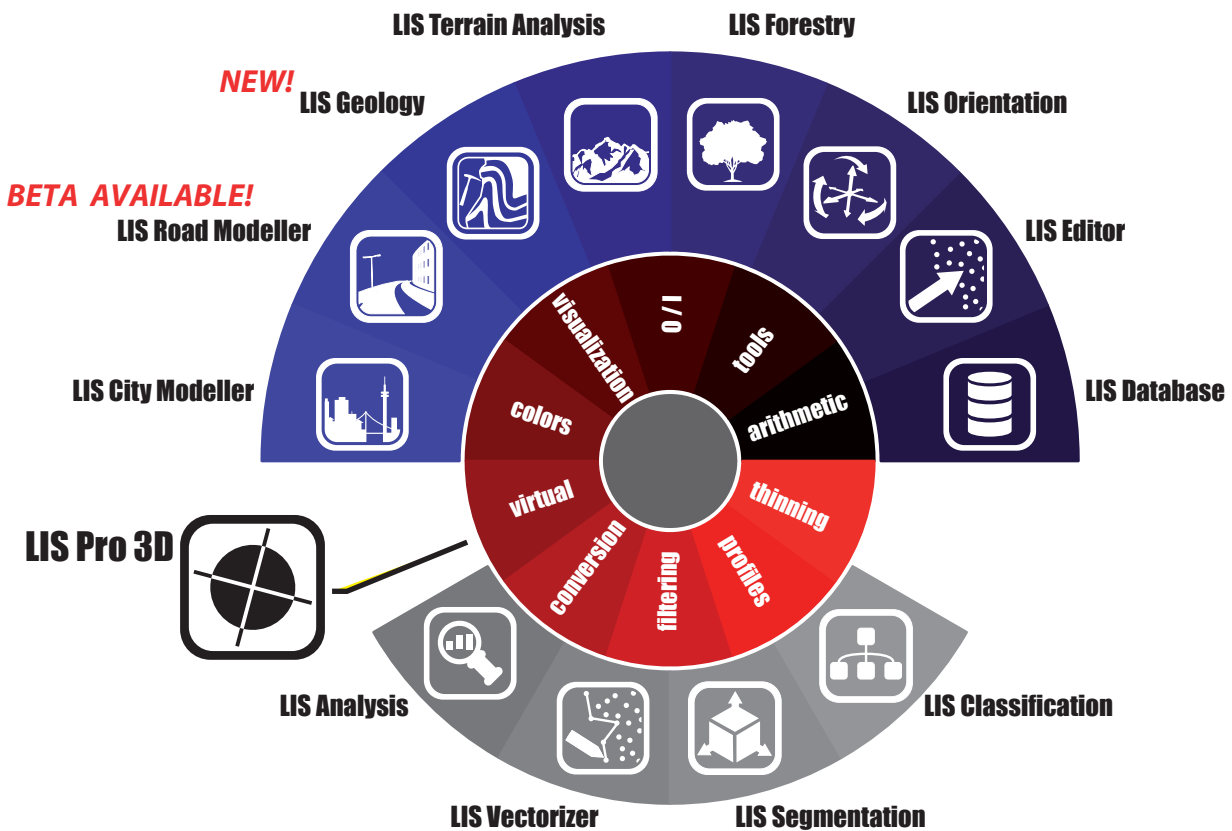


...build your own bundle!



LIS 3.0

- is an expert system composed of LIS Pro 3D and additional packages
- is extending SAGA-GIS with visualization and processing tools for 3D data
- is completely modular and fully automatable (scripting, model builder, C++)
- is running on 32/64 bit GNU / Linux and Windows operating systems
- supports parallel processing (true multi-threading)





LIS Pro 3D

...more than 80 tools

tools

- coordinate transformations
- rotate point cloud into view direction (e.g. for gridding)
- split point cloud by attribute
- attach raster values as point cloud attributes

arithmetic

- difference and volume calculations
- distance between point classes
- nDSM creation

profiles

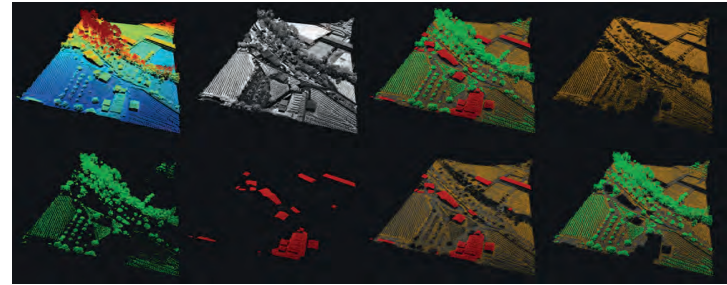
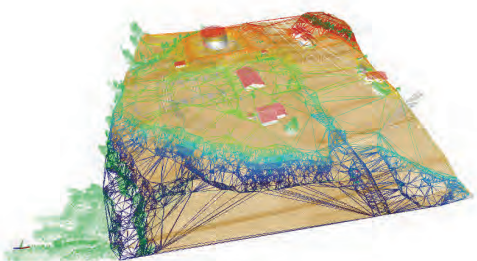
- transect extraction from point clouds and rasters
- plotting of cross-sections and distance measurements

thinning

- smart thinning methods (2D/3D block thinning, TIN)
- thinning by surface characteristics (e.g. roughness)
- thinning by attribute (e.g. intensity)

filtering

- DTM generation
- various versions of outlier removal
- height offset to raster



colors

- colorize point cloud by RGB
- color space conversions

visualization

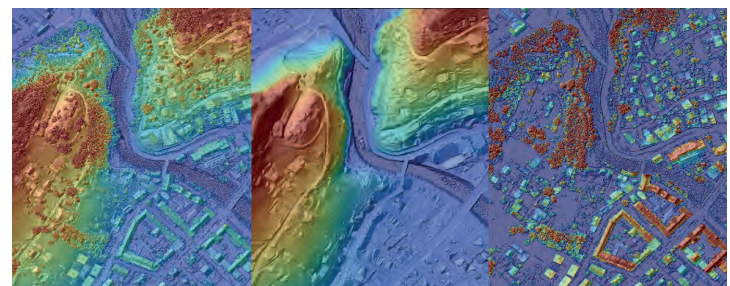
- 3D viewer for point clouds, rasters and 3D shapes
- create high resolution ortho-, panoramic and perspective images

conversion

- point cloud gridding (aggregation, TIN, moving planes)
- DTM and DSM generation

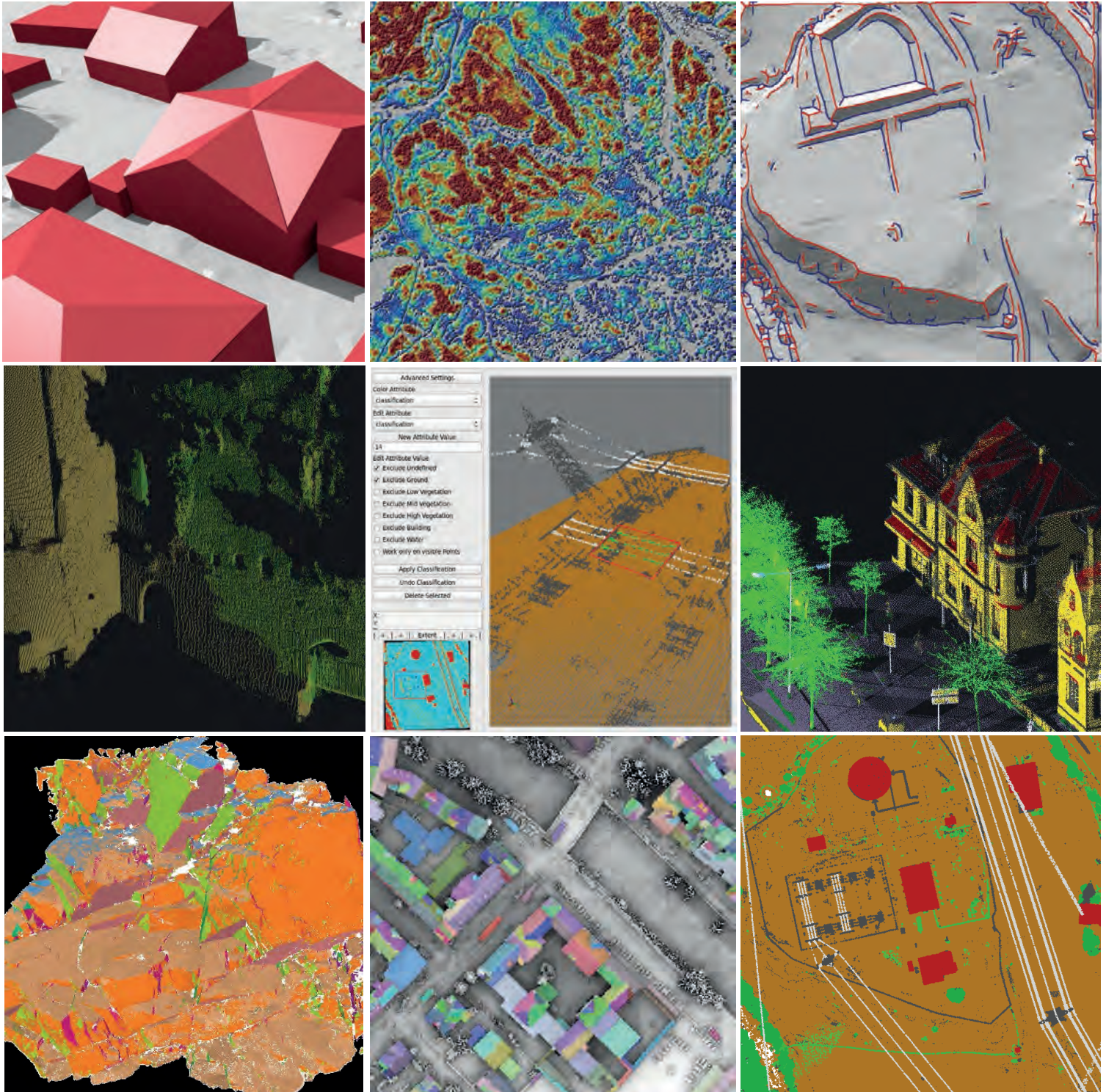
I/O

- import and export of LAS / LAZ



Additional packages



Additional packages

LIS Pro 3D - Additional packages

LIS City Modeller, LIS Forestry, LIS Terrain Analysis, LIS Orientation, LIS Point Cloud Editor, LIS Database

LIS Analysis, LIS Vectorizer, LIS Segmentation, LIS Classification, LIS Geology, LIS Road Modeller



Additional packages



LIS City Modeller

The package contains tools for the automatic delineation of building footprints (LOD0) and building models (LOD1 and LOD2) from point cloud data. Applications are map layers and 3D city models, which can be enriched with further information.



LIS Forestry

The package contains tools for forest masking, crown coverage computation, single tree derivation, tree shape metrics and volume calculations (biomass, stem volume). Applications include silvicultural analyses and management and the creation of map layers for tree cadastres.



LIS Terrain Analysis

The package contains tools to derive terrain breaklines and to calculate surface roughness and local morphology features like slope, aspect, curvature and shadings from point clouds. Applications are digital terrain analysis and mapping products.



LIS Orientation

The package contains tools for point cloud and image registration and orientation, including a 3D point cloud registration editor, and tools for the derivation of transformation matrices and iterative closest point adjustment (ICP). Applications are the registration of multiple scan positions and the reconstruction of camera poses.



LIS Database

The package contains six libraries with over 50 tools for point cloud and raster data storage, access, and processing in a PostgreSQL / PostGIS database. Applications are the storage and seamless access to large amounts of data, from single projects to nationwide coverage.



LIS Analysis

The package contains tools for the in-depth analysis of point cloud data like the calculation of various point features by neighborhood analysis (including height features, density features, local plane features and Eigenvalue features), statistical analyses and fuzzy c-means clustering.



LIS Vectorizer

The package contains tools for the delineation of line and polygon vector representations from point cloud data. Applications are the extrusion of shapes and the derivation of skeletons and polygonal 3D shapes from point cloud segments.



LIS Segmentation

The package contains a comprehensive set of point cloud segmentation and region growing tools, each dedicated to specialized tasks. Applications include the segmentation of point clouds by robust plane or line fitting and the segmentation of ground, building and vegetation points.



Additional packages**LIS Point Cloud Editor**

The package contains a 3D point cloud editor which enables you not only to visualize point clouds, rasters and 3D shapes, but also to relabel point cloud attributes and to delete points. Applications are the manual improvement of filtering and classification results or the digitization of joint planes (structural geology).

**LIS Geology**

The package contains tools for structural geology, including tools to create pole plots, to derive discontinuity sets and joint planes, and to calculate joint spacings. Applications are stability analyses and the derivation of block sizes.

**LIS Classification**

The package contains tools for supervised and unsupervised point cloud classification, including the derivation of geometric primitives like lines, planes and volumes, and the classification of point clouds into ground, building, vegetation, power lines and transmission towers.

**LIS Road Modeller**

The package contains tools for the automatic classification of mobile laserscanning (MLS) data into the classes ground, walls, roofs, trees and poles. Applications are map layers (e.g. locations of trees and poles) and road inventories.

