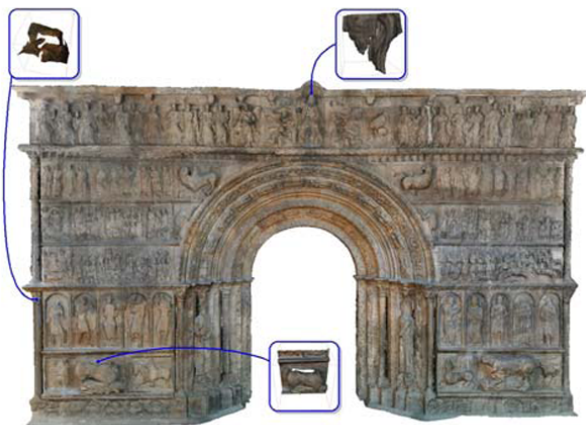


Massive Mesh Hole Repair Minimizing User Intervention

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In constructing a model of a large twelfth century monument, we face the repair of a huge amount of small to medium-sized defects in the mesh. The total size of the mesh after registration was in the vicinity of 173M-triangles, and presented 14,622 holes of different sizes. Although other algorithms have been presented in the literature to fix these defects, in this case a fully automatic algorithm able to fix most of the defects is needed. In this paper we present the algorithms developed for this purpose, together with examples and results to measure the final surface quality. The algorithm is based on the iteration of

smoothing and fitting steps on a uniform B-Spline

defined on a 3D box domain bounding the hole. Tricubic and trilinear B-Splines are compared and the respective effectiveness is discussed.