**Paper Session:**

**2512 Spatiotemporal Thinking, Computing and Applications 8: Agent Based Modeling**

is scheduled on Wednesday, 4/9/2014, from 2:40 PM - 4:20 PM in Room 12, TCC, First Floor

*Sponsorship(s):*
Cyberinfrastructure Specialty Group
Spatial Analysis and Modeling Specialty Group
Transportation Geography Specialty Group

*Organizer(s):*
Chaowei Yang - George Mason University
Yunfeng Jiang - Geroge Mason University
Shaowen Wang - University of Illinois at Urbana-Champaign

*Chair(s):*
Min Sun - GMU

*Abstract(s):*

**2:40 PM Author(s):** *Carson J .Q. Farmer - Hunter College - CUNY
Peter Marcotullio - Hunter College - CUNY

Abstract Title: *Agent-based models for spatially-explicit population projections*

**3:00 PM Author(s):** *Xi Gong - Texas Center for Geographic Information Science, Department of Geography, Texas State University
T. Edwin Chow - Texas Center for Geographic Information Science, Department of Geography, Texas State University
F. Benjamin Zhan - Texas Center for Geographic Information Science, Department of Geography, Texas State University

Abstract Title: *The Importance of "Space" in Strategies of Team Sports: An Agent-based Modeling Approach*

**3:20 PM Author(s):** *Laiping Luo, doctor - Key Lab of 3D Information Acquisition and Application of Ministry of Education, Capital Normal University, Beijing, China;Artificial Intelligence Institute, Beijing City University, Beijing, China
Jing Zhang, professor - Key Lab of 3D Information Acquisition and Application of Ministry of Education, Capital Normal University, Beijing, China
Xinglin Hu, master - Key Lab of 3D Information Acquisition and Application of Ministry of Education, Capital Normal University, Beijing, China
Xiaomeng Liu - Key Lab of 3D Information Acquisition and Application of Ministry of Education, Capital Normal University, Beijing, China
Lifang Zhu - The fifteenth Institute of China Electronics Technology Group Corporation, Beijing, China

Abstract Title: *Implementation of virtual public transportation environment based on multi-agent*

**3:40 PM Author(s):** *Sarah Wise - University College London

Abstract Title: *Cops and Robbers: an Agent Based Model of the Interaction between Policing and Reported Crime Rates*

**4:00 PM Author(s):** *Yunfeng Jiang - Geroge Mason University
Min Sun - George Mason University
Chaowei Yang - George Mason University

Abstract Title: *Simulating spread of epidemic disease with GPU-enabled agent based modeling*

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**Session Description:** Many 21st century challenges, such as climate change, natural disaster and interdisciplinary discovery, exist within a 4-dimensional (3D space and 1D time) framework. Integrating our understanding and methods across all four dimensions would lead to new approaches to help us address the challenges by providing: 1) new methodologies to improve our knowledge; 2) new computational tools and software to advance relevant technologies; and 3) applications to directly address the challenges. For example, how could we save thousands more lives if an earthquake hits a densely populated area or a huge volcano erupted near a major city? A spatiotemporally aware and optimized approach could help advance GIScience, Cyberinfrastructure, Cloud Computing, Big Data, Social Media, Digital Earth and future generations of GIS and geographic solutions. A better understanding of the spatiotemporal linkage among different domains of geography would enable us to
address problems that were previously unsolvable. The NSF Spatiotemporal Innovation Center is established to collectively investigate just such solutions.

Following the success of last year's spatiotemporal thinking, computing and application sessions, we are organizing a series of sessions (paper, illustrative, interactive, and panel) on STCA to move the discussion forward and to build a research agenda. Possible topics include but are not limited to:

1. Are there undiscovered spatiotemporal principles or laws?
2. How to detect spatiotemporal patterns from observation and simulations?
3. How to analyze spatiotemporal patterns in various geographic sciences, such as climate change, ocean science, environmental science, disaster and sustainability studies.
4. How to formulate and/or utilize spatiotemporal thinking as a methodology and conceptualization process in geographic science discovery and application.
5. What are the new computing, software, and application products to address spatiotemporal problems?
6. How can spatiotemporal thinking and computing be used to manage and develop cloud computing and Big Data solutions?
7. Does a spatiotemporal approach facilitate better understanding of the physical and social sciences, such as climate change, energy, political, and population sciences?
8. How to educate the next generation workforce with spatiotemporal knowledge and methods?
9. How best to communicate spatiotemporal knowledge.

Organizers
- Peter Bol, Harvard University
- Keith Clarke, University of California at Santa Barbara
- Jeff Dozier, University of California at Santa Barbara
- Michael Goodchild, University of California at Santa Barbara/ESRI
- Wendy Guan, Harvard University
- Diansheng Guo, Univ. of Southern Carolina
- Paul Houser, George Mason University
- Qunying Huang, Univ. of Wisconsin-Madison
- Shaowen Wang, Univ. of Illinois at Urbana-Champagne
- Chaowei Yang, George Mason University
- Axing Zhu, Univ. of Wisconsin-Madison

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New Query