Infinite Procedural Infrastructured World Generation
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Introduction
- Complex infinite world generation is a relatively new field of research with little coverage.
- Creating virtual words manually is arduous.
- Generating deterministic interconnected features is complicated.

Solution
As part of a master’s thesis, a novel algorithm capable of generating deterministic infinite worlds with many different features was developed. The goal of the project was to generate a world similar to real life temperate climate zone areas near civilized areas. In addition to pictured features, a variety of potential future features are discussed in the thesis.

Exponential Generation
- A novel way developed for generating different features.
- The world is divided into nested chunks.
- Differently sized chunks generate features most fitting to their size.
- Smaller chunks require larger parent chunks to exist.
- Currently 2 different chunks are implemented:
  - Macrochunks (8 × 8 km²)
  - Mesochunks (512 × 512 m²)
- A third, megachunk (128 × 128 km²), is discussed for generating rivers and railways.

Applications
- A computer game’s background world;
- A simulation environment for algorithms;
- A driving simulator;
- A game with a small file size;
- Initial input for map generation tools for user-controlled refining.