Environmental Sciences Graduate Program Student Seminar Series

Transferability evaluation of land cover mapping using high-resolution satellite images

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March 12th, 2021 | 2:00-3:00 PM

Join Zoom Meeting

https://osu.zoom.us/j/99820921442?pwd=d3hpTS9wYnc2Z29uZDR4NE4wNy81UT09

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Abstract

High-resolution remote sensing satellite images can cover the global earth surface on a weekly basis. Accurate land cover/land use maps derived from these images play an important role in applications such as agriculture, urban planning and environmental monitoring. Generally, land cover classification tasks are accomplished using supervised machine learning methods to produce reliable and accurate results. However, this is at the expense of a large number of annotated training samples, which are often impractical at scale. Although reusing models trained from a source dataset and applying that to new dataset seem to be viable to some extent, it is often found to be highly dependent on the patterns of scene and radiometric properties of the new dataset. Yet there is no comprehensive analysis as to which extend, a model trained from a dataset from the source domain, can be readily applicable to a target dataset. Therefore, we aim to investigate the transferability of deep learning models and traditional statistical learning-based methods for semantic labelling with high-resolution satellite imagery. In addition, we associate these accuracy metrics with remote sensing indices and examine their potential to indicate model performances on test sets, which can be particularly useful when labels on the test sets are not available.