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A procedural technique for thermal simulation and visualization in urban environments

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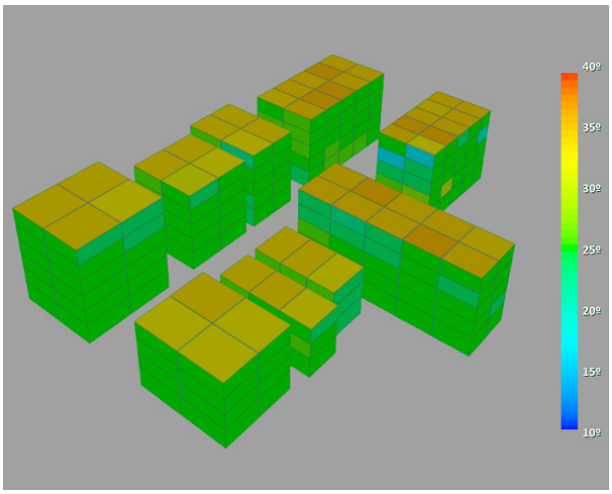

Analysing the thermal behaviour of buildings is an important goal for any and all of the tasks involving energy flow simulation in urban environments. However, the number of variables to be considered, along with the difficulty of implementing some of them, make it difficult to address the problem on an urban scale. In this paper we propose a procedural approach that, from a 3D urban model and a set of parameters, simulates the thermal exchanges that take place inside and outside buildings in an urban environment. We also provide a technique to efficiently visualise thermal variations over time of both the interior and exterior of buildings in an urban environment. We believe this technique will be helpful for performing a rapid analysis when building parameters, such as materials, dimensions, shape or number of floors, are being changed.

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