MATCH-T DSM

INPHO SOFTWARE

Automatically generate dense point clouds and digital terrain and surface models (DTM/DSM) from aerial and satellite image blocks.

Create exact colorized surface models and terrain models from imagery:

▶ Acquire very dense point clouds and high quality surface models directly from stereo imagery using image matching techniques

▶ Advanced multi-image matching creates point clouds as dense as one point per pixel at a lower cost than aerial laser scanning

▶ Point clouds from image matching provide excellent results for orthophoto generation and city modeling applications

▶ Remove non-ground objects and achieve bare earth digital terrain models (DTMs) using robust filter methods

▶ Expand production capabilities using state-of-the-art multi-threading and distributed processing

Multi-layered matching takes all locally overlapping images into account, achieving dense point clouds – even in urban and forested areas.

In DSM mode, even narrow urban streets can be detected with image overlap of at least 60/60 percent. Surface models from MATCH-T DSM with their LiDAR-like characteristics are well-suited for applications like city modeling.

Feature Capabilities

▶ DTM and DSM generation from aerial images (frame and pushbroom sensors), and from various types of satellite imagery

▶ Seamless DTM or DSM generated for user definable areas, which can be any sub-block or polygon area, or the entire image block

▶ Dense matching technique produces point cloud density up to 1 point per pixel, providing rich detail and sharp edges with sub-pixel accuracy

▶ Specialized noise filtering strategies

▶ Different filter techniques for DTM and DSM extraction for obtaining optimized point clouds

▶ Automatic tiling for simultaneous grid and point-cloud output

▶ Tight integration into point-cloud editing workflows e.g. with DTMaster Stereo

Key Features

▶ MATCH-T DSM generates regular grids or extremely dense point clouds, and guarantees for reliable and accurate results:

▶ High speed batch processing and optimized hardware utilization for excellent productivity

▶ Extensive automation features for minimal user interaction

▶ Advanced dense matching techniques with internal quality control deliver a high standard of project quality

▶ Point cloud coloring from aerial image blocks or orthophotos

▶ Easy integration into any third-party workflow

⌖ Trimble®

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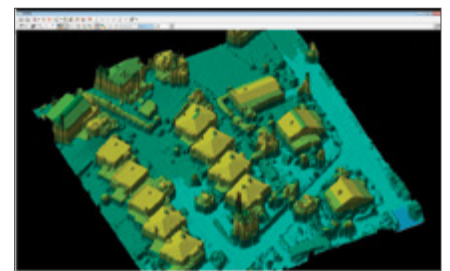
TECHNICAL SPECIFICATIONS

FEATURES OVERVIEW

- Consideration of pre-measured morphological data (breaklines, 2D and 3D exclusion areas, borderlines)
- DTM generation with elimination of outliers, e. g. trees, buildings, by robust finite element interpolation
- Subdivide the project area into polygonal areas with appropriate parameter settings for the terrain type and coverage
- Optimized point extraction using dynamic sensor noise filtering
- Regular point distribution in poorly textured image areas through auto-optimization of local parameters
- Adaptive parallax bound strategy for high quality terrain representation near breaklines
- Extensive internal quality control functions
- Integrated DTM Toolkit provides flexible DTM postprocessing with functions like merging, splitting or tiling of DTMs, batch-filtering/classification, gap-filling, grid interpolation, mapping-grade contour generation, datum transformations and format conversions
- Filtering methods to thin-out DTM or DSM data
- Output into grid files or irregular point clouds with automatic tiling
- Optional distributed processing in combination with DPMaster

OUTPUT FORMATS

- SCOP DTM
- LAS
- And others

VERSIONS

- MATCH-T DSM Lite:
  - Restricted to projects up to 250 images
  - No sub-block support
  - Only one output area per process
  - No multithreading
  - Restricted to12 satellite scenes
  - Restricted to 12 ADS images

OPTIONS

- MATCH-T DSM (DPL):
  - High-volume extension using distributed processing technology
  - Efficiency increase by using MATCH-T DSM in a multi-core and multi-computer setup
  - Requires DPMaster (included) for organizing the additional computer pool and one full license of MATCH-T DSM
- Monthly rental and upgrades from lite versions or updates from previous versions available
- Maintenance (1st year included in software price) includes support and version updates
- Network licensing available

SYSTEM REQUIREMENTS

- Multicore PC workstation (1 license supports up to 16 cores)
- 8 GB RAM
- High-capacity disk system
- Windows 7, 64 bit

BUNDLE

DTM Box:
- Bundle of MATCH-T DSM, DTMaster editing for a complete workflow from point cloud generation through visualization and editing to postprocessing (quick filtering, classification, gap-filling and mapping grade contour generation)

SUPPORTED SENSOR TYPES

- Imaging sensors:
  - Analogue and digital frame sensors
  - Panchromatic or multichannel
  - ADS Pushbroom sensors
  - satellite sensors (including SPOT 1-7, Plejades, Quickbird, IKONOS, ALOS, ASTER, CARTOSAT, IRS, GeoEye, Landsat, OrbView, RapidEye, WorldView, Resurs-P...)

SUPPORTED FORMATS

- Supported image formats:
  - Georeferenced orthos: GeoTIFF, TiffWorld (tfw), ADS+tif/tfw
  - TIFF, JPG, BigTiff
  - JPEG2000, TIFFjpeg
  - EXIF
  - 8/12/16 bit
- Height model / morphology data formats
  - Grid-operations:
    ◊ *.dtm *.rdh *.bil *.fit *.tol *.grd *.tif *.tiff *.smti *.tpix.shp, BIL, BWNP, BXYZ, DTM, DXF, DXF_TIN, FLT , GRD, LAS, LASZip, SHP_TIN, TIFF16, TIFF32, VRML, VRML_TIN, WNP, XYZ
  - Point-cloud operations:
    ◊ LAS, LASZip, XYZ, BXYZ

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