

Notes from Geospatial/GIS Meetup

October 14, 2021

via Zoom

Attendees: Janet Reyes, facilitator;

Geospatial/GIS Faculty Panelists: Ademide Adelusi-Adeluyi, Amr Magdy, Hoori Ajami, Kenichiro Tsukamoto

Via Zoom: Ahmed Eldawy, Amy Ziegler, Bart (Jacobus) Kats, Brian Piche-Cifuentes, Elia Scudiero, Elizabeth Perez, Eva Moyer, Jana Grittersova, Jay Spencer, Jolin Tran, Jonathan Menendez, Jordan Cullen, Koby Hawk, Luat Thanh Vuong, Lupe Lara, Mike Cohen, Parthasarathi Mukhopadhyay, Rangsiman Chantasorn, Reanne Barrette, Salvador Olguin, Samir Anup Kulkarni, Shanon Langlie, Shimona Lahiri, Steve Ries, Utitofon Inyang, Will Porter

Announcements

This meeting was recorded; video is available [here](#). The access passcode to view is *+?GWC8E
A version of the video that includes captioning will be made available within the next couple of weeks, probably in the Geospatial/GIS Quarterly (see below).

The [Geospatial/GIS Quarterly](#) offers a variety of information related to GIS at UCR and beyond. Consult it for the latest news on resources and learning opportunities!

Janet is offering two **workshops** this fall:

- [QGIS: Building Skills with Vector Data](#) - Tuesday, November 2 at 2:00 pm
- [Introduction to ArcGIS Online](#) - Tuesday, November 9 at 2:00 pm

UC GIS Week will take place November 16 - 18. Applications to give a presentation are closed, but it is now possible to [register to attend](#).

The next [GIS in Higher Education chat](#) from Esri will be at 9:00 am on November 2. The topic will be Visualizing Data with Charts in ArcGIS Pro and ArcGIS Online.

First-time Attendees

Amy Ziegler, Brian Piche-Cifuentes, Eva Moyer, Jana Grittersova, Jolin Tran, Jonathan Menendez, Koby Hawk, Lupe Lara, Parthasarathi Mukhopadhyay, Rangsiman Chantasorn, Reanne Barrette, Samir Anup Kulkarni, Shimona Lahiri, and Utitofon Inyang were all first-time attendees at this meetup. Thanks for joining us, and we hope you'll return in the future!

From the chat:

Rangsiman Chantasorn is a third year Business student considering a change from Marketing to Information systems. I currently have a marketing position in Oneboard Inc. I also have two other

marketing internships, one with Jonajo Consulting and one with UCR. I work part-time with ITS as an operator.

Utifon Inyang is a Grad Student in comparative literature interested in Digital Humanities.

Faculty Panel

- **Hoori Ajami**, Environmental Sciences

Hoori heads the [Catchment Hydrology and Spatial Analysis Lab](#) at UCR. She spoke on applications of GIS in the hydrologic sciences and water resource planning.

Geospatial tools help hydrologists track the movement of water through the landscape. Data is collected at point locations and through remote sensing (e.g. data collected by satellites). Geospatial data is the core of hydrologic modeling.

Sometimes researchers create or customize geospatial tools when existing ones don't provide the needed capabilities. Hoori has used Matlab in addition to Esri tools for creating models.

Hoori encourages any student who is interested to register for her class ENSC 175: Spatial Analysis and Remote Sensing for Environmental Sciences, to be offered Winter 2022.

Q&A: The prerequisite is a Statistics course; a background in environmental sciences isn't required. Computer Science students are encouraged to enroll. The course might also be appropriate for a Business student. Contact Hoori directly if there is a challenge registering through Banner.

Hoori also developed and offered a GIS and hydrology workshop this summer for high school teachers.

- **Kenichiro Tsukamoto**, Anthropology

Kenichiro is an anthropological archaeologist who co-directs the El Palmar Archaeological Project in Mexico's Yucatan Peninsula.

Many undergraduate students participate in the El Palmar project.

In archaeology, the spatial context is key. GIS platforms including ArcGIS and QGIS are used intensely.

At the El Palmar site, they used airborne LiDAR (a remote sensing technique) to penetrate the jungle canopy and create a point cloud rendering of the ground surface (digital elevation model) of the 94 km site. They then created visualizations, including a Modified Local Relief Model, which made clear the outlines of features such as an ancient palace and pyramids. Students helped digitize the features in the area.

It was also useful to classify the vegetation types in the area with remotely sensed data. Ground truthing helped verify the vegetation and structures mapping. Spatial analysis was used to characterize structure

density. Researchers were able to identify marketplaces and stone tool workshops, as well as areas of intensive agriculture.

Q&A: Do the researchers also refer to legends or ancient texts about the characteristics of these historical places? Kenichiro responded that they are analyzing the inscriptions on the more than 50 stone monuments found in the area. They would also refer to ethno-historic documents written in the colonial period if they exist for a given study area.

Are comparisons being done to studies of similar sites? Yes, they compare and contrast the findings regarding various places of the same era.

What's it like to work with an international team? There are challenges with people living in different countries, but it's also fun because the team benefits from a variety of insights. The pandemic has boosted the capability of meeting by Zoom.

- **Ademide Adelusi-Adeluyi, History**

Ademide is a historian of nineteenth century Africa and uses historical GIS in her research on Lagos, Nigeria. Her research maps can be seen at newmapsoldlagos.com, and student portfolios from her Digital Storytelling class can be seen at digitalstorytelling.ucr.edu.

GIS has become important for historians in bringing together history, geography, and spatial humanities in their research, writing and teaching. Mapping the past helps historians understand change over time and over space. Spatial analysis reveals patterns that might be missed when examining only written records of the past.

Ademide uses mapping to help reconstruct West African indigenous and colonial histories of the 19th and 20th centuries. Historical data is collected and plotted on contemporary maps of a city such as Lagos, Nigeria by using techniques such as georeferencing.

Tools like Esri's StoryMaps helps us to compare views of the past with the present and find the places that have been built over.

In Ademide's classes such as Maps: A History of Cartography, students are exposed to thinking about how representations of places on maps have changed or shaped power over time. The class talks about a variety of maps from different places and historical periods. Students learn about spatial humanities methods in her class on Digital Storytelling.

Q&A: Has there been something in your research that changes the way you see Lagos as a city? Ademide responded that visual sources have allowed her to see the city itself as an archive. Creating maps has altered her understanding of how people have used space.

- **Amr Magdy, Computer Science and Engineering**

Amr is a co-founding faculty member of the Center for Geospatial Sciences at UCR. His research interests include database systems, spatial data management, big data management, and large-scale data analytics.

Rather than sharing slides, Amr spoke to some of the points raised in the previous presentations from a computer science perspective. His department graduates students who know how to build GIS software. The three preceding presentations highlighted different needs from GIS. Rather than design separate GIS for each application, software engineers incorporate features that will serve most or all users. Software is continually updated to add functionality and features. Even within a discipline the needs for particular capabilities can vary.

People with a background in computer science understand how to create many general aspects of a GIS. Recently, UCR has hired faculty with a spatial technology background to provide more specialized training, such as in CS 225: Spatial Computing. In this class, they look at several use cases and think about how to apply what they already know about computer science to create tools needed in a spatial context. (Students without a computer science background can also take the course. Amr makes adjustments to accommodate them. The class is most appropriate for senior undergrads and for graduate students.) There are careers and a need in the workforce for people with this kind of training.

Q&A: What level and type of math background would you want students to have in CS 225? Amr responded that no specific math or statistics background is required, because the class doesn't go deep into details of technique.

How often does the question of power dynamics arise when software providers are envisioning the ideal user model? Who gets included, who gets excluded? The entities who are selling or providing the software have to look at the market and make decisions based on achieving the maximum number of customers. When making upgrades they try to be responsive to what they hear the needs are. The practice of Agile software development, where user feedback is obtained early on, is one way GIS software can be made more inclusive in subsequent releases.

Discussion

Janet asked if the professors have seen students really get into GIS, maps, and spatial thinking after first being exposed to it.

Hoori: It happens fairly often. They respond to it being a new way of thinking and analyzing data. Some also become more open to taking computer science classes as a result.

Ademide: History students in Digital Storytelling get excited about having a different way to analyze and present historical information and share it with others. Students in her Maps class enjoy how the class prompts them to think about maps in different ways.

Kenichiro: Many students in anthropology are interested in learning spatial analysis. Some would like additional courses but don't know how to find what's offered at UCR. The list of courses in the Geospatial/GIS Quarterly will be helpful to students.

Amr: He had a couple of students who have been hired by Esri, and one PhD student who took the class joined Amr's research group.

Utifon asked about ways to learn GIS skills.

Amr: It's best if your department offers a GIS class. If not, start with a general class, such as a MOOC online.

Janet: Public Policy and Earth & Planetary Sciences both offer Intro to GIS courses.

Ademide: The humanities could really use a GIS class.

Jay said he is wondering how to incorporate mapping and GIS in an English class, such as at a community college. He got some great ideas from today's presenters.

Jordan works for Esri as the Product Marketing Team Lead with a large portfolio. He has an MBA and did graduate work in communications, but never heard of GIS until he joined Esri. He wants students to know that Esri has a lot of resources for learners, and that he can connect UCR affiliates with staff at Esri who can help them. Contact him at jcullen@esri.com. His colleague Canserina is the main conduit between Esri and UCR.

MOOCs: <https://www.esri.com/training/mooc/>