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Dedicated to Professor Ioan A. RUS on the occasion of his 70th anniversary

Least squares data shape preserving

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ABSTRACT. Least squares data fitting is an important task in many fields of applied mathematics [3,4]. Essentially, in two dimensions it means to find an element from a given class of functions which best approximates a given set of points in the real plane, by also preserving their shape. In this paper we use for such an approximation, classical and Bernstein polynomials. The (generally inconsistent) least squares problems so obtained are solved by both a Kaczmarz-like projection method, and an approximate orthogonalization technique (previously developed by the one of the authors in [1,2]). Numerical experiments and comparisons are also provided.

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