



## Shape, Displacement and Mechanical Properties from Isogeometric Stereo-correlation

Digital Image correlation (DIC) is an optical measurement technique based on pictures (coming from a camera) providing full-field displacement measurements which are especially useful to characterize the mechanical behavior of materials of structures. This work is dedicated to the development of a 3D surface measurement technique using stereo-DIC to obtain 3D shape, 3D kinematic fields and mechanical behavior from images taken during an experiment. Using a global approach to Stereo-DIC based on the “a priori” knowledge of the observed geometrical model, one can adapt a generic formulation to the specific case of NURBS surfaces. The shape and displacement obtained are therefore expressed in a NURBS formalism (and thus keep a high continuity and flexibility) which are consistent with the geometrical model used. Using this measurement technique, one can perform identification using full-fields kinematic fields and numerical simulations to extract mechanical parameters from images taken during an experiment. NURBS formulation is used both for the measurement and the numerical part, therefore remaining (geometrically) consistent with the complicated design of industrial parts

**Dr. John-Eric Dufour**  
Department of Civil Engineering and Architecture  
University of Pavia

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