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Image Correlation For Shape Motion

Image Correlation for Shape, Motion and Deformation ...
Image Correlation for Shape, Motion and Deformation Measurements Michael A Sutton † Jean-José Orteu Hubert W Schreier Image Correlation for Shape, Motion and Deformation Measurements Basic Concepts, Theory and Applications measurement methods to measure the shape and deformation of a material under-

Image Correlation for Shape, Motion and Deformation ...
Shape, Motion and Deformation Measurements Basic Concepts, Theory and Applications ABC concepts underlying digital image correlation for motion measurements Specific items discussed include (a) image matching methods, (b) subset shape functions, (c) intensity pattern metrics, (d) intensity pattern interpolation for discretely sam-

Michael A. Sutton, Jean Jose Orteu, Hubert Schreier Image ...
Image Correlation for Shape, Motion and Deformation Measurements provides a comprehensive overview of data extraction through image analysis Readers will find and 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)

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Image Correlation for Shape, Motion and Deformation Measurements discusses the fundamentals, theoretical improvements, and practical applications of digital image correlation (DIC) This book is a collaboration of decades of research and development of 2D and 3D digital image correlation software

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Image Correlation for Shape, Motion and Deformation ...

Image Correlation for Shape, Motion and Deformation Measurements Basic Concepts, Theory and Applications 63 Out-of-Plane Motion 127 Principles in Stereomicroscopy for Microscale Shape and Deformation Measurements 199 741 Problem Description: Shape and Deformation

Impact of motion blur on stereoâ digital image correlation ...

Stereo-digital image correlation (DIC) is a wide-spread technique in the field of experimental mechanics for measuring shape, motion, and deformation and it is frequently used for material identification by using inverse methods (eg, virtual fields method and finite element model updating) New applica-

Accuracy enhancement of digital image correlation with B ...

The interpolation algorithm plays an essential role in the digital image correlation (DIC) technique for shape, deformation, and motion measurements with subpixel accuracies At the present, little effort has been made to improve the interpolation methods used in DIC In this Letter, a family of recursive interpolation schemes based

An International Journal for Experimental Mechanics

KEY WORDS: digital image correlation, improved random sample consensus, initial guess, scale-invariant feature transform Introduction Digital image correlation (DIC) technique is one of the most widely used methods for shape, motion and deformation measurements [1] The DIC technique typically works by comparing and matching the grayscale

Shape and Motion from Image Streams: a Factorization ...

Shape and Motion from Image Streams: a Factorization Method—Part 3 Detection and Tracking of Point Features Technical Report CMU-CS-91-132 Carlo Tomasi Takeo Kanade April 1991 We usually express this correlation by saying that there are patterns that move in an image …

Shape-correlated Statistical Modeling and Analysis for ...

linear dense image matching methods easily fail in regions where artifacts interfere Learning-based linear motion modeling techniques have the advantage of incorporating prior knowledge for robust motion estimation In this research shape-correlation deformation statistics (SCDS) capture strong correlations between the shape of the lung and

Digital Image Correlation for Measurement of In-Plane ...

Digital image correlation (DIC) is a optical method for determining strain, displacement, and concentration Digital Image Correlation for Measurement of In-Plane Deformation with Vic-3D Andrew Wray Mentor: Robert Walsh Image Correlation for Shape, Motion and Deformation Measurements: Basic Concepts, Theory and Applications New York

Digital image correlation for surface deformation ...

The errors in digital image correlation due to overmatched shape functions Liping Yu and Bing Pan-A flexible and accurate digital volume correlation method applicable to high-resolution volumetric images Bing Pan and Bo Wang-Recent citations Millipixel image correlation for sub nm measurement of MEMS motion Ryan Adderson and Ted Hubbard-

Investigation of optimal digital image correlation ...

speckle patterns used in digital image correlation Optics and Lasers in Engineering, 48(4):469{477, 2010 [8] M A Sutton, J J Orteu, and H Schreier Image correlation for shape, motion and deformation measurements: basic concepts, theory and applications Springer Science & Business Media, 2009 [9] Y Q Wang, M A Sutton, H A Bruck, and H W

Full-field modal analysis during base motion excitation ...

excitation using high-speed 3D digital image correlation a methodology for experimental modal analysis using high-speed 3D digital image correlation and base motion excitation tests is proposed In particular, a cantilever beam was excited from shape characterisation A set of tests on a calibrated cantilever beam [15] has been

Detecting Comma-Shaped Clouds for Severe Weather ...

shape of a comma, which distinguishes the cloud patch from other clouds To emulate meteorologists, we propose two novel features that consider both shape and motion of the cloud patches, namely, Segmented HOG and Motion Correlation Histogram, respectively We detail our proposals in Sec III-A and Sec III-B Our work makes two main contributions

A MODIFIED STRUCTURE FROM MOTION FRAMEWORK ...

A MODIFIED STRUCTURE FROM MOTION FRAMEWORK BASED ON SMARTPHONE IMAGING FOR 3D RECONSTRUCTION OF ARBITRARY SHAPES The technique involves digital image correlation based characterization of surface speeds during rigid body rotational motion of the Front view d) Reconstructed Shape 32 Fig 6 Views of shape 2 used for reconstruction a)Top

Impact of speckle pattern parameters on DIC strain ...

imaging allow for high-resolution digital image correlation (DIC) studies to examine strain lo-calization at the grain size length scale A systematic study was performed to determine how speckle patterning parameters (speckle density and shape) affect strain resolution of DIC using SEM imaging

Image correlation pattern optimization for micro-scale in ...

[4] MA Sutton, JJ Orteu, and H Schreier Image correlation for shape, motion and deformation measurements: basic concepts, theory and applications Springer Science & Business Media, 2009 [5] HW Schreier and MA Sutton Systematic errors in digital image correlation due to undermatched subset shape functions Experimental Mechanics, 42(3):303

Pixel-level robust digital image correlation

Pixel-level robust digital image correlation Sutton, J-J Orteu and H W Schreier, Image correlation for shape, motion and deformation measurements (Springer, 2009) 18 B Pan, H Xie and Z Wang, “Equivalence of digital image correlation criteria for pattern matching,” Appl Opt