

FAQ for On Realism of Architectural Procedural Models
Version 1, 14. May 2017

Q: What system did you use to generate the buildings?

A: We used CityEngine, a state of the art system for generating procedural buildings.

Q: What system did you use to render the buildings?

A: We used the Corona Renderer, a non-biased, fully GI enabled renderer.

Q: Where do your datasets come from?

A: The Venice, Paris, and Medieval datasets are part of CityEngine's examples. The Favela dataset has been gracefully provided by Matt Buehler of VRBN.io.

Q: Is your paper just benchmarking the CityEngine results?

A: For the most part, the answer is no. We do indeed use CityEngine, and 3 out of 4 datasets come from CityEngine's examples. However, these datasets differ in quality and each of them represents a different set of possible mistakes an author of a procedural rule in any system might make (though we understand that there might be small differences implied by, e.g., how easily some of these mistakes can be made in different modelling systems). The results are therefore applicable to buildings generated by any method, within a small margin of error.

Q: Why did you not compare similar but not identical man-made models and photographs?

A: A man made model would not have the same kinds of errors a procedurally generated model, created automatically and stochastically from a man-made procedural rule, would. The errors in the generated results allow us to see what can, typically, go wrong.

Q: Why did you not compare photographs of buildings and their highly realistic man-made models?

A: Because we focus on finding errors in the models and the materials. Comparing a very well done model would only provide information about what parts of the rendering process influence realism.

Q: Why did you not use a highly realistic man-made model and turn various rendering features on and off to see how they influence the model's perceived realism?

A: See the above answer.

Q: Why did you not use a procedural rule and turn various features on and off to see how they influence the model's perceived realism?

A: Our experiment allowed us to look into errors that rule authors might introduce by accident. As such, the above is outside of the scope of our paper. However, we think such an experiment would provide the community with important results.

Q: Why did you show all of the images at once?

A: One of our hypotheses was that the users would be able to spot common patterns on procedural rules, or see some other form of systematic error that is present in the procedurally generated images, but not in the photographs. For this reason, we wanted the users to see all of the images at the same time.

Q: Why did you not use a generated and/or realistic background instead of a white one?

A: We wanted to use a background that would not give any cues as to the origin (real, generated) of the whole image. We therefore didn't want to use a generated background. The only plausible choice would be to use a real background, e.g. the photograph of a sky. However, we would then have to match the sky's intensity and light direction to the cut-out image of a building. Additionally, a realistic background might still introduce a bias towards realism. We used a solid color background which does introduce a similar bias (but towards "computer generated"), but is easier to implement.

Q: Why did you not use a different filter?

A: We wanted to use a filter that removes detail while preserving structure. We considered using a bilateral filter, a nearest neighbor filter, and a mosaicing filter, but felt those introduce a relatively strong bias towards the "computer generated" answer, as they make the resulting image look more like artwork. The Gaussian filter is akin to minification and doesn't introduce an artwork-like bias. It is also easily parameterizable.

Q: Why did you not show the image at a smaller size rather than showing them blurred?

A: We decided to show a blurred image instead of a minified image as we suspected small images might be more difficult for the users to look at. We also felt if looked at from close distance, the pixel grid of the monitor might bias the users further.

Q: Did you tell your users what the correct answers were?

A: No, we didn't tell the users the correct answers at any point in the experiment.

Q: I still do not understand the procedural part. Could you explain?

A: Our experiment investigates the error, especially in the model and its materials, a procedural rule might introduce without its author's intent. This kind of error would not be present in a manually modelled building.