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2022

## OSM-GAN: Using Generative Adversarial Networks for Detecting Change in High-Resolution Spatial Images


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### Recommended Citation

Niroshan, Lasith and Carswell, James, "OSM-GAN: Using Generative Adversarial Networks for Detecting Change in High-Resolution Spatial Images" (2022). *Other*. 17.

<https://arrow.tudublin.ie/aaschmedoth/17>

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Detecting changes to built environment objects such as buildings/roads/etc. in aerial/satellite (spatial) imagery is necessary to keep online maps and various value-added LBS applications up-to-date. However, recognising such changes automatically is not a trivial task, and there are many different approaches to this problem in the literature. This paper proposes an automated end-to-end workflow to address this problem by combining OpenStreetMap (OSM) vectors of building footprints with a machine learning Generative Adversarial Network (GAN) model - where two neural networks compete to become more accurate at predicting changes to building objects in spatial imagery. Notably, our proposed OSM-GAN architecture achieved over 88% accuracy predicting/detecting building object changes in high-resolution spatial imagery of Dublin city centre.