

TRACKEYE
i2021

June 2021

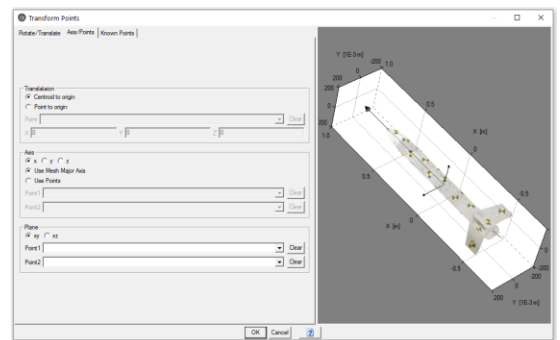
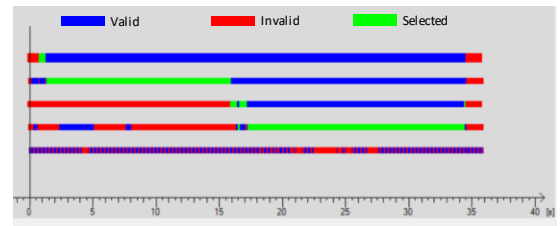
Image Systems announces **TrackEye i2021**, the latest release of the world leading flexible platform for motion analysis. This release introduces a lot of major features as described below.

GENERAL IMPROVEMENTS

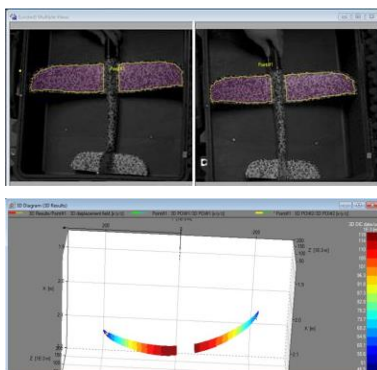
- Ascii import improved with the ability to generate synthetic constant sequences. This allows for instance to create observation points for use with radar data triangulation.
- Ability to Copy/Paste nodes in session graphs
- Backup files (.bu) can now be read directly in TrackEye, allowing inspections before proceeding with them.
- Fragmentation checking.
- Support for velocity/acceleration calculations on sequences with variable time base.
- Possibility to extrapolate an equidistant time base from the first timestamp of a sequence.
- Possibility to use and call Events from the time panel in Expressions

3D IMPROVEMENTS

- **New status diagram:** Allows to visualize and select which sensors should be used for calculations of the global 3D solution. A filter for displaying only channels with valid samples can be applied in case of numerous measurement channels.
- **3D target transformations:** When transforming the coordinate system attached to a 3D model, it is now possible to (1) use target model mesh/points to align coordinate system to the major axis of the 3D object, (2) use points from the model to define Axes and Planes, (3) transform the point coordinates from a model to another 3D coordinate system knowing the 3D positions of at least 3 points of the model in the new coordinate system.



DIGITAL IMAGE CORRELATION



- Automatic stereo matching improved to handle lost cases (bieffect, increase tolerance to worse calibration, epipolar line hit up from 3 to 6 pixels)
- Possibility to manually help stereo matching using reference points (tolerance increased up to 12 pixels)
- Preference for Strain Formulation to reduce bloat in diagram selectors and computation time.
- Increased performance to reduce opening time on big tests
- Setting up DIC tools (points of interest, virtual extensometers and inspection lines) can now be done on any frame of the sequence

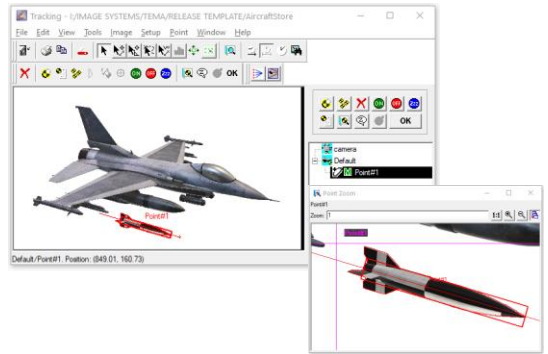


BALLISTICS

- **Background mask feature:** When the camera is moving to track an object (mirror tracker, tracking mount systems for instance), the changing background can disturb the good detection of the object of interest especially if it is not homogeneous. The Background mask feature (part of TEIMPROC module) allows to reconstruct the background of the scene using consecutive images from the sequence. It is then possible to remove apply blur on the background only, remove the background, remove the object for more robustness of the tracking



- **Improved Rocket outline analysis:** Better handling of the global shape to estimate Nose, Tail and angle of the projectile. Improved robustness of the tracking.



- **Roll Analysis new algorithms:** Possibility to estimate the spinning rate of a projectile based on a new spiral pattern for more robustness.



PEDESTAL PLACEMENT TOOL IMPROVEMENTS

- Ability to import one or several trajectories as a simple text files with whitespace separated columns and one row for each sample. The first column has the timestamp in seconds while additional columns contains x,y,z coordinates in meters and possibly roll pitch and yaw for a 6D trajectory.
- Ability to edit sensor sites and blind sectors for area not covered by the sensor due to buildings or other geographical constrains.
- Ability to simulate a target represented by a single 3D point or a full 5D/6D object with attitudes.
- Ability to compute the size and diameter of the object in pixels in the image based on the sensor location.
- Ability to enter a scoring function to quantify how good is the solution proposed towards another. The scoring function is based on expressions of TrackEye. Several scoring functions and can be used to evaluate a given configuration.

Name	x	y	z	Start az (degrees)	End az (degrees)	Start el (degrees)	End el (degrees)
P1	700	1000	0	10.000	20.000	90.000	270.000
P2	700	1000	0				
P3	700	1000	0				

Sensor Configuration	trajectory 1	trajectory 2	Min	Max	Average
Conf #01	0.302229	0.302946	0.302229	0.305346	0.304088
Conf #02	0.184366	0.18664	0.184366	0.18664	0.185503
Conf #03	0.370941	0.31655	0.31655	0.370941	0.343745
Conf #04	0.348595	0.302997	0.348595	0.302997	0.364491
Conf #05	0.148621	0.143713	0.143713	0.148621	0.146167
Conf #06	0.117749	0.118366	0.117749	0.118366	0.118058



56 bug fixes and 13 improvements of existing features for more stability

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