

Graduate Pursuit: Identifying Socio-Environmental Watershed Typologies Based on Stormwater Pollution Using Machine Learning

Time of Event:

Monday, August 19, 2019 - 09:00 to Thursday, August 22, 2019 - 17:00

Identifying Socio-Environmental Watershed Typologies Based on Stormwater Pollution Using Machine Learning

This project represents the first socio-environmental-technological system (SETS) study of the generation of stormwater pollution in urban watersheds across the United States. Urban stormwater pollution poses a major and growing threat to local waterbodies, yet its study and management has consistently ignored the human activities and behaviors that release pollution. In this project, we will combine data on population (social) and urban form (technological) to model human activities, along with landscape and climate factors (environmental). These four factors interact to drive stormwater pollution, and thus underlie our SETS conceptual framework. We will analyze the data using machine learning clustering and classification algorithms to identify typologies of urban watersheds based on the stormwater pollution they produce. Then, we will build a regression model to predict stormwater quality based on any given SETS characteristics. This analysis will be conducted first at a broad national level, using data from 10 American metropolitan areas from 1992 to 1996, followed by a detailed analysis of 3 metropolitan areas from 1992 to 2013. By identifying watershed typologies, we will expose relationships between SETS characteristics and stormwater quality. These results will suggest where public outreach may be needed to influence human behavior and will have implications for local urban planning policy.

To learn more about the Graduate Pursuit, click [here](#) [1].

Event type:

Project Meeting

Event Attendance:

Private Working Group

Source URL:

<https://www.sesync.umd.edu/events-announcements/tue-2019-06-04-2103/graduate-pursuit-identifying-socio-environmental-watershed>

Links

[1]
<https://www.sesync.org/project/graduate-pursuits-request-for-proposals/identifying-socio-environmental-watershed-typologies>