



Trends in Earth Observation and Spatial Data Science Languages

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BIO:

Yomna Eid is a PhD Candidate and Research Associate at the Spatio-Temporal Modelling Lab (STML) led by Prof. Edzer Pebesma at the Institute for Geoinformatics (ifgi), University of Münster. She completed her Master of Science from the University of Würzburg in the EAGLE program jointly conducted with the German Aerospace Center (DLR). She also holds a Bachelor of Science in Aerospace Engineering with a minor in Physics from the University of Science and Technology at Zewail City.

Her research interests are primarily space technologies, with a focus on Earth Observation data and its analysis using data science languages associated with it, such as Python and R. She is also actively involved in the NFDI4Earth project, funded by the German Research Foundation (DFG).

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Room: Seminarraum (9377.EG.012), TUM

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ABSTRACT:

Part 1 :: EO Data: is finer resolution justified?

Earth observation missions generate some of the largest data sets, with image archives now spanning petabytes. High- and very high-resolution remote sensing imagery has become crucial for various geoscientific analyses, which are often computationally intensive. As spatial and temporal resolutions increase, an important question arises: does using a coarser-resolution substitute for standard high-resolution imagery significantly impact the accuracy and quality of analysis results? This part of the talk will explore the use of down-sampled high-resolution data in calculating aggregated target quantities, and evaluate how it impacts the quality and accuracy of the final product.

Part 2 :: Spatial Data Science across Languages

Spatial data science is concerned with finding answers to spatial questions on the basis of available data, and communicating that effort. Scripting languages like R, Python and Julia predominate in the field and are often used to make this act of communication easier. In this second part of the talk, we report on the efforts to look at differences and commonalities in the approaches taken by the different languages in the Spatial Data Science across Languages (SDSL) workshop as well as the trend of using Quarto as a publishing tool to facilitate interoperability across these languages.