INNOVATION PATHWAYS TO SUSTAINABILITY

Distinguished Lecturers Series

Prof. Xiaoxiang Zhu

"ARTIFICIAL INTELLIGENCE AND DATA SCIENCE IN EARTH OBSERVATION — HELP SHAPING A SUSTAINABLE FUTURE"

November 11, 2020, 14 h CET, Zoom

Abstract:

Geoinformation derived from Earth observation satellite data is indispensable for tackling grand societal challenges. Among them energy, urbanization, climate change, ecology, food security and environment are crucial for shaping a sustainable future. Furthermore, Earth observation has irreversibly arrived in the Big Data era, e.g. with ESA’s Sentinel satellites and with the blooming of NewSpace companies. This requires not only new technological approaches to manage and process large amounts of data, but also new analysis methods. Here, methods of data science and artificial intelligence (AI), such as machine learning, become indispensable.

In this talk, explorative signal processing and machine learning algorithms, such as compressive sensing and deep learning, will be shown to significantly improve information retrieval from remote sensing data, and consequently lead to breakthroughs in geoscientific and environmental research. In particular, by the fusion of petabytes of EO data from satellite to social media, fermented with tailored and sophisticated data science algorithms, it is now possible to tackle unprecedented, large-scale, influential challenges, such as the mapping of global urbanization — one of the most important megatrends of global changes.

About the speaker:

Xiaoxiang Zhu is the Professor for Signal Processing in Earth Observation at the Technical University of Munich (TUM) and heads the department “Earth Observation Data Science” at the German Aerospace Center (DLR). She also serves as the Director of the international AI future Lab “AI4EO”, the co-spokeswoman of the Munich Data Science Research School, the head of the Helmholtz Artificial Intelligence – Research Field “Aeronautics, Space and Transport”, as well as in the board of directors of the Munich Data Science Institute of TUM.

The research of Xiaoxiang focuses on artificial intelligence and data science in Earth observation. She develops innovative machine learning methods and big data analytics solutions to extract highly accurate large scale geo-information from big Earth observation data. Her team aims at tackling societal grand challenges, e.g. Global Urbanization, UN’s SDGs and Climate Change, thus, works on solutions that can scale up for global applications. For her research work, Xiaoxiang has received several scientific awards, e.g., Leopoldina Early Career Award (2018) and two ERC grants (2016, 2020).

Registration for the event: https://www.uni-bonn.de/forschung/forschungsprofil/innovation-und-technologie-fuer-eine-nachhaltige-zukunft/registration

The lecture is held via Zoom and will be recorded and published afterwards. The Zoom access data will be sent to those registered a few days prior to the lecture.

About the Lecture Series

The lecture series on Innovation Pathways to Sustainability is a forum for high profile and internationally visible scientists who are active in academia or at the science-policy interface. The lectures address an interdisciplinary audience of experts from natural, social, and engineering sciences as well as representatives from international and implementation-oriented organizations.

Save the date for the next lecture:

• December 1st, 2020, 14 h CET, Prof. Matthew McCabe

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