HYDRA FUSION TOOLS™

REAL TIME STRUCTURE FROM MOTION

LOCKHEED MARTIN
We never forget who we're working for®

HYDRA FUSION TOOLS™

Hydra Fusion Tools™ is a real-time Geospatial Information System. It is our answer to big data. Operation of an unmanned aircraft system (UAS) is no longer a stand-alone activity. Operators are inundated with large quantities of disparate data--in the form of maps, images, video, and intelligence--that they must compare and interpret before taking action. Hydra Fusion Tools simplifies this experience by fusing this data into a 3D world presentation thus providing 'in context' information that is fully scalable for level of detail.

The stand-out feature of Hydra Fusions Tools is its ability to simultaneously localize and map (SLAM) incoming image feeds (video or still images) from the aircraft while it flies. These images are incrementally matched up, stitched together, and geo-registered resulting in an immediate and immersive 3D reconstruction. Combined with 3D models of objects, Hydra Fusion Tools creates a rendering of any site – construction zone, industrial plant, mining operation, or farmer's field.

Hydra Fusion Tools turns big data into actionable intelligence.

APPLICATIONS:

- **Real-time structure from motion –** Generate 3D point clouds and 3D imagery in real time as the vehicle is still airborne.

- **Construction Progress Monitoring –** Compare architectural drawings to actual 3D imagery in order to measure and monitor progress.

- **Surveying –** Produce wide area maps of terrain in real time.

- **Infrastructure Inspection –** Automate the inspection of large critical infrastructure.

- **Agriculture and Forestry –** Render an immersive 3D geo-referenced representation of field or forest that is ready for spectrographic measurement and analysis of plant health.

- **Infrastructure Inspection –** Easily and accurately generate models of large and dangerous infrastructure installations for recurring review and analysis.

- **Tactical –** Covertly generate maps of evolving situations in real time.

FEATURES:

- **Speed –** Create renderings instantaneously within our Panterra Mapping Engine™.

- **Accuracy –** Insert measured ground control points to true up your reconstruction to reality.

- **Export Capability –** Export reconstructions into standard data products such as LAS point clouds.

- **Portablity –** Run Hydra Fusion Tools on common commercial laptops that are equipped with NVIDIA graphics processing units, which run locally, wherever you are, without the need for costly connections to the cloud.

1200 Images of a Football Field Stitched and Geo-Registered
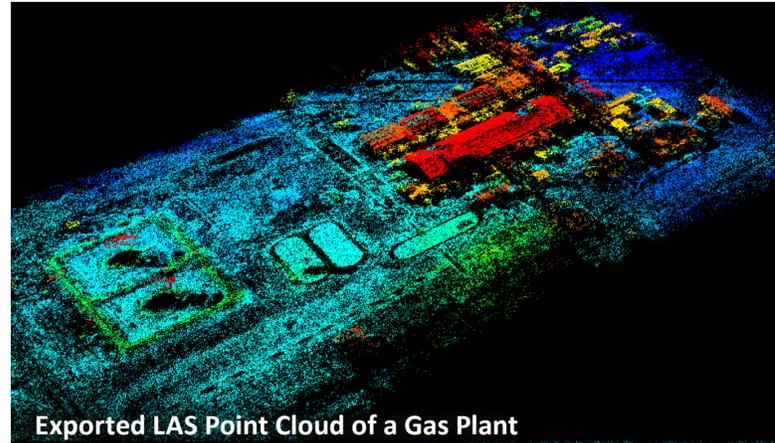
Exported LAS Point Cloud of a Gas Plant
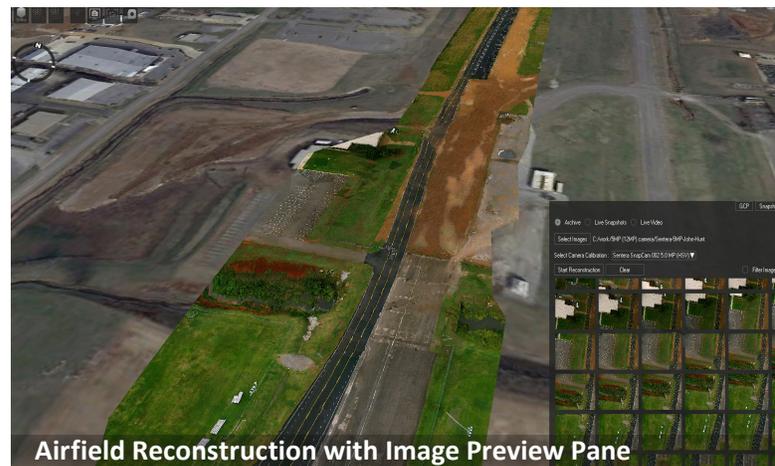
Airfield Reconstruction with Image Preview Pane

Reconstruction of an Open Pit Mine

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