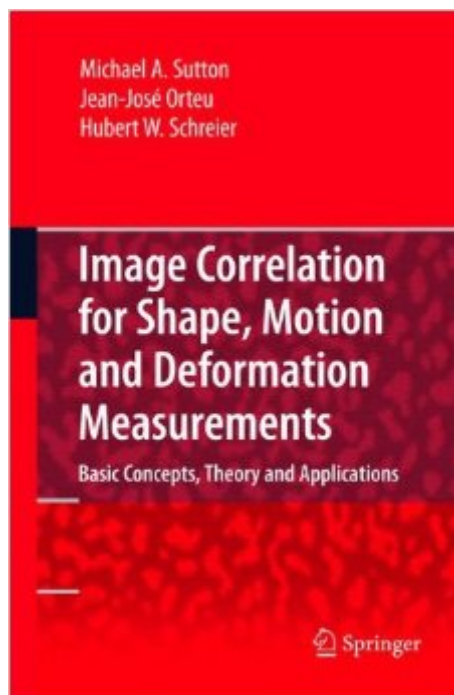


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Image Correlation For Shape, Motion And Deformation Measurements: Basic Concepts, Theory And Applications



Synopsis

Image Correlation for Shape, Motion and Deformation Measurements provides a comprehensive overview of data extraction through image analysis. Readers will find an in-depth look into various single- and multi-camera models (2D-DIC and 3D-DIC), two- and three-dimensional computer vision, and volumetric digital image correlation (VDIC). Fundamentals of accurate image matching are described, along with presentations of both new methods for quantitative error estimates in correlation-based motion measurements, and the effect of out-of-plane motion on 2D measurements. Thorough appendices offer descriptions of continuum mechanics formulations, methods for local surface strain estimation and non-linear optimization, as well as terminology in statistics and probability. With equal treatment of computer vision fundamentals and techniques for practical applications, this volume is both a reference for academic and industry-based researchers and engineers, as well as a valuable companion text for appropriate vision-based educational offerings.

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