

Reaching into the past: Deep learning and historic aerial imagery

The following questions were asked during our live webinar with Brent Martin but due to time restrictions, we were unable to answer these in the session.

Is it possible to get the data for Hamilton city?

We are currently in discussion with the client around data publication, but we hope to publish all of the data in due course.

Has this work been published or could you provide other references?

The work has not been published yet, but will be shortly.

This is great. What is the funding source for your work?

The work was funded by a government contract.

Any issues with large industrial buildings vs small houses. Needed to use larger image chips?

The chips we used were 512x512 pixels, which translates to 128 - 256m square. Generally this was sufficient, but it is true that larger buildings tended to have slightly lower detection accuracy.

How was the confusion matrix outputs of the model created in a certain year and applied backwards? F-score, recall, overall accuracy, omits etc?

We used a combination of overall (pixel) accuracy and IOU to evaluate the models.

Bad old imageries/photos: Have you tried to use Graph Neural Networks to improve and generate better photos from the old ones (as usually used for old family photos)?

I'm not aware of using GNNs for this purpose. We are familiar with other techniques such as DDPM models as used in super-resolution, but are wary of using techniques that generate synthetic data improvements that might bias the result. It is important to note that the objective was to generate a robust building footprint for calculating statistics, not the "best looking" footprint, although this was a desirable secondary goal.

To which extent do you use Graph Neural Networks and Knowledge Graphs for Scene Graph generation?

We haven't used those techniques. It looks like an interesting direction to explore.