



# Xavier University Bhubaneswar

## University Dialogue Series (UDS)

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**Date:** 05 January 2018

**Time:** 10.30 am

**Venue:** Class Room 129

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### **Solving Environmental Challenges in the Age of Big Data: Role of Remote Sensing in Cyber-Physical Systems (CPS) Research**

**Speaker:**

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([www.geography.uga.edu](http://www.geography.uga.edu), [www.cyanotracker.uga.edu](http://www.cyanotracker.uga.edu), [www.smallsat.uga.edu](http://www.smallsat.uga.edu))

Cyber-physical systems (CPS) are engineered systems that are built from, and depend upon, the seamless integration of computational algorithms and physical components (NSF, 2016). Remote sensing can be used to engineer complex cyber-physical systems that people can use or interact with and depend upon to solve environmental problems such as urban heat hazards and water resources. For example, water resources, the major driving force on our planet, support numerous ecosystems and cultural services from maintaining biodiversity, nutrient cycling, and enhancing primary productivity; to recreation, ecotourism, transport, and other cultural uses. The pressure on water resources has been on the rise and will continue to increase in the coming years because of increased frequency of drought, urbanization, urban population growth, deforestation, increased use of fertilizers and pesticides, and spread of invasive species. Therefore, citizen science and big data driven technologies are needed for timely monitoring and implementation of mitigation and restoration measures in problematic areas. Remote Sensing and Spectroscopy Lab (RSSL) at the University of Georgia (UGA), is mainly focused on developing cyber-physical system based infrastructure for solving acute environmental problems in southeast U.S. such as urban heat hazards, wetland dieback, and cyanobacterial harmful algal blooms (CyanoHABs). This presentation discusses the principle, architecture, and implementation of three cyber-physical system research projects to monitor and mitigate the aforementioned environmental problems.

**Note:** Dr. Deepak Mishra is at XSOS, XUB to conduct a workshop on ‘Remote Sensing in Earth System Science’ as a Fulbright Specialist from 02-13 January 2018.

**Key Words:** Environmental Challenge, Remote Sensing, Big Data, Cyber Physical System.

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