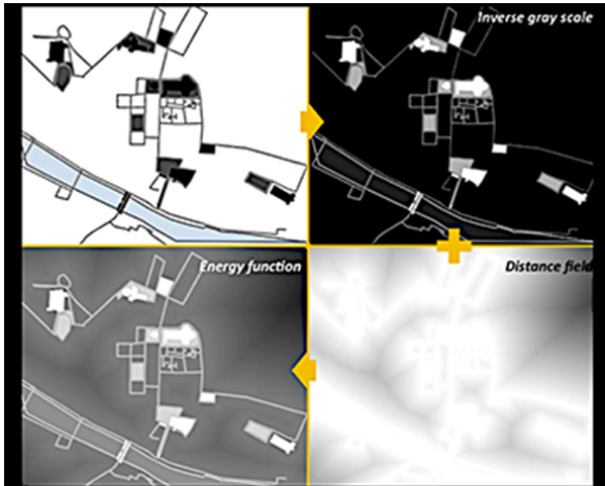


Shrinking city layouts

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One important use of realistic city environments is in the video game industry. When a company works on a game whose action occurs in a real-world environment, a team of designers usually creates a simplified model of the real city. In particular, the resulting city is desired to be smaller in extent to increase playability and fun, avoiding long walks and boring neighborhoods. This is manual work, usually started from scratch, where the first step is to take the original city map as input, and from it create the street network of the final city, removing insignificant streets and bringing important places closer together in the

process. This first draft of the city street network is like a kind of skeleton with the most important places connected, from which the artist can (and should) start working until the desired result is obtained. In this paper, we propose a solution to automatically generate such a first simplified street network draft. This is achieved by using the well-established seam-carving technique applied to a skeleton of the city layout, built with the important landmarks and streets of the city. The output that our process provides is a street network that reduces the city area as much as the designer wants, preserving landmarks and key streets, while keeping the relative positions between them. For this, we run a shrinking process that reduces the area in an irregular way, prioritizing the removal of areas of less importance. This way, we achieve a smaller city but retain the essence of the real-world one. To further help the designer, we also present an automatic filling algorithm that adds unimportant streets to the shrunken skeleton.