Instance segmentation model for tracking building in satellite imagery upon high resolution time-series data

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ABSTRACT
Satellite imagery analytics have numerous time series applications to respond to human development and disaster. The SpaceNet 7 Multi-Temporal Urban Development Challenge aims to improve these methods while simultaneously advancing state-of-the-art foundational mapping. We propose an encoder-decoder convolutional network that builds upon residual architecture, where decoder architecture includes the Pixelshuffle method as upsampling to train time-series satellite imagery for instance segmentation. To track individual buildings construction over time to assess urbanization, two years time-spans monthly high resolution satellite imagery covering broad areas for each location. There are a hundred locations of image cubes, 60 areas for training, 20 for validation, 20 for the final test. Although identifying and tracking the small pixel object area upon high object density is a challenging task, we obtained a higher SCOT metric score ameliorated more than the baseline given by the challenge host(15.83)

REFERENCES