CityGen: Infinite and Controllable City Layout Generation

Supplementary Material

1. Introduction

In this supplementary material, we more visual examples to complement our paper. The supplementary material is structured as follows:

- More block generation results in Sec. 2
- More user control results in Sec. 3
- Semantic and height fields pairs in Sec. 4
- More large-scale generation results in Sec. 5

2. Block Generation

We first present more samples from CityGen's block generation models at three scales in Fig. 1.

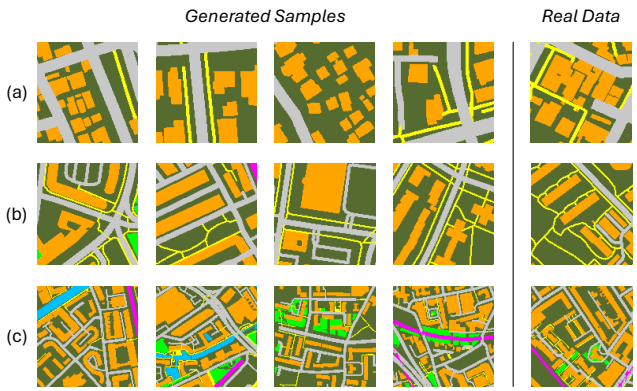

Figure 1. **Sampled Results from CityGen's Block Generation Models**. CityGen's block generation models can generate diverse and realistic 2D layouts at all scales. (a) 128^2 (b) 256^2 (c) 512^2. On last column of each row we show a ground truth data in comparison to the generated results.(Class palette: Terrain , Vegetation , Building , Traffic Roads , Rail , Footpath , Water .)

3. User Control

Next, we present more user control results in Fig. 2. We input sketches of road segments as control signals.

4. Height Field Generation

In this section, we show pairs of semantic layouts and height fields in Fig. 3.

5. Large Scale Generation

In this section we present two 2048^2 results generated using CityGen's Infinite Expansion Module in Fig. 4. We first generate 512^2 patches, then slide the outpainting window in various directions to generate the 2048^2 layouts.

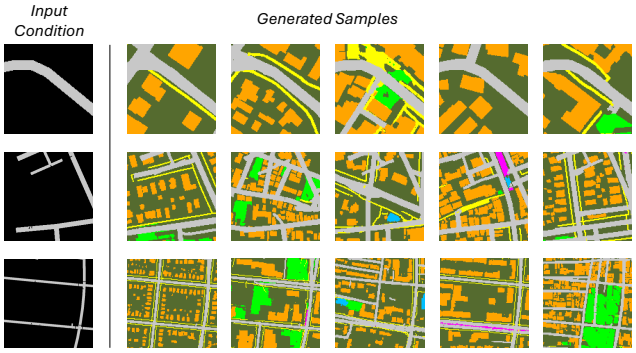

Figure 2. **Controlled Generated Samples**. Controlled Generated Samples. CityGen's inpainting and outpainting models produce diverse, realistic results based on user input sketches at scales of 128, 256, and 512 pixels (shown in the first column).

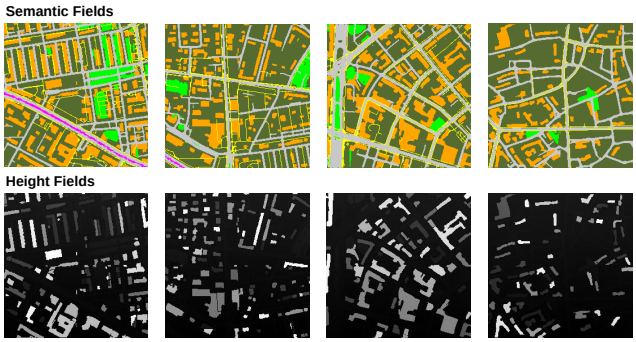

Figure 3. **Semantic Layout and Height Field Pairs**.Top: Semantic layouts of size 1024^2; Bottom: Synthesized height fields normalized to the range of $(0, 1)$, brighter color indicate higher value.

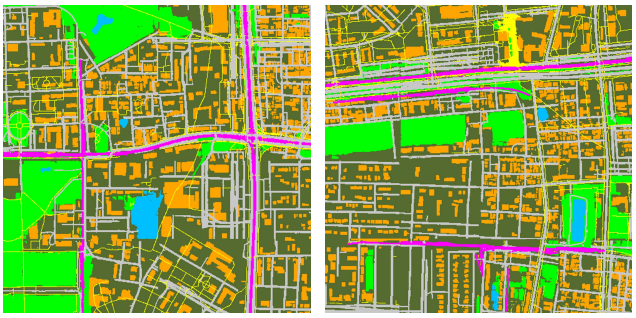

Figure 4. **Infinite expansion results**.2048^2 samples from CityGen's infinite expansion module.