-Based on: Jeffrey Hoelle's presentation at UCSB, 2016.

Abstract: Amazonian deforestation is measured and monitored through the analysis of two principal land cover categories—forest and non-forest. These covers are defined by geo-spatial properties, such as density, height, boundaries, and edges. In this presentation, Hoelle extends the concept of cover to other Amazonian settings where the forest and other forms of nature, such as weeds and hair, are managed, cultivated or groomed. Drawing on interviews and mapping exercises he examines conceptual categories and cover patterns in rural farms and ranches; the remote forest reserve of the rubber tappers; urban homes, parks, cemeteries, and public spaces; and beauty salons and barber shops. Hoelle discusses how local perceptions of “clean” humanized spaces are valued over natural covers, which are seen as dirty, threatening, or backward. Global environmental change is commonly understood to be caused by human actions on an external or distant nature, but he argues for attention to the daily practices, ideologies of nature, and structural inequalities that influence human-environment interactions from the contested Amazon rainforest to our own landscapes, lawns, and bodies.

Bio: Jeffrey Hoelle is an assistant professor of Anthropology and faculty affiliate in Environmental Studies Geography, and Latin American and Iberian Studies at UCSB. His research examines human-environment interactions in the Brazilian Amazon. He is the author of Rainforest Cowboys: The Rise of Ranching and Cattle Culture in Western Amazonia, which won the 2016 Book Award from the Latin American Studies Association’s Brazil Section.
The Informative Bug: A Case Study Defining Areas of Endemism using North American Insects

Tuesday, October 18, 2016
12:00 p.m.
3512 Phelps Hall

Abstract: It is difficult to study insects—identification can be challenging and many require microscopic examination. Seltmann will demonstrate that large quantities of data about insects and their habitats are already available through efforts to digitally capture specimen data from natural history collections. Many specimens have high-quality locality data. Seltmann recently used 1,399 insect species to define areas of endemism for North America (i.e., areas defined by the congruent distribution of species). Results were compared to a similar study using mammals, finding that insects are an excellent group to study in this context: They combine high species diversity, a history of modern taxonomic revisions, comprehensive electronic data capture, and often small distribution ranges.
ABSTRACT:
Contemporary spatial information systems concentrate on the outdoor space, while humans and things reside both indoors and outdoors Klepeis et al. (2001) report that humans spend approximately 87% of their time indoors. In recent years, GIScience has been focusing on indoor spaces. This resulted in contributions ranging from positioning approaches, indoor tracking of humans and objects, to ontologies of indoor environments and modeling of human behavior.

In this talk, Scholz will highlight the special case of indoor manufacturing environments, using a semiconductor manufacturing plant as an example. In this context, GIScience can contribute to Industry 4.0 or smart manufacturing initiatives. He will elaborate on modeling the indoor manufacturing space with the help of ontologies and affordance-based approaches. In addition, the interaction between humans, manufacturing devices and production assets are of particular interest, as production assets are manipulated by humans. As a result, workers in the facility could be supported in their decision-making process and the production could be optimized.

BIO:
Johannes Scholz is an Assistant Professor at Graz University of Technology, Austria, Institute of Geodesy, Research Group Geoinformation. He was previously Senior Researcher at the Research Studios Austria—a non-profit research institution—Associate Faculty of the Doctoral College of University of Salzburg, Austria, and PostDoc at the Institute of Geoinformation, Vienna University of Technology, Austria. Johannes received his Ph.D. in Geodesy and Geoinformation from Graz University of Technology. He holds a Dipl.-Ing. (FH) in Geoinformation from School of Geoinformation, Carinthia University of Applied Sciences. Johannes teaching includes courses on GIS, spatial databases, spatial analysis, spatial optimization, and mobile GIS & LBS. Johannes’ research interests lie in the areas of modeling indoor space, ontologies, and semantics, Linked (Open) Data, geolinguistics, and spatial optimization focusing on transport planning. He serves as reviewer for numerous journals in the field of GIScience, served as member of the organizing committee of Linked Open Data Workshop @ GIScience 2014, and is a member of the program committee of AGIT and GI Forum conferences and journals.

dspatial@ucsb.edu
Mapping Global Hotspots of Ocean Aquaculture
Tuesday, November 1, 2016
12:00 p.m.
3512 Phelps Hall

ABSTRACT:
The human population is expected to reach nearly 10 billion people by 2050, and its appetite for protein is predicted to exceed that growth. With wild fish catch plateauing or declining, one of the few and most sustainable ways to meet that demand is marine offshore aquaculture. I will present results from an ongoing SNAPP (Science for Nature and People Partnership) initiative focused on offshore aquaculture in which we explored and mapped the potential for aquaculture growth, highlighting hotspot locations for both finfish and shellfish. This work highlights the prospects for science to actively help determine and communicate the most sound conservation and sustainable expansion of this food resource.

BIO: Ben Halpern is the Director of the National Center for Ecological Analysis and Synthesis (NCEAS) and Professor in the Bren School of Environmental Science and Management at UC Santa Barbara. He is also Chair in Marine Conservation at Imperial College London and serves as the Director of the Center for Marine Assessment and Planning (CMAP) at UC Santa Barbara. He received his Ph.D. in marine ecology in 2003 from UC Santa Barbara and then held a joint post-doctoral fellowship at NCEAS and the Smith Fellowship Program. He was a Research Associate at NCEAS for the decade following that until joining the faculty at the Bren School.

Halpern focuses his research at the interface between marine ecology and conservation planning. He has led and participated in several key synthetic research projects that have advanced our understanding of the state of the world’s oceans and the potential for marine reserves to improve ocean condition. In particular, he has led the development and mapping of cumulative impact assessments at global and regional scales in marine and freshwater systems and has been the lead scientist for the Ocean Health Index project. He also leads the SNAPP working group on Sustainable Offshore Aquaculture. In the past 15 years Halpern has published nearly 150 peer-reviewed articles and was recently named one of the World’s Most Influential Scientific Minds by Thompson-Reuters and awarded the A.G Huntsman Award for Excellence in Marine Science by the Royal Society of Canada.
ThinkSpatial
The Center for Spatial Studies’ brown-bag forum on spatial thinking

Presents
Tomi Kauppinen
Aalto University School of Science
Helsinki, Finland

On Spatial Aboutness
Tuesday November 8, 2016
12:00 p.m.
3512 Phelps Hall

ABSTRACT: Search for information has become an inherent part of our life, both at work and for leisure. The challenge is that information needs to be indexed to allow for search to be effective. Kauppinen will discuss one particular task: how to deal with “spatial aboutness” of information objects (such as books at a library, paintings at a museum, experiences of people in spaces or tagged contents of a social media platform). The main, emerging question is how different approaches can together be made to support the spatial aboutness of objects to be more explicit. He will use examples to illustrate different tasks (such as finding out what places have been studied in given research papers) and results (such as visualizations of spatial aboutness of human observations).

BIO: Tomi Kauppinen is a project leader and docent at the Aalto University School of Science in Finland. He holds a habilitation (2014) in geoinformatics from the University of Muenster in Germany and a Ph.D. (2010) in media technology from the Aalto University. From April 2014 to September 2014 he was appointed as the Cognitive Systems Substitute Professor at the University of Bremen in Germany. He has been active in opening and sharing data, and created semantic recommendation and information exploration engines. The central themes in his research and teaching are linked data, data science and information visualization applied to spatio-temporal phenomena, and supporting the understanding of related cognitive processes. He has actively created online tutorials on these themes and has run related courses and tutorials at international conferences and universities. He has co-chaired workshops on visual approaches, spatial thinking and linked science, including the International Workshops on Linked Science 2011–2015 at the International Semantic Web Conferences. He is also the founder and community leader of LinkedScience.org.

spatial@ucsb.edu
How Does GIScience Support Spatio-Temporal and Thematic Information Exploration in the Humanities?

Tuesday, November 29, 2016
12:00 p.m.
3512 Phelps Hall

ABSTRACT:
The wealth of information stored in large online text archives, such as Google Books, makes it difficult for information seekers to access relevant information and detect and explore hidden patterns in the data. In my talk, I illustrate how this challenge can be addressed by following a typical GIScience approach.

Bruggmann focuses on how spatio-temporal and thematic information and interconnections implicitly stored in large online text archives can be made explicit, and examines how this might help information seekers learn and gain new insight into space, time, and theme. He investigated a typical digital text archive in the humanities. Indeed, text documents in the humanities are particularly interesting to GIScience because they contain significant spatial, temporal, and thematic information, which has been mostly untapped for spatio-temporal and thematic analyses thus far. The approach he presents encompasses three stages: (1) the automatic retrieval of spatio-temporal and thematic information from semi-structured text documents (i.e., geographic information retrieval); (2) the transformation of the retrieved information and the visualization of interesting spatio-temporal and thematic structures and interconnections (i.e., spatialization); and (3) the user-centered design and evaluation of two web tools used to explore space, time, and theme interactively (i.e., geovisual analytics). Evaluating web tools shows that they support target users exploring the humanities from a spatio-temporal and thematic perspective and reveals the potential of applying this approach to other large online data archives to help users interactively learn about space, time, and theme.

BIO:
André Bruggmann is a Ph.D. candidate at the GIScience Center of the Geography Department at the University of Zurich, Switzerland. He received his BSc and MSc in Geography from the University of Zurich. Bruggmann focuses on geographic information visualization and analysis and is particularly interested in geovisual analytics, spatialization, geographic information retrieval, and the digital humanities. His research is situated at the nexus of geography and the humanities, and he investigates methods to automatically retrieve, transform, and interactively visualize spatio-temporal and thematic data in large digital text archives.

spatial@ucsb.edu
Navigation:
Spatial Knowledge, Individual Differences, and Neuroscience
Tuesday, February 14, 2017
12:00 p.m.
3512 Phelps Hall

Abstract: Navigation is a central part of daily life. For some, getting around is easy, while others struggle, and certain clinical populations display wandering behaviors and extensive disorientation. Working at the interface between immersive virtual reality and neuroimaging techniques, Chrastil’s research demonstrates how these complementary approaches can inform questions about how we acquire and use spatial knowledge. She will discuss some of her recent work as well as upcoming experiments that center on: (1) how we learn new environments, (2) the type of spatial information we learn from environments, and (3) how individuals differ in spatial abilities. The behavioral and neuroimaging studies presented in this talk inform new frameworks for understanding spatial knowledge, which could lead to novel approaches to answering major questions in navigation.

Bio: Elizabeth Chrastil is an Assistant Professor in the Department of Geography at UCSB and is a faculty member in the Interdisciplinary Dynamical Neuroscience Program. She attended Washington University in St. Louis for her undergraduate degree, majoring in Philosophy-Neuroscience-Psychology (PNP) and History. She later received an M.S. in Biology from Tufts University. She received her Ph.D. in Cognitive Science from Brown University in 2012 and completed a postdoc in Psychology at Boston University. She joined UCSB in the fall of 2016.
The New UCSB Interactive Campus Map
Tuesday, March 14, 2017
12:00 p.m.
3512 Phelps Hall

ABSTRACT: UCSB’s Interactive Campus Map (ICM) is about to be launched in its third version, which will be significantly different from its predecessors in terms of mobile, support for routing (walk, bike, car), and better search. The goal of this presentation is to inform the audience about the design goals, demonstrate the current stage of development, and get feedback on design choices and options. Further, the currently running usability tests will be described.

BIOS:
Werner Kuhn holds the Jack and Laura Dangermond Endowed Chair and is a professor in the Department of Geography at UCSB. He is also the director of the Center for Spatial Studies at UCSB.

Nick Eidler is a 4th year undergraduate student at UCSB studying Computer Science. He has been contributing to the new campus map since 2016, working primarily on front-end architecture and server management.

Marc Tim Thiemann is a digital media undergraduate student from the University of Bremen (Germany) who is visiting UCSB from mid-January until mid-June to write his Bachelor thesis in cooperation with the Center for Spatial Studies. His bachelor thesis is entitled, “Usability Engineering of an Interactive Campus Map,” and includes usability tests as well as front-end development work to improve the usability of the new ICM.
ThinkSpatial
The UCSB brown-bag forum on spatial thinking

Presents

Susan Cassels
Department of Geography
University of California, Santa Barbara

Short-term Mobility and Sexual Behavior—
Testing the Selection, Enabling, and Influence Hypotheses

Tuesday, April 11, 2017
12:00 p.m.
3512 Phelps Hall

Abstract:
Short-term mobility is often associated with increased risk behavior. For example, mobile individuals often have higher rates of sexual risk behavior compared to non-mobile individuals, but the reasons why are not clear. Using monthly retrospective panel data from Ghana, we test whether short-term mobility is associated with differences in total and unprotected sex acts, and whether the association is due to enabling, selection, or influential reasons. Men who were mobile in a given month had more sex acts compared to non-mobile men. Regardless of short-term mobility in a given month, both men and women who were mobile in future months had more sex acts compared to individuals not mobile in future months. Our findings support the hypothesis that both men and women who are mobile are positively selected on sexual risk behavior. The enabling hypothesis, that the act of being mobile enables sexual risk behavior, was only supported for men.

Bio:
Susan Cassels, PhD, MPH is an assistant professor of Geography and a research associate in the Broom Center for Demography at the University of California Santa Barbara. Her work spans many disciplines, including demography, epidemiology, and geography. Cassels’ research interests are in the areas of population health, migration, epidemic modeling, HIV/AIDS, and sexual networks. Currently, her research is focused on migration and residential mobility and its effects on sexual risk behavior, sexual network structure and HIV transmission. Cassels has ongoing projects among heterosexuals in Ghana and among men who have sex with men in Seattle and Los Angeles.
**A Brief but Spectacular History of UCSB Planning**

**Tuesday, May 2, 2017**

**12:00 p.m.**

**3512 Phelps Hall**

**ABSTRACT:**
Everyone who visits the UCSB campus is struck by two things: (1) the astonishing site on the Pacific Ocean with views of the Channel Islands and the Santa Ynez mountains and (2) the astonishing disarray of the campus plan that works against all the natural physical attributes. The result of numerous planning attempts left partially realized, the campus is often bereft of the relationship of the campus to its surroundings; unable to see the ocean or the mountains, and frequently leaving the best sites to parking lots and loading docks. This short physical history of UCSB will seek to explain the history of the site, campus plans and suggest a way forward.

**Bio:**
Dennis Whelan received his B.A. in studio Art with a minor in the History of Architecture from UCSB in 1979. He received a Master of Architecture from UCLA in 1985. He is a licensed California Architect and Planner. His career at UCSB began as a work-study student as an undergraduate as a shop-drawing clerk in the Campus Architects office. After education and practice as an architect in Los Angeles and San Diego he returned to UCSB in 1991, and currently is involved with all phases of developing the physical campus, from bike paths and signage to landscape and new capital projects.

spatial@ucsb.edu
Both the ecology and hydrology of dryland landscapes are characterized by high degrees of spatial and temporal heterogeneity. In particular, temporal heterogeneity in rainfall drives coupled hydrological and biogeochemical surface dynamics that are themselves highly influenced by the spatial organization of dryland vegetation. Despite being appreciated as a conceptual tool for understanding dryland function, the specific role of temporal and spatial variability in governing the dynamics of drylands has received little empirical attention. Most studies of variability in rainfall and soil moisture dynamics have attempted to capture either fine-scale spatial heterogeneity caused by vegetation structure (i.e., tree/grass/bare patch differences) or short-term impacts of shifts in soil moisture distributions via experimental manipulations. In this talk, I will examine the larger-scale implications of rainfall variability, impacts of variability on the partitioning of surface hydrological fluxes, and subsequent patterns and dynamics of vegetation and biogeochemistry across a range of ecological settings. Of particular interest is understanding how dryland, moist tropical, and subsistence agricultural ecosystems will respond to shifts in rainfall climatology which may alter the frequency and depth of rainfall events without necessarily impacting average seasonal rainfall totals. Using examples from across the tropics—with a focus on sub-Saharan Africa—I will highlight some recent work that explores shifts in ecosystem function driven by altered rainfall climatology and the potential impacts of increased variability on the structure and function of African ecosystems.
Water Resources Research, the Journal of Geophysical Research—Biogeosciences, Vadose Zone Journal, and Environmental Research Reviews, Environmental Research Letters. He was a recipient of an Early Career Award from the NSF, and was the inaugural recipient of Early Career Award in Hydrological Sciences given by the American Geophysical Union (AGU).
ThinkSpatial

On Tuesday, June 6, 2017 The UCSB brown-bag forum on spatial thinking presents

Place-based GIS: What’s the big deal?

Werner Kuhn
Center for Spatial Studies
Department of Geography
University of California, Santa Barbara

12:00 p.m. Tuesday, June 6, 2017 | 3512 Phelps Hall (map)

Abstract:

Modeling “place” remains a conundrum for spatial computing. Geographic Information Science has discussed requirements and possible approaches for many years, but has not yet produced a convincing solution. In this brief talk, I will present my recent work, together with colleagues at Melbourne University that sheds new light on the topic. We took the current state of my Core Concepts of Spatial Information (Location, Field, Object, Network, and Event) and asked what the simplest possible account for place would be in them that still satisfies the known requirements. The proposed solution (places are a special kind of objects) is now being tested against the requirements stated in the literature. Your feedback and questions will help in this process.

Bio:

Werner Kuhn holds the Jack and Laura Dangermond Endowed Chair in Geography at the University of California, Santa Barbara, where he is professor of Geographic Information Science. He is also the director of the Center for Spatial Studies at UCSB. His main research and teaching goal is to make spatial information and computing accessible across domains and disciplines. Before joining UCSB in late 2013, Kuhn was a professor of Geoinformatics at the University of Munster, Germany, where he led MUSIL, an interdisciplinary semantic interoperability research lab. Kuhn is described as a leading expert in the area of geospatial semantics and especially known for his work on Semantic Reference Systems as well as his work on interaction metaphors for Geographic Information Systems. Recent research projects include the Linked Open Data University of Muenster (together with the university library), and a series of EU projects on geospatial services in the semantic web.