IGZ Colloquium: Guest lecture

Tuesday, 7th July, 2026
11:30 – 12:30
Conference room, Großbeeren

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AI with low-cost, scalable monitoring approaches in agriculture

This presentation introduces recent work on low-cost, scalable AI-based monitoring in agriculture and agroecosystems in the AI group at ZALF. Across studies, we develop computer vision and multimodal approaches using smartphones, citizen science, and general-purpose AI to enable largescale data collection and analysis. Examples include automated assessment of soil fauna activity from bait lamina imagery, geographic-scale coffee yield estimation from farmer-acquired images, and object counting using both specialised and general-purpose AI models. We further analyse how data quality and sampling design influence model performance in participatory settings. Complementary work integrates explainable AI and causal inference to translate observations into interpretable ecological insights. Together, these approaches demonstrate that combining low-cost sensing, human participation, and AI can support scalable, transparent, and decision-relevant monitoring in agriculture.

since 2020	Head of research group Artificial Intelligence for Smart Agriculture; ZALF and Professor for Environmental Data Science; BTU Cottbus-Senftenberg
2016	Postdoctoral researcher; FU Berlin
2015	Postdoctoral researcher; Swiss Federal Institute of Aquatic Science and Technology
2007 - 2015	PhD Civil Engineering; Tokyo Institute of Technology
2007 – 2012	BEng/MA Environmental and Civil Engineering; Tokyo Institute of Technology