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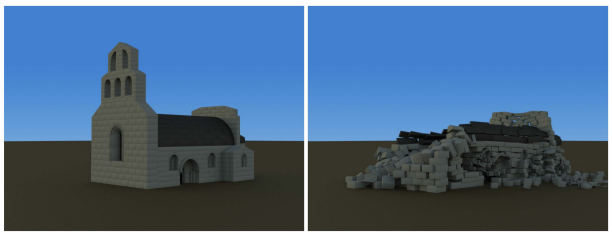
www.virvig.eu
C. Llorens i Artigas 4-6
Edifici U, 1er pis
E- 08028- Barcelona

Earthquake Simulation on Ancient Masonry Buildings

Fita, Josep Lluis; Besuievsky, Gonzalo; Patow, Gustavo A.



Research on seismic simulations has focused mainly on methodologies specially tailored to civil engineering. However, we have detected a lack in the area of interactive cultural heritage applications, where speed and plausibility are the main requirements to satisfy. We designed a tool that allows setting up and recreating earthquakes in a simple way. We coupled our earthquake simulator with a structural simulator of physics, specifically tailored to masonry buildings, achieving a high degree of accuracy in the simulations. To validate our model, we performed a series of tests over a set of ancient masonry structures such as walls and churches. We show the feasibility of including earthquake simulations and structural vulnerability, a building property that limits the damage of this under seismic movements, into historical studies for helping professionals understand those events of the past where an earthquake took place.

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