: 10.3390/urbansci2010008.
>   *2nd most cited article in the journal since 2015.* [3]

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.

†Mahabir, R., Stefanidis, A., Croitoru, A., **Crooks, A.T.** and Agouris, P. (2017), Authoritative and Volunteered Geographical Information in a Developing Country: A Comparative Case Study of Road Datasets in Nairobi, Kenya, *ISPRS International Journal of Geo-Information*, 6(1): 24, DOI:10.3390/ijgi6010024.

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[3] Rank based on Google Scholar Metrics for articles published since 2015: http://tinyurl.com/GoScholar

[†]Pires, B. and **Crooks, A.T.** (2017), Modeling the Emergence of Riots: A Geosimulation Approach, *Computers, Environment and Urban Systems,* 61: 66-80.

[†]Alizadeh, M., Cioffi-Revilla, C. and **Crooks, A.T.** (2017), Generating and Analyzing Spatial Social Networks, *Computational and Mathematical Organization Theory*, 23(3): 362-390.

Crooks, A.T., Croitoru, A., [†]Jenkins, A., [†]Mahabir, R., Agouris, P. and Stefanidis A. (2016), User-Generated Big Data and Urban Morphology, *Journal Built Environment*, 42 (3): 396-414.

[†]Mahabir, R., **Crooks, A.T.,** Croitoru, A. and Agouris, P. (2016), The Study of Slums as Social and Physical Constructs: Challenges and Emerging Research Opportunities, *Regional Studies, Regional Science,* 3(1): 737-757.
    3rd most cited article in the journal since 2015.

[†]Jenkins A., Croitoru, A. **Crooks, A.T.** and Stefanidis, A. (2016), Crowdsourcing A Collective Sense of Place, *PLoS ONE*, 11(4): e0152932. DOI:10.1371/journal.pone.0152932.

Stefanidis, A., [†]Jenkins A., Croitoru, A. and **Crooks, A.T.** (2016), Megacities Through the Lens of Social Media, *Journal of the Homeland Defense & Security Information Analysis Center (HDIAC)*, 3(1): 24-29.

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.
    7th most cited article in the journal since 2015.

Heppenstall, A., Malleson, N. and **Crooks A.T.** (2016). "Space, the Final Frontier": How Good are Agent-based Models at Simulating Individuals and Space in Cities?, *Systems,* 4(1): 9.

[†]Radzikowski, J., Stefanidis, A., Jacobsen K.H., Croitoru, A., **Crooks, A.T.** and Delamater, P.L. (2016), The Measles Vaccination Narrative in Twitter: A Quantitative Analysis, *JMIR Public Health and Surveillance*, 2(1): e1.
    4th most cited article in the journal since 2015.

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.
    4th most cited article in the journal since 2015.

[†]Malik, A.A., **Crooks, A.T**., Root, H.L. and [†]Swartz, M. (2015), Exploring Creativity and Urban Development through Agent-Based Modeling, *Journal of Artificial Societies and Social Simulation,* 18 (2): 12. Available at http://jasss.soc.surrey.ac.uk/18/2/12.html.

Crooks, A.T., Pfoser, D., †Jenkins, A., Croitoru, A., Stefanidis, A., Smith, D. A., Karagiorgou, S., Efentakis, A. and Lamprianidis, G. (2015), Crowdsourcing Urban Form and Function, *International Journal of Geographical Information Science,* 29(5): 720-741.
   5th *most cited article in the journal since 2015.*

Croitoru, A., Wayant, N., **Crooks, A.T.,** †Radzikowski, J. and Stefanidis, A. (2015), Linking Cyber and Physical Spaces Through Community Detection And Clustering in Social Media Feeds, *Computers, Environment and Urban Systems,* 53: 47-64.
   37th most cited article in the journal since 2015.

†Panteras, G., †Wise, S., †Lu, X., Croitoru, A., **Crooks, A.T.** and Stefanidis, A. (2015), Triangulating Social Multimedia Content for Event Localization using Flickr and Twitter, *Transactions in GIS*, 19(5): 694-715.
   8th *most cited article in the journal since 2015.*

†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.
   20th *most cited article in the journal since 2015.*

Crooks, A.T. and †Hailegiorgis, A.B. (2014), An Agent-based Modeling Approach Applied to the Spread of Cholera, *Environmental Modelling & Software*, 62: 164-177.

Crooks, A.T., †Masad, D., Croitoru, A., †Cotnoir, A., Stefanidis, A. and †Radzikowski, J. (2014), International Relations: State-Driven and Citizen-Driven Networks, *Social Science Computer Review,* 32(2): 205-220.

Patel, P., Koizumi, N. and **Crooks, A.T.** (2014), Measuring Slum Severity in Mumbai and Kolkata: A Household-based Approach*, Habitat International*, 41: 300-306.

Croitoru, A., **Crooks, A.T.,** †Radzikowski, J. and Stefanidis, A. (2013), GeoSocial Gauge: A System Prototype for Knowledge Discovery from Social Media, *International Journal of Geographical Information Science*, 27 (12): 2483-2508.

Crooks, A.T. and †Wise, S. (2013), GIS and Agent-Based models for Humanitarian Assistance, *Computers, Environment and Urban Systems*, 41: 100-111.

†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, *ISPRS International Journal of Geo-Information,* 2 (2): 507-530.

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, *Cartography and Geographic Information Science,* 40 (2): 116-129.

Stefanidis, T., **Crooks, A.T.** and †Radzikowski, J. (2013), Harvesting Ambient Geospatial Information from Social Media Feeds, *GeoJournal,* 78(2): 319-338.

Crooks, A.T., Croitoru, A., Stefanidis, A. and †Radzikowski, J. (2013), #Earthquake: Twitter as a Distributed Sensor System, *Transactions in GIS,* 17(1): 124-147.

†Wise, S. and **Crooks, A.T.** (2012), Agent Based Modelling and GIS for Community Resource Management: Acequia-based Agriculture, *Computers, Environment and Urban Systems,* 36(6): 562-572.

[†]Patel, A., **Crooks, A.T.** and Koizumi, N. (2012), Slumulation: an Agent-based Modeling Approach to Slum Formations, *Journal of Artificial Societies and Social Simulation*, 15 (4): 2. Available at http://jasss.soc.surrey.ac.uk/15/4/2.html

Crooks, A.T. (2010), Constructing and Implementing an Agent-Based Model of Residential Segregation through Vector GIS, *International Journal of Geographical Information Science*, 24(5): 661-675.

Batty, M., Hudson-Smith, A., Milton, R. and **Crooks, A.T.** (2010), Map MashUps, Web 2.0 and the GIS Revolution, *Annals of GIS*, 16(1): 1-13.

Crooks, A.T., Hudson-Smith, A., and [†]Dearden, J. (2009), Agent Street: An Environment for Exploring Agent-Based Models in Second Life, *Journal of Artificial Societies and Social Simulation*, 12 (4): 10. Available at http://jasss.soc.surrey.ac.uk/12/4/10.html

Hudson-Smith, A., **Crooks, A.T.,** Gibin, M., Milton, R., and Batty, M. (2009), Neogeography and Web 2.0: Concepts, Tools and Applications, *Journal of Location Based Services,* 3(2): 118-145.

Masucci, A. P., [†]Smith, D., **Crooks, A.T.** and Batty, M. (2009), Random Planar Graphs and the London Street Network, *The European Physical Journal B,* 71 (2): 259-271.

Hudson-Smith, A., Batty, M., **Crooks, A.T.,** and Milton R. (2009), Mapping Tools for the Masses: Web 2.0 and Crowdsourcing, *Social Science Computer Review*, 27 (4): 524-538.

Hudson-Smith, A. and **Crooks, A.T.** (2008), Building Space in the Machine: Digital Tool Kits for Mirror Worlds, *AGORA: Dutch Journal for Social-Spatial Questions*, 2008(4): 27-29.

Crooks, A.T., Castle, C. J. E., and Batty, M. (2008), Key Challenges in Agent-Based Modelling for Geo-spatial Simulation, *Computers, Environment and Urban Systems,* 32(6): 417-430.

Impact factors: Adv. Complex Syst: 0.867, Ann. GIS: 1.58, ANS: 0.67, Cartogr. Geogr. Inf. Sci: 2.271, Comput. Environ. Urban Syst: 3.393, Comput. Math. Organ. Theory: 1.372, Criminol. Public Policy: 2.684, EcoHealth: 2.225, Environ. Modell. Softw. 4.552, Eur. Phys. J. B: 1.440, GeoJournal:1.83, Habitat Int: 3.846, Int. J. Digit. Earth: 3.985, Int. J. Geogr. Inf. Sci: 3.545, ISPRS Int. Geo-Inf: 1.840, JASSS: 2.194, J. Geogr. Syst: 1.417, J. Health Commun: 1.773, J. LBS: 1.33, JMIR: 3.188, Land: 2.429; Land Use Pol: 3.573, Landsc. Urban Plan: 5.144, PLoS One: 2.776, SM+S: 3.50, Soc. Sci. Comput. Rev: 2.922, Trans. GIS: 2.188[4].

Book

Crooks, A.T., Malleson, N., Manley, E. and Heppenstall, A.J. (2019), *Agent-based Modelling and Geographical Information Systems: A Practical Primer*, Sage, London, UK.

Edited Book

Heppenstall, A.J., **Crooks, A.T.,** Batty, M. and See, L.M. (eds.), (2012) *Agent-based Models of Geographical Systems*. Springer, New York, NY. 759 pages.

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[4] Impact factors sourced from Clarivate Analytics InCites and Scopus Citescore.

Editorials

Heppenstall, A. and **Crooks, A.T.** (2019), Guest Editorial for Spatial Agent-based Models: Current Practices and Future Trends, *GeoInfomatica,* 23(2): 243-268.

Crooks, A.T., Schechtner, K., Day, A.K and Hudson-Smith, A (2017), Creating Smart Buildings and Cities, *IEEE Pervasive Computing*, 16 (2): 23-25.

Book Chapters ([†]Denotes graduate student collaborator)

Malleson, N., Heppenstall, A. and **Crooks, A.T.** (2018). Place-Based Simulation Modelling: Agent-Based Modelling and Virtual Environments, *Oxford Research Encyclopedia of Criminology and Criminal Justice*, Oxford University Press. DOI: 10.1093/acrefore/9780190264079.013.319

Crooks, A.T., Malleson, N., [†]Wise, S. and Heppenstall, A. (2018), Big Data, Agents and the City, in Schintler, L.A. and Chen, Z. (eds.), *Big Data for Urban and Regional Science*, Routledge, New York, NY, pp. 204-213.

[†]Patel, A., **Crooks, A.T.** and Koizumi, N. (2018), Spatial Agent-based Modeling to Explore Slum Formation Dynamics in Ahmedabad, India, in Thill J.C. and Drajicavic, S. (eds.), *Geocomputational Analysis and Modeling of Regional Systems*, Springer, New York, NY, pp. 121-141.

Crooks, A.T., Heppenstall, A. and Malleson, N. (2018), Agent-based Modelling, in Huang, B. (ed), *Comprehensive Geographic Information Systems*, Elsevier, Oxford, England. Volume 1, pp. 218-243 DOI: https://doi.org/10.1016/B978-0-12-409548-9.09704-9.

Crooks, A.T. (2017), Cellular Automata, in Richardson, D., Castree, N., Goodchild, M. F., Kobayashi, A. L., Liu, W. and Marston, R. (eds.), *The International Encyclopedia of Geography: People, the Earth, Environment, and Technology*, John Wiley & Sons, Hoboken, NJ, DOI: 10.1002/9781118786352.wbieg0605.

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[†]Wise, S. **Crooks, A.T.** and Batty, M. (2017), Transportation in Agent-Based Urban Modelling, in Namazi-Rad, M., Padgham, L., Perez, P., Nagel, K. and Bazzan, A. (eds), Agent Based Modelling of Urban Systems, Springer, New York, NY, pp. 129-148.

Heppenstall, A. and **Crooks, A.T**. (2016), Agent-based Modeling in Geographical Systems, *AccessScience*, McGraw-Hill Education, Columbus, OH, DOI: http://dx.doi.org/10.1036/1097-8542.YB160741.

Crooks, A.T. (2014), Agent-based Models and Geographical Information Systems, in Brunsdon, C. and Singleton, A. (eds.), *Geocomputation: A Practical Primer*, Sage, London, England, pp. 63-77.

Stefanidis, A., **Crooks, A.T.,** [†]Radzikowski, J., Croitoru, A. and Rice, M. (2014), Social Media and the Emergence of Open-Source Geospatial Intelligence, in Murdock, D.G.,

Tomes, R. and Tucker, C. (eds.), *Human Geography: Socio-Cultural Dynamics and Global Security,* US Geospatial Intelligence Foundation (USGIF), Herndon, VA, pp. 109-123.

Crooks, A.T., [†]Patel, A. and [†]Wise, S. (2014), Multi-agent Systems for Urban Planning, in Pinto, N.N., Tenedório, J. Antunes A. P. and Roca, J. (eds.), *Technologies for Urban and Spatial Planning: Virtual Cities and Territories*, IGI Global, Hershey, PA, pp. 29-56.

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Kim, J-S., Jin, H., Kavak, H., [†]Rouly, O.C., **Crooks, A.T.**, Pfoser, D., Wenk, C. and Züfle, A. (2020), Location-Based Social Network Data Generation Based on Patterns of Life, *The 21st IEEE International Conference on Mobile Data Management*, Versailles, France

[†]Jiang, N. and **Crooks, A.T.** (2020), Utilizing Agents to Explore Urban Shrinkage: A Case Study of Detroit, *2020 Spring Simulation Conference (SpringSim'20)*, Fairfax, VA.

[†]Sibley, C. and **Crooks, A.T.** (2020), Exploring the Effects of Link Recommendations on Social Networks: An Agent-Based Modeling Approach, *Spring Simulation Conference (SpringSim'20)*, Fairfax, VA. **Best Paper Award Runner-Up.**

[†]Swartz, M. and Crooks, A.T. (2020), Comparison of Emoji Use in Names, Profiles, and Tweets, *The Eighth IEEE International Workshop on Semantic Computing for Social Networks and Organization Sciences: From User Information to Social Knowledge*, San Diego, CA.

[†]McEligot, K. Brouse, P. and **Crooks A.T.** (2019), Sea Bright, New Jersey Reconstructed: Agent-Based Protection Theory Model Responses to Hurricane Sandy, in Mustafee, N., Bae, K.-H.G., Lazarova-Molnar, S., Rabe, M., Szabo, C., Haas, P. and Son, Y-J. (eds.), *Proceedings of the 2019 Winter Simulation Conference*, National Harbor, MD, pp 251-262.

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[†]Bagheri-Jebelli, N., **Crooks, A.T.** and Kennedy, W.G. (2019), Capturing the Effects of Gentrification on Property Values: An Agent-Based Modeling Approach, *The 2019 Computational Social Science Society of Americas Conference*, Santa Fe, NM.

[†]Burger, A., Kennedy, W.G., **Crooks, A.T.**, [†]Jiang, N. and [†]Guillen-Piazza, D. (2019), Modeling Social Networks in an Agent-Based Model of a Nuclear Weapon of Mass Destruction Event, *The 2019 Computational Social Science Society of Americas Conference*, Santa Fe, NM.

[†]Bates, C.T., Croitoru, A., **Crooks, A.T.** and Harclerode, E. (2019), The Impact of Message Quality on Entity Location and Identification Performance in Distributed Situational Awareness, *Proceedings of the SPIE Optics + Photonics*, San Diego, CA. Paper 11137-64.

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†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.**

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†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.

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†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.

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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

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 of 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 Challenge*s, 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 (GGS 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 (GGS 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, (GGS 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 †Łatek, 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)

Kim, J-S., Kavak, H., [†]Rouly, C.O., Jin, H., **Crooks, A.T.**, Pfoser, D., Wenk, C. and Zufle, 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.

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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.

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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.

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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)

[†]Jiang, N., [†]Burger, A., [†]Guillen-Piazza, D., **Crooks, A.T.** and Kennedy, W.G. (2020), Modeling a Society's Reaction to a Disaster: An Agent Based Modeling Approach, The Association of American Geographers (AAG) Annual Meeting, 6th-10th, April, Denver, CO.

[†]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.

[†]West, J.M., Hieb, M.R. and **Crooks, A.T. (2019),** *Modeling Behavior in Drivers of Autonomous Vehicles in Evacuation Situations*, 87th Symposium of the Military Operations Research Society (MORS), 17th-20th June, U.S. Air Force Academy, CO.

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.

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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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†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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†Malik, A., †Swartz, M., **Crooks, A.T.** and Root, H. (2013), *Agent-Based Modeling Simulations for Solving Pakistan's Urban Challenge*, SWARMFEST 2013: 17th Annual Swarmfest Conference, 8th-9th, July, Orlando, FL.

†Malik, A., †Swartz, M., Root, H. and **Crooks, A.T.** (2013), *Creative Karachi: Using Agent-Based Models to Explore Pakistan's Urban Challenges and Opportunities*, The 6th Annual Experience the Creative Economy Conference, 18th-21st, June, Toronto, Canada.

†Patel, A., **Crooks, A.T.** and Koizumi, N. (2013), *A Spatial ABM Approach to Explore Slum Formation Dynamics in Ahmedabad, India*, The Association of American Geographers (AAG) Annual Meeting, 9th -13th, April, Los Angeles, CA.

†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.

Root, H., **Crooks, A.T.** and †Malik, A. (2013), *Pakistan's Urban Challenge: The Creative City Model*, Second Research Competitive Grants Conference, Pakistan Strategy Support Program, International Food Policy Research Institute, 8th-10th, February, Islamabad, Pakistan.

†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), I*ntegrating 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.

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†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.

Croitoru, A., **Crooks, A.T**., Stefanidis, A. and †Radzikowski, J. (2012), The Ascent of GeoSocial Analysis, UCGIS 2012 Symposium, 30th May – June 1st, Washington, DC.

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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.

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†Patel, A., Koizumi, N. and **Crooks, A.T.** (2011), *Defining Slum Severity in Indian Megacities: 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.

Batty, M., Hudson-Smith, A., **Crooks, A.T.,** Milton, R. and Smith, D. (2009), *Visualizing, Communicating, and Modeling Spatial Data in the Social Sciences,* 35th Annual International Association for Social Science Information Service and Technology (IASSIST) Conference, 26th -29th, May, Tampere, Finland.

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.

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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.

Crooks, A.T. (2006), *Experimenting with Cities, Integrating Agent-Based Models and GIS: Applied to Segregation*, 36th Annual Conference of the Regional Science Association International. British and Irish Section, 16th -18th, August Jersey, Channel Islands.

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 https://www.gim-international.com/content/article/mapping-and-monitoring-of-slums-in-5-steps

Stefanidis, A., **Crooks, A.T.** and Croitoru, A (2015), How – and Why – Google is Transforming the Map, *The Conversation*, January 7th, Available at http://theconversation.com/how-and-why-google-is-transforming-the-map-35238.

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

Crotty, J. (2020), eBird and Urban Planning: City Green Spaces, *10,000 Birds*, Available at: http://www.10000birds.com/ebird-and-urban-planning-city-green-spaces.htm

Waddell, K. (2017), What Happens If a Nuclear Bomb Goes Off in Manhattan?, *The Atlantic*, Available at https://www.theatlantic.com/technology/archive/2017/03/nuclear-bomb-manhattan-simulation/519585/

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Bullen, J. (2017), Scientists to Simulate How 20 MILLION People Would React to Nuclear Bomb in New York City, *The Mirror*, Available at http://www.mirror.co.uk/news/world-news/scientists-simulate-how-20-million-10054846.

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.

Waugh, J. (2017), World War 3: Scientists to Simulate Nuclear Bomb Going Off in New York, *Metro*, Available at: http://metro.co.uk/2017/03/20/world-war-3-scientists-to-simulate-nuclear-bomb-going-off-in-new-york-6521225/.

Wilkinson, J. (2017), What Happens if New York Gets Nuked? Scientists Simulate 20 MILLION People in Massive Computer System to See How State Would Respond to a Nuclear Attack, *Daily Mail*, Available at: http://www.dailymail.co.uk/news/article-4327280/Scientists-simulate-nuclear-attack-New-York.html.

Periodic Table. (2015), From Social Media Data to Social Knowledge, *Periodic Table: A Magazine from the College of Science*, Spring, Issue 12: 20.

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.

Metcalfe, 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

- 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 searches).
- Computational and Data Sciences Level 1 Promotion and Tenure Committee (2017).
- 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
- 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.

Access to syllabi and course material including websites are available upon request.

Table 2: Summary of Teaching Activities

Course Title	No. Of Times Taught	Evaluation Question[5]	
		No. 15	No. 16
CSS 600	9	4.73 (4.30)[6]	4.63 (4.14)
CSS 645	9	4.80 (4.28)	4.66 (4.14)
CSS 643	2	4.36 (4.19)	4.26 (4.02)
ABM of Urban Systems	1	5.00 (4.26)	5.00 (4.07)
GIS and ABM	1	4.40 (4.19)	4.40 (4.02)
Building Virtual Worlds	1	4.50 (4.17)	4.00 (4.05)
Introduction to NetLogo	3	4.94 (4.26)	4.84 (4.08)
Introduction to MASON	1	5.00 (4.22)	4.50 (4.10)
Urban Analytics	1	4.71 (4.28)	4.00 (4.15)
CDS 201	2	4.44 (4.43)	4.22 (4.23)
Average		**4.68 (4.25)**	**4.45 (4.09)**

Student Advising

- **Completed PhD. Student Advisor:**
  - Sarah Wise; Computational Social Science; Ph.D. awarded Spring 2014 (Currently a Lecturer (Assistant 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, currently a research scientist at the National Geospatial Intelligence Agency).
    - *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.*

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[5] In Mason's course evaluation form this question 15 reads 'My overall rating of the teaching', while 16 reads 'My overall rating of this course'.

[6] Numerical values for evaluation questions 15 and 16 are in a 1 to 5 scale, 1 being the lowest and 5 being the highest rating. Numbers in parentheses represent George Mason University mean values to these questions corresponding to the same time frame(s).

- 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.*

- **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.

- **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.

- **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-present).
- 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).

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.
- 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.
- 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).
- 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).
- 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).
- 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.
- 1st International Workshop on Geospatial Simulation at ACM SIGSPATIAL 2018.
- Annual Simulation Symposium track at the 2019 Spring Simulation Conference.
- 3rd ACM SIGSPATIAL Workshop on Location-based Recommendations, Geosocial Networks and Geoadvertising (2019).
- AI and Simulation (AIS) Track, 2020 Spring Simulation Conference (SpringSim'20).
- Data Science for Simulation Track, Agent-Based Simulation Track, 2020 Winter Simulation Conference.

Reviewed Grant Applications for:
- National Science Foundation (2010, 2012, 2013, 2014, 2016, 2018).
- 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).
- 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 PhD. Examiner:
- Cheng Liu, The University of Auckland (2015).
- Anthony Jjumba, Simon Fraser University (2015).
- Majeed Pooyandeh, University of Calgary (2014).
- Conrad Power, Memorial University of Newfoundland (2014).

Organization

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

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.

Last updated 4th August, 2020.