

ATA Engineering and Siemens Present: Digital Image Correlation

May 24th 2023 | 8 AM PT | San Diego, CA

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8:00 Welcome and coffee

8:15 Introduction to Digital Image Correlation

- System components and setup
- Principles and terminology
- What is meant by Correlation
- What applications can use DIC

8:45 DIC Measurement Setup

- Speckle application
- Selection of hardware
 - Camera
 - Lenses
 - Lighting

9:15 DIC Measurement Parameters

- Object distance (OD)
- Field of view (FOV)
- Speckle size
- Resolution
- Noise considerations

9:45 Break

10:00 Quasi-static Application – Test Setup with Low-Speed Cameras

- Camera setup and checks
- Noise evaluation
- Calibration images acquisition and processing

10:30 Quasi-static Application – Image Acquisition

- Acquire images for noise evaluation
- Acquire reference image
- Acquire load condition images for strain calculation

11:00 Quasi-static Application – Data processing

- Setting the region of interest – (ROI)
- Validating the image quality with epipolar line
- Setting the subset size and step size
- Processing the results

11:30 Quasi-static Application – Data analysis

- Displacement calculations
- Data extraction
 - Point
 - Line
 - Extensometer
- Strain field calculations
- Virtual strain gage

Noon Lunch

1:00 Vibration Application – Test Setup with High-Speed Cameras

- Camera setup
- Noise evaluation
- Calibration images acquisition and processing

1:30 Vibration Application – Image Acquisition

- Acquire images for noise evaluation
- Acquire reference image
- Acquire vibration images for mode calculation

2:00 Vibration Application – Data Processing & Analysis

- Calculate time histories of vibration response
- Process of ODS data
- Transfer data and process in Testlab Modal

3:00 Break

3:15 Finite Element Model Correlation

- Using Nastran FEM for correlation

3:45 Open Discussion and Conclusions

- Other applications
 - Impact testing
 - Rotating structure
 - High temperature
- Attendee applications
- Simcenter DIC Software structure and modules

4:15 Wrap-up