

ANCO Vision: Video-Based Non-Contact Vibration Measurement

ANCO Vision allows recording vibration during shake table tests using high speed video cameras. Post processing edge detection algorithms allow the user to process multiple regions of interest (ROI). This is useful for modal analysis of test items and remote displacement measurements on seismic shake tables, and other dynamic tests.

Features

- Interfaces with high speed digital cameras (such as provided by Basler) or with any user-supplied avi file.
- Allows the definition of multiple ROI's with horizontal, vertical, or angled orientations.
- Semi real-time processing of multiple ROI's each resulting in displacement time histories in engineering units
- Either absolute motion, or motion relative to shake table base can be displayed
- Each ROI can be enhanced in contrast and exposure to aid edge detection
- Calibrate each ROI to obtain actual displacements for objects at different depths
- Post-processing algorithms allow band-pass filtering, conversion to velocity and acceleration, and Fourier transforms
- Results can be exported to text or Excel files
- Derives mode shapes based on selected ROI's at specific frequencies as derived from FFT's
- Produces animated, multi-point time history display of structural response
- ANCO Vision runs on Windows-based PC or real time target
- ANCO can provide full camera/PC/software systems, or individual components and processing services

The screenshot displays the ANCO Vision software interface. On the left, a video feed shows a test item on a shake table with a 'Region of Interest' (ROI) defined on its vertical structure. The ROI is highlighted with a blue box and labeled 'Region of Interest'. Below the video feed are controls for image enhancement (Brightness, Contrast, Gamma) and video capture (Shutter, Level, Gamma, Gain, Take Photo, Take Video). On the right, a control panel for the ROI is visible, including settings for ROI Name, Direction, Displ, Angle, Step Size, Min SNR, Orientation, Angle Range, Actual Dist, Cal Factor, ROI Exposure, Tare, Upper Thresh, Lower Thresh, High Pass, and Low Pass. A table below the control panel shows the ROI configuration:

ROI#	ROI Name	Direction	Displ []	Angle [°]
ROI#0	ROI0	Top->Bott	0.043268	-1.260036

Below the control panel is a graph showing the displacement time history for the ROI. The y-axis is labeled 'Displacement []' and ranges from -1.5000 to 1.7500. The x-axis is labeled 'Time [s]' and ranges from 0.0 to 39.9. The graph shows a blue line representing the displacement over time, with a peak displacement of approximately 1.5000 units. The graph is labeled 'ROI#0' and has an 'Export Data' button.