Paper Session:

1612 Spatiotemporal Thinking, Computing and Applications 5: Urban Dynamics

is scheduled on Tuesday, 4/8/2014, from 4:40 PM - 6:20 PM in Room 12, TCC, First Floor

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

Organizer(s):
Chaowei Yang - George Mason University
Keith C. Clarke - University Of California, Santa Barbara
Weihe Wendy Guan - Harvard University

Chair(s):
Keith C. Clarke - University Of California, Santa Barbara

Abstract(s):

4:40 PM Author(s): *Xiaoling Zhang, PhD - City University of Hong Kong
Dafang Wu, PhD - Guangzhou University
Martin Skitmore, Prefessor - Queensland University of Technology

Abstract Title: *The spatiotemporal patterns of urban expansion: dynamics of landscape expansion and driving force*

5:00 PM Author(s): *Tianming Chen - Peking University
Weiwei Cao - the State Grid of China

Abstract Title: *Modeling Urban Growth Pattern: A Case Study of Beijing, China*

5:20 PM Author(s): *Yajuan Shi - Henan University of Technology; Institute of Geographic Sciences and Natural Resources Research, CAS

Abstract Title: *Transition of Chinese inland agglomeration in the spatial development pattern: An example of Zhongyuan Urban Agglomeration*

5:40 PM Author(s): *Christopher M Parrett - Penn State University

Abstract Title: *Utilizing high-temporal NDVI data to perform unsupervised land-cover classification in order to characterize and detect changes in agricultural productivity in Nigeria.*

6:00 PM Author(s): *Diego Silva Ardila, PhD (c) - Universidad Industrial de Santander

Abstract Title: *Policy Mobilities and Urban Change in Latin America: Remaking Urban Landscapes and rethinking Urban Planning through implementation of BRT Policies*

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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