

# Constrained approximation of rational triangular Bézier surfaces by polynomial triangular Bézier surfaces

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## Abstract

We propose a novel approach to the problem of polynomial approximation of rational Bézier triangular patches with prescribed boundary control points. The method is very efficient thanks to using recursive properties of the bivariate dual Bernstein polynomials and applying a smart algorithm for evaluating a collection of two-dimensional integrals. Some illustrative examples are given.

*Keywords:* Rational triangular Bézier surface, polynomial approximation, bivariate dual Bernstein basis, two-dimensional integral, adaptive quadrature

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