Research Insider: 'Fuzziness and artificial intelligence in spatial data processing'

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Lugar: Assembly Hall

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Idioma: Inglés

Streaming: Non

Many scientists need to work with data that carries a spatial component; this is the case for example in climate studies or other life sciences. The spatial data often have inherent uncertainty or imprecision, impacting the accuracy of the results that can be obtained from working with them.

In this talk, we first focus on some aspects of the representation of spatial data that has uncertainty or imprecision in the spatial component and explain how fuzzy set theory was employed to make these models. From there, we change the topic to processing spatial data using artificial intelligent methods.

Many analysis require the combination of multiple spatial datasets, this is the map overlay operation which is not trivial for gridded data. In particular, we will elaborate on a novel approach that uses artificial intelligence for considering the map overlay problem. This approach already has proven useful for spatial disaggregation, but it should be possible to extend it for regridding of data and even spatial multi criteria decision making problems.

The link of the developed approaches to current research is made, where the knowledge gained from both the models and algorithms will be applied in indexing spatial datasets with the initial goal of advanced querying.