

## The Association of American Geographers Spatial Analysis and Modeling Specialty Group Newsletter

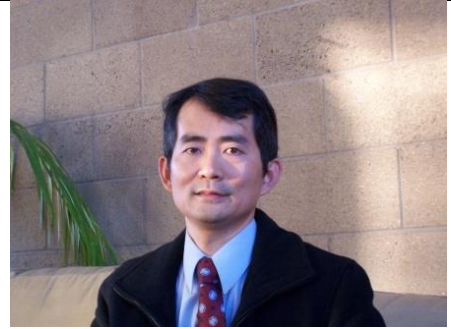
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### FROM THE CHAIR

Dear SAM Members,

Hope all of you have had a great winter break. It is exciting that the 2014 AAG Annual Meeting is coming soon, and we expect to see each other at Tampa, Florida, April 8-12, 2014. The SAM Specialty Group has sponsored nearly eighty sessions in the coming AAG meeting, and is working hard to organize and promote several SAM related activities. Here I would like to highlight some exciting events for the SAM community.



The **SAM Plenary Lecture** is a big event for the SAM community each year. The 2014 Plenary Speaker, **Dr. Helen Couclelis** (Professor at Department of Geography, UC Santa Barbara), will present her lecture titled "Ignorance in the Age of Information: Prediction and Uncertainty When the Numbers Just Aren't There" on Thursday, 4/10/2014 at 16:40 PM. The lecture will be in Room 23, TCC, First Floor, and we encourage you to make arrangements and attend the lecture (please see additional information under 'News').

This year's **SAM Outstanding Service Awardees** are **Dr. Daniel Griffith** from University of Texas at Dallas and **Dr. Alan Murray** from Arizona State University. Congratulations Drs. Griffith and Murray! We will invite the two awardees to give a brief talk at the 2014 SAM business meeting (see detail below), and present the plaques at The AAG Awards Luncheon on Saturday, April 12, 2014, from 12:15 pm to 2:15 pm. You are welcome to join us and congratulate the two awardees.

The **John Odland Award Paper Sessions** (SAM Student Paper Competition) will be Wednesday, 4/9/2014, from 8:00 AM - 9:40 AM (Session I) and from 10:00 AM - 11:40 AM (Session II) in Grand Salon J, Marriott, Second Floor. I would like to thank SAM board members, especially Joni Downs, for their dedication and hard work. Please attend the paper presentations and support our students!

Finally I would like to thank all of you for your support to the SAM group, and invite you to attend the **SAM business meeting** scheduled on Friday, 4/11/2014, from 11:50 AM - 12:30 PM in Room 20, TCC, First Floor. During the meeting, we will announce the awardees for John Odland Award and give award certificates to them, report SAM businesses in 2013-2014, and have the two Outstanding Service awardees give a brief talk.

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A more detailed agenda will be posted later through the SAM email list. For questions or suggestions about the business meeting, please contact me at [lan@mail.sdsu.edu](mailto:lan@mail.sdsu.edu). Look forward to seeing you all in Tampa, Florida!

Best regards,



Li An  
Professor  
Department of Geography  
San Diego State University

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## NEWS

### **SAM-SG Plenary Lecture and Geographical Analysis Reception**

Time: April 10, 2014 from 4:40 PM – 6:20 PM (Thursday)

Location: Room 23, Tampa Convention Center, First Floor

Sponsored by: SAM-SG, The Ohio State University Department of Geography, and *Geographical Analysis*

Speaker: **Dr. Helen Couclelis**, University of California, Santa Barbara

#### **“Ignorance in the Age of Information: Prediction and Uncertainty When the Numbers Just Aren't There”**

About the Speaker: Dr. Helen Couclelis, Professor of Geography, University of California/Santa Barbara, a 1997-2003 editorial board member of *Geographical Analysis*, also served on the past board and as a co-editor of *Environment and Planning B*, and currently serves on the editorial boards of *Journal of Spatial Information Science* and *International*

*Journal of E-Planning Research*. She has been extremely active in the US NCGIA (Associate

Director, 1994-96; NCGIA Varenus panel member, 1997-99) and the Center for Spatially Integrated Social Science (Executive Committee Member, 1999-2004).

Dr. Couclelis's research expertise is in urban and regional modeling and planning, geography of the information society, behavioral geography, spatial cognition, and geographic information science. She is the author/co-author of 83 academic pieces, including an article in *Geographical Analysis* and regular contributions to the *International Journal of Geographical Information Science*, and 3 co-edited books. Her pioneering work in cellular automata has advanced the geographical sciences in both theory and practice. She has made meaningful intellectual contributions to the philosophy of geography and to geocomputation, and has served as an ambassador of geography and GIScience to the other social sciences.

Dr. Couclelis has delivered over 50 keynote/invited lectures in the United Kingdom, continental Europe, North America

and Australia, including, more recently, to the Tinbergen Institute, the Para Limes Institute, and GIScience 12, and in the Marsh Institute Distinguished Lecture Series at Clark University, and the Robinson Lecture at Ohio State University. In 1999, the University of Utrecht awarded Helen a Doctor Honoris Causa. She has held visiting positions at Princeton University, University of California/Berkeley, and the University of Waterloo.

### **Geographical Analysis Editorship Announced**

I am pleased to inform the community that **Serge Rey** has accepted the position of Editor of *Geographical Analysis*, effective July 1, 2014. Serge is Professor at the School of Geographical Sciences and Urban Planning, Arizona State University. His editorship is also supported by the GeoDa Center for Geospatial Analysis and Computation. Serge brings a wealth of experience in editorial endeavors, and the Executive Board enthusiastically endorses his selection. His first issue will come out in January 2015.

The journal, under the capable leadership of Dan Griffith, is in great shape and is set to embark on a number of exciting developments to coincide with the editorial transition. Dan will continue to manage papers through the end of June, and starting July 1 the journal will move to an on-line manuscript submission system, with a technology platform from Wiley; more on this in due course.

Also, as of 2015, the journal will adapt to the ever-changing world of academic journals, by going to an on-line format. This is in keeping with major trends in the industry, and will make it easier for Libraries to manage and distribute the journal's contents.

We have also arranged, with Wiley, to provide subscriptions to members of RSAI and a

reciprocal courtesy will be extended to our readers. GA individual subscribers will be granted free digital access to PiRS and RSPP, while RSAI members will enjoy the benefit of digital access to GA.

Again, I want to thank Dan Griffith and Yongwan Chun, at UT Dallas, and all the current Associate Editors and Editorial Board members for their continued loyalty and support to the journal. The Department of Geography at Ohio State is proud of its association with *Geographical Analysis*, and looks forward to publishing great papers in the coming years.

Please join me in welcoming Serge to the Editorship.

Morton O'Kelly, Chair, GA Exec Committee

### **SAM Chair Receives Award**

**Dr. Li An** has been selected by the Scholars without Borders as a recipient of San Diego State University's 2013-2014 Outstanding International Scholar. This award is given to a distinguished faculty member who has demonstrated outstanding contributions to international teaching, scholarship, and research. The award ceremony took place during the annual Scholars Without Borders Reception on Thursday, March 6, 2014. Dr. Li An gave a presentation titled "People, pandas, and tigers: Mutual influences crossing the border" based on his population-environment research in the past decade.

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### **CALLS AND MEETINGS**

#### **CFP: Special Issue "Land Change Modeling: Connecting to the Bigger Picture"**

Dear Colleagues,

Land change models are now part of the toolkit of environmental scientists and are increasingly being used to inform policy makers about the effects of socio-economic and institutional forces that drive the dynamics of landscape change. Changes on the terrestrial surface are implicated in a myriad of environmental problems ranging from local to global because of the complexity of life-supporting systems and their interconnection. As such, land change models have grown in importance and are much more than predicting or explaining the state of a pixel.

This Special Issue welcomes articles that inform how land change models are being integrated with and how they are informing discussions about global climate change, human health, water resources and cycle, environmental services, landscape ecology, and social feedback through policy and institutional change. Innovative approaches and new conceptual models that may help bridge and strengthen the connection between land and other natural systems are also of particular interest.

The deadline for submission is April 30 2014.

For more information, please contact the special issue guest-editor **Eugenio Arima** ([arima@austin.utexas.edu](mailto:arima@austin.utexas.edu)) or access the website

[http://www.mdpi.com/journal/land/special\\_issues/bigger-picture](http://www.mdpi.com/journal/land/special_issues/bigger-picture)

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**CFP on IJGIS Special Issue on Big Data and Complexity**

*International Journal of Geographical  
Information Science*

Special Issue on Big Data and Complexity  
Science

<https://sites.google.com/site/call4papersbigdata/>

The emerging social media, as well as advanced geospatial technologies, provide unprecedented big data, which are location-based and time-stamped, for better understanding underlying geographic forms and processes, or urban structure and dynamics in particular, related to human activities in both physical and virtual spaces. Different fundamentally from conventional small data that are usually estimated, sampled, and aggregated by census and statistical authorities, big data, emerging from the bottom up or harvested from geospatial technologies, are accurately measured for all individual people or locations. These distinguished features (measured, all, and individual) make big data unique and powerful for understanding the underlying mechanisms of geographic forms and processes. In this regard, complexity science has developed a range of tools such as discrete models (cellular automata and agent-based modeling), complex networks (small-world and scale-free properties), scaling hierarchy (Zipf's law, Pareto distributions, power laws, and allometry), fractal geometry (monofractal and multifractal analysis), self-organized criticality, and chaos theory. All of these modeling tools attempt to reveal the underlying mechanisms, linking surface complex forms (or complexity) to the underlying mechanisms (or deep simplicity) through simulations from the bottom up, rather than simple descriptions of forms or of geographic forms in particular. We call for original papers that explore complexity science dimensions of big data using any complexity modeling tools in various settings such as urban informatics, urban computing,

smart city, and sustainable environment and society.

Submission:

All manuscripts including any support material should be submitted using the journal's online Manuscript Central facility (<http://mc.manuscriptcentral.com/ijgis>). Note that the key spirit of big data is not just about the data size, but openness and transparency of doing science. We therefore encourage authors to consider this option of support materials archiving of data (including both raw and derived) and source codes, which is a distinguished feature of this special issue. Authors must select "Special Issue" while they reach the "Article Type" step in the submission process, and identify the "Big data and complexity science" special issue in their cover letter. First-time users must register themselves as Author.

Important dates:

Paper submission due: 30 November 2014  
**(Note: first come first reviewed up to the deadline)**

**Acceptance notification: 31 March 2015**

**Publication (estimated): 30 June 2015**

Guest editor:

**Bin Jiang**

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**GIScience 2014 Workshop on Analysis of Movement Data (AMD '14)**

<http://blogs.utexas.edu/amd2014/>

Workshop Overview: Technological advancements in global positioning systems (GPS) and related satellite tracking

technologies have resulted in significant increases in the availability of highly accurate data on moving objects, dramatically outpacing the development of appropriate methods with which to analyze them. In addition to increased spatial accuracy and temporal resolution of the locational information, improvements are being made to accelerometers and 'biologgers' that enable the collection of ancillary behavioral and physiological information as well. Research in movement pattern analysis (MPA) extends previous work in time-geography that focused primarily on representation and semantics, therefore the methodological and analytical framework associated with MPA is new and still evolving. Recent developments on MPA involve exploring movement patterns within specific contexts, in the interaction among individuals, and across different geographical and temporal scales. MPA applications address the movement of vehicles (e.g., traffic, fleet management), people (e.g., pedestrians, queues), or animals, to name but a few. Although there are obvious and fundamental differences among these application types, there are also many important commonalities associated with the analysis of any movement data irrespective of the type of object.

This workshop aims to serve as a platform to discuss the recent trends in the study of movement and novel methods for analyzing and contextualizing movement data. The workshop's focus is on, but not limited to, topics concerning analysis, modeling, and representation of movement patterns. The workshop will cover research on any type of movement data from different domains such as transportation (e.g., vehicles, pedestrians), movement ecology (e.g. plants, animals), and environmental hazards (e.g. hurricanes, wildfire, oil spills).

Workshop Themes: The focus of this workshop is on novel methods used to contextualize and analyze movement data. We invite

submissions of short papers of 1500 words that describe research that fits the general theme of movement pattern analysis, with particular emphasis on novel techniques that address the following examples of topics:

- Analyzing movement patterns using external influences (e.g. environment, geographic context)
- Analyzing interactions between moving entities
- Simulation and agent-based modeling of movement
- Cross-scale movement pattern analysis
- Entity behavior as a driver for patterns of movement

**Workshop Format:** This full day workshop will consist of two invited keynote talks, as well as presentations of research based on the short paper submissions. In order to stimulate discussion, a break-out group session will be held in the afternoon, followed by a plenary synthesis session.

**Special Issue:** A special issue, with the same aims and scope as the workshop, will be published in the *International Journal of Geographical Information Science* (IJGIS). Submissions to the special issue may be made by either workshop participants or others interested in the theme. The full papers for the special issue will be due only after the workshop, thus allowing participants the opportunity to incorporate feedback and insights gained at the workshop, and potentially even forming new teams of authors. Submissions should adhere to the Instructions for Authors of IJGIS and will be submitted to a review process that follows IJGIS standards.

**Workshop Submission Guideline:** Submissions of short (1500 words) discussion papers should be emailed in PDF-format to Somayeh Dodge (<mailto:sdodge3@uccs.edu>) with the subject

header "GIScience AMD Submission." A template for paper submissions is provided here:

<https://drive.google.com/file/d/oB16vz14vnUaGb3BHZGNpODRoVEE>.

**Important Dates:**

- Deadline for workshop submissions (1500 words): **1 June 2014**
- Decisions to authors: **22 June 2014**
- Workshop: **23 September 2014**
- Full paper submission for special issue: **15 December 2014**
- Initial decision on full papers: **15 February 2015**
- Final papers due for special issue: **30 April 2015**
- Final decisions on full papers: **31 May 2015**

**Workshop Organizers:**

**Sean C. Ahearn**, CUNY Hunter College;  
**Maïke Buchin**, Ruhr-University Bochum;  
**Somayeh Dodge**, University of Colorado at Colorado Springs;  
**Jennifer A. Miller**, University of Texas at Austin;  
**Robert Weibel**, University of Zurich.

### **GIScience 2014 Tutorial on Big Data**

Scaling or Fractal Analysis of Geographic Information in the BIG Data Era

<https://sites.google.com/site/giscience2014/tutorial/>

There is a sea change in geospatial analysis, or GIScience in general, towards better understanding geographic forms and processes, or urban structure and dynamics in particular, based on geographic information. This change is mainly attributed to Web 2.0 technologies and in particular the rise of social media of various kinds (Sui and Goodchild 2011, Jiang and Miao 2014), and subsequently



large amounts of social media data or volunteered geographic information (Goodchild 2007) have been collected for studying human activities in space and over time. This change has been transforming social sciences, initially developed from humanities and based on small data that are primarily estimated, sampled, and aggregated, into data-intensive computational social science (Lazer et al. 2009). For the emerging BIG data, which are accurately measured for all individual people or locations, the right-skewed or heavy-tailed distributions such as power laws, lognormal and exponential distributions are the norm (Adamic 2003, Newman 2005, Zipf 1949, Jiang 2013, Jiang and Yin 2014). The heavy-tailed distributions are also called scale free, literally meaning the lack of an average scale (or mean) for characterizing the size of things (Barabási and Réka 1999), and therefore set a clear contrast to Gauss distribution, with which the size of things can be characterized by a well-defined mean. The scale free property, also referred to as scale invariance, fractal, scaling, hierarchy, and nonlinearity, has profound implications for geospatial analysis for better understanding geographic forms and processes (Jiang 2014).

This one-day tutorial aims to provide hands-on and thoughtful guidance on scaling or fractal analysis of geographic information based on maximum likelihood estimation (Clauset, Shalizi, and Newman 2009), the most robust statistical estimation on power law detection. Note that the maximum likelihood method differs fundamentally from the conventional least squares method, which was widely used but found to be less reliable. This tutorial, mixed with lectures and hands-on exercises, attempts to address the following questions (e.g.):

- What are differences between the heavy-tailed distributions?
- How to detect effectively a power law from those similar?

- What are differences between right-skewed and no-skewed (or Gauss-like) distributions?
- How to effectively visualize data with a heavy-tailed distribution?
- What are Zipf's law, Pareto distributions, and power laws, and how are they related to each other?

Apart from these practical questions above, there are more fundamental issues to address (e.g.);

- What are underlying ways of thinking for scaling analysis?
- How does scaling analysis differ radically from spatial statistics?
- What are implications of scaling patterns to understanding geographic forms and processes?
- How is the scaling analysis related to fractal analysis?
- Why is the scaling analysis essential for BIG data?
- What are statistical differences between small data and BIG data?

If any of these questions is of interest or of your concern, you are very welcome to join us for the one-day event in conjunction with GIScience 2014. The tutorial is primarily for young researchers specializing in geography or GIScience in particular, but senior researchers are also welcome if seats are available. Interested participants must have an intermediate through advanced understanding of geography and cartography, and be familiar with fundamental concepts and techniques of geographic information systems. The participants must have their own laptops with basic tools such as Excel, Matlab, and ArcGIS 10.0 installed, and we will provide sample data for the hands-on exercises. Internet access is essential for the tutorial.

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## Membership Dues

Regular: \$6  
Student: \$1

## Submissions

This newsletter reaches a large number of readers and is therefore an excellent venue for getting the word out on community news, departmental happenings, research findings, media appearances, and the like. It is also a good place to post calls for proposals, awards, grants, fellowships, and jobs. We also invite you to submit commentaries or features of broad interest to specialty group members.

The newsletter relies on volunteers to submit articles, so please take a moment to send along relevant items.

Please send your submission by email to Jennifer Miller ([Jennifer.miller@austin.utexas.edu](mailto:Jennifer.miller@austin.utexas.edu)) in text or rich text format. Photos or other images, with captions, are also welcome (GIF, JPG, or PNG).

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