



This paper presents a new approach for the quadrangulation of triangular surfaces. While previous work focused on fully automatic computations or explicitly involved user control for the integration of subjective decisions, we introduce a new example-based quad-meshing paradigm, in order to easily reproduce the subjective decisions made in the design of reference examples found in a corpus. The algorithm enables to reproduce the subjective aspects of the example (extraordinary vertex layout) while minimizing the induced distortion; allowing users to leverage reference meshes considered of quality for fast prototyping. At the core of our technique, we provide the analytic gradient of as-rigid-as-possible 2D transformations. This expression is implemented in a fast solver to automatically register planar unfoldings of the geometries, yielding low-distortion cross maps of the examples onto the input in 3D. In addition, our technique provides interactive feedback for user modifications of the cross maps computed automatically. Our technique supports localized mesh composition and enables to reproduce meshing styles despite intrinsic reflective symmetry, large variation from isometry or even topological variation. Experiments demonstrate the accuracy of the mimicking process as well as its time efficiency.

Paper



Video

