

NSF Spatiotemporal Innovation Center



June 2022 Monthly Newsletter

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START Training, A Success

Through NSF DCL NSF 21-076 START supplemental support, the NSF Spatiotemporal I/UCRC engaged a cohort of 10 associate degree students from Valdosta State University (VSU) in southern Georgia. The advanced training broadened career pathways for the students with four of them receiving university or state awards and four graduates transferring to four-year college studies in STEM degrees. Six of the ten students were with underrepresented backgrounds of women, Hispanic, and African American. These ten students were engaged by a total of 7 mentors engaged with daily project meeting and weekly reports. A pre- and post- internship survey suggested their spatiotemporal computing skills advanced significantly throughout the program. Three of these students continue to be engaged in center research and a 2022 proposal was submitted to continue the success and broaden the program to include students from Northern Virginia Community College.

Spatial Data Lab Updates

The Spatial Data Lab team gave a presentation on “Dataverse Enables Effective Sharing of COVID-19 Data” at the Dataverse Community Meeting 2022, on June 15 and 16, and generated audiences’ interests on using Dataverse API to feed online data into KNIME-cased workflows for data analysis and visualization. The annual event was hosted virtually by Harvard University’s Institute for Quantitative Social Science (IQSS).

The Spatial Data Lab team and collaborators gave a presentation on “Disparities in Telehealth Accessibility to Primary Care Physicians in Baton Rouge, Louisiana” in the fifth annual Politics and Computational Social Science (PaCSS) conference, which took place in a hybrid format on June 16-18, 2022 at Harvard University’s Institute for Quantitative Social Science (IQSS).

<https://mapgive.state.gov/c2m2/>.

Workbench Project Update

Since inception of the “Developing Workbenches for Spatial Data Science” project, the research team has added 22 Python standard notes to the KNIME Data Analytics Platform, enhancing geospatial data analytical capabilities with KNIME-based workflows. More are currently under development.

NEW REU COHORT

The GMU site welcomes two REUs to our research team for this summer: Kellyn Hooker, a rising senior at the University of Florida, joins us between June and mid-August, as well as Theo Trefonides, a Dartmouth college rising senior, from late June to mid-July. Kellyn will aid in air quality research while Theo will work on both air quality research and on the development of GMU's Ukrainian Rapid Response Portal.

GMU has also picked up three Aspiring Scientists Summer Internship Program (ASSIP) fellows for the duration of the summer: Winston Gan, Priya Nayak, and Andrew Yang. ASSIP, as hosted by George Mason University, is built to give high school and early college students a head-start in their researching careers, with the opportunity to co-author papers throughout the summer.

The Harvard site welcomes two REUs to join our research team this summer. Eamon Breen, a senior from the University of Massachusetts Amherst, is with us from early June to mid-July, and Daniel Weinstein, a junior from the University of California Santa Barbara, will be joining from mid-July to late August. Both will be working with several Harvard researchers in a diverse range of application domains, under the guidance of CGA professionals.

Discovering Precursors to Tropical Cyclone Rapid Intensification in the Atlantic Basin Using Spatiotemporal Data Mining

Our recently paper, published in the journal, *Atmosphere*, explores the precursors to tropical cyclone formation through the usage of spatiotemporal data mining. Yun Li proposes a new knowledge discovery framework to detect these precursors.

KEYWORDS: spatiotemporal data mining, clustering, rapid intensification, tropical cyclone, precursor, big spatiotemporal data analytics

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