COMMUNITY ACTIVITY: WORKSHOP REPORT

SPATIAL 2015

Summary: This report summarizes the first in a new series of interdisciplinary unconferences, called SPATIAL. SPATIAL 2015 was focused on applying spatial information to human health, and was held at the Center for Spatial Studies at the University of California, Santa Barbara, 9–11 December 2015.

The Center for Spatial Studies at the University of California, Santa Barbara, successfully launched a new series of unconferences, simply entitled SPATIAL. The main goal of these hands-on interdisciplinary meetings is to reach out to domain specialists to inspire and guide research on spatial information. Each edition focuses on applications of spatial information as a primary force pushing the frontiers of research in Geographic Information Science, Spatial Cognition, and related fields. Attendees at SPATIAL, rather than spending the bulk of their time listening passively to paper presentations, address gaps in our understanding, debate new ideas, and discuss how to improve existing solutions.

The motivation for creating this new series was that Geographic Information Science (GIScience), after a quarter century of focusing mainly on its foundations and internals, appears like it could use the inspiration and challenge coming from a more "outward-looking" attitude. The post-war "pipeline" model of research, supposedly leading linearly from basic research to eventual applications, may be reaching its limits in GIScience and elsewhere [3]. Thus, it may be refreshing to try alternative models, seeking a deeper understanding of a field through direct engagement with "working worlds" [1].

In this spirit, the inaugural SPATIAL 2015 (http://spatial.ucsb.edu/spatial2015) was dedicated to applying spatial information to human health. It was held on the campus of the University of California at Santa Barbara (UCSB), from December 9 to 11, and brought together around 40 researchers to challenge the state-of-the-art and discuss spatial approaches to problems and opportunities around human health. All attendees were invited to share and develop bold visions, new insights, and best practices in applications of spatial information to the study of epidemics, nutrition, aging, health psychology, and other aspects of human health. The objective was to advance the understanding of how spatial information and analysis need to evolve in order to better support such studies. Thus, insights were sought on research questions around spatial information more so than on health itself, in a close dialogue between health and spatial experts. While run under a different and new umbrella, the meeting also built on a 2013 Vespucci Institute with similar goals [2].

There were no formal presentations throughout the two and a half days, only ad hoc lightning talks in group sessions by some of the participants, about projects they are working on and problems they are facing. The first day was dedicated to identifying specific

problems in four areas of GIScience (which had emerged from participant position papers and were re-arranged by participants): activity modeling, privacy, data sources and information integration, spatial analysis and visualization. The goal of that day was to make the case for space through specific health problems where spatial information does or could make a difference. At the end of the day, participants pitched the problems they considered most pressing. Some of these were then addressed by hands-on group work during the second day. On the final half day, results from group work were presented to and discussed in a plenary audience that also included researchers from local health providers. During these presentation, links and potential collaborations between the different groups were identified and discussed by participants.

A total of seven groups worked on the following problems:

- how to re-identify de-identified health data?
- are isodemographic maps helping in understanding demographic data?
- what would good spatial information about health look like?
- how to communicate uncertainty given that users do not want to see it?
- how to design health interventions that incorporate incomplete information?
- how do different organizations approach privacy?
- how to analyze the spatial autocorrelation of (human) genetic variation?

While a few groups decided that their topic "seemed like a good idea at the time," several groups achieved promising results. Some of them vowed to continue their collaboration after the meeting, with targeted outcomes ranging from online resources through publications to project proposals.

As organizers and participants, we believe the event produced valuable insights on GIScience challenges and approaches to them in the health domain, as well as a set of lessons to be learned for future SPATIAL unconferences. Key among the latter were the observation that an application domain needs to be scoped small enough to achieve specific GIScience challenges and that ways need to be found to involve enough domain specialists (in addition to domain-oriented GIScience researchers) in such a meeting. We will continue to fine tune the model, but believe that SPATIAL has been off to a good start, continuing the long tradition of Santa Barbara specialist meetings in an evolving form.

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