



LUMS | Centre for Water Informatics & Technology

# Models, Learning and Sensing in Hydrology

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**Dr. Ritvik Sahajpal**

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## How's it Growing? Using Earth Observation Data for Responsive Food Security.

Wednesday, May 18, 2022 | 6 – 7 pm PKT

**Abstract:** Yield forecasting and estimation is key to almost all food security and agricultural analysis, including ensuring market transparency, trade decisions, triggering anticipatory actions in the face of impending shortfalls, informing farmer best practices, insurance payouts, designing effective adaptation, and mitigation strategies in the face of a warming climate. This talk will comprise of three parts, in the first part, I will introduce the GEOGLAM-NASA Harvest Crop Monitors that provide a public good of open, timely, science-driven information on crop conditions and are often used to inform humanitarian organization decisions on food allocation and assistance. In the second part of the talk, I will provide an overview of the current crop yield forecasting approaches, their strengths, and limitations and present our ongoing work on developing a crop threat early warning system that attributes pre-harvest losses to potential crop threats through estimating crop conditions by integrating machine learning algorithms and earth observation (EO) data. Finally, I will highlight attributes that are key to making a yield forecasting model useful in an operational context.

**Moderated by Dr. Jawairia Ashfaq Ahmad, Centre for Water Informatics & Technology (LUMS)**

**Speaker Biography:** Dr. Ritvik Sahajpal is an Associate Research Professor at the Department of Geographical Sciences at the University of Maryland, crop condition co-lead at NASA Harvest, and a member of the data advisory council at Foundation for Food and Agriculture Research (FFAR). His research expertise is broadly related to using Earth observation data to monitor crop yields from field to global scales, modeling the impacts of conservative agriculture practices on soil health and crop yield, and mapping land-use and land-cover change and modeling their impacts on the carbon-climate system. Dr. Sahajpal uses both machine learning and data-driven agro-ecosystem modeling techniques in his work. His research has been funded by NASA, FFAR, USAID and published in journals like Nature, Environmental Research Letters, Geoscientific Model Development and Science of the Total Environment. Previously, he was a post-doc at the Forest and Wildlife Ecology Department at the University of Wisconsin-Madison, and finished his PhD in Geographical Sciences at the University of Maryland in 2014.

The webinar can be attended via Zoom. In order to attend, the participants must register at the following link:

<https://wit.lums.edu.pk/MLSH2022>

Instructions to log into the webinar will be sent via email.

For more details and queries, contact Soban Hameed Saigol at [soban.hameed@lums.edu.pk](mailto:soban.hameed@lums.edu.pk) 0332 4495057