

		TRACK 1 - ADVANCED	TRACK 2 – UAV & ALS	TRACK 3 - MLS	TRACK 4 – DJI
DAY 1 (31.8)	morning 8:30 – 12:00	Opening and New Features Presentation			
	afternoon 13:00 – 16:00	Classification in TerraStereo	Calibrating UAV Point Cloud	Vectorizing Paint Lines and Paint Markings	Spatix Setup and Introduction to DJI Wizard
DAY 2 (1.9)	morning 9:00 – 12:00	Quality Reports for Point Clouds	Processing UAV Point Clouds	MLS Project Setup	Railway DJI L1 data processing
	afternoon 13:00 – 16:00	Checking and Fixing Footprint Polygons	Processing Airborne Images	Matching of Drive Passes	Powerline extraction from DJI L1 data
DAY 3 (2.9)	morning 9:00 – 12:00	Top Surface Orthophoto and Point Cloud Coloring	Processing Airborne Point Clouds	Classification of the Road Surface	Feature extraction and end products using DJI L1 data
	afternoon 13:00 – 16:00	Point Cloud Data Fusion	Tree detection in TerraScan	Analyzing Road Surface Conditions	TerraModeler session using DJI L1 data set

Experience levels recommended for following the hands-on training:

Basic Users	Advanced Users
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		TRACK 1	TRACK 2	TRACK 3	TRACK 4
DAY 1	morning 8:30 – 12:00	<p style="text-align: center;"><b>New Features Presentation</b></p> <p>8:30 – 9:00    Opening of the user event            9:00 – 11:00    Presentations and short demos covering new features in TerraScan, TerraMatch, TerraPhoto, and TerraModeler            11:00 – 11:45    TerraStereo</p> <p style="text-align: center;">Presenting persons: Xabier, Arttu and Juuso</p>			
	afternoon 13:00 – 16:00	<p><b>Classification in TerraStereo</b></p> <ul style="list-style-type: none"> <li>• TerraStereo for group-based classification tasks</li> <li>• 1-2 PluraView workstations will be used in the training to offer a real Stereo classification experience</li> </ul> <p>Instructor: Arttu</p>	<p><b>Calibrating UAV Point Cloud</b></p> <ul style="list-style-type: none"> <li>• TMatch focused session</li> <li>• Boresight calibration with UAV laser data:</li> <li>• Classification per flight line</li> <li>• Tie line measurement</li> <li>• Find boresight parameters</li> </ul> <p>Instructor: Justina</p>	<p><b>Vectorizing Paint Lines and Paint Markings</b></p> <ul style="list-style-type: none"> <li>• Vectorization of paint lines and paint markings on a road. Training covers new tools for paint markings and new improved toolset for paint lines.</li> </ul> <p>Instructor: Juuso</p>	<p><b>Spatix Setup and Introduction to DJI Wizard</b></p> <ul style="list-style-type: none"> <li>• Demonstration of Spatix as a CAD platform for Terrasolid software.</li> <li>• Introduction to the <b>wizard</b> for processing <b>DJI</b> Zenmuse L1 data</li> </ul> <p>Instructor: Antti</p>

		TRACK 1	TRACK 2	TRACK 3	TRACK 4
DAY 2	morning 9:00 – 12:00	<p><b>Quality Reports for Point Clouds</b></p> <p>Examples of Quality Assurance of LiDAR point clouds:</p> <ul style="list-style-type: none"> <li>Line mismatch</li> <li>Geometric accuracy</li> <li>Point density</li> <li>Intensity and number of echoes</li> </ul> <p>Instructor: Helen</p>	<p><b>Processing UAV Point Clouds</b></p> <ul style="list-style-type: none"> <li>Extraction and mapping of above-ground objects in UAV point clouds</li> </ul> <p>Instructor: Justina</p>	<p><b>MLS Project Setup</b></p> <ul style="list-style-type: none"> <li>Organization of layers</li> <li>Define classes</li> <li>Scanner system definition</li> <li>Data import (Trimble MX9)</li> <li>Manage trajectories</li> <li>Adjust to geoid tool</li> <li>Define project and blocks</li> <li>Classification to long range, high, low, and isolated points</li> </ul> <p>Instructor: Ana</p>	<p><b>Railway DJI L1 data processing</b></p> <ul style="list-style-type: none"> <li>Classification of the points on top of the rails and its surrounding</li> <li>Travel view tool and display options</li> <li>Tools for improving automated classification</li> <li>Automatic vectorization of rails, powerlines and other objects</li> </ul> <p>Instructor: Benjamin</p>
	afternoon 13:00 – 16:00	<p><b>Checking and Fixing Footprint Polygons</b></p> <ul style="list-style-type: none"> <li>Validating footprint polygons by comparing to airborne point cloud.</li> <li>Finding demolished buildings, new buildings and not up-to-date footprints.</li> <li>Fixing footprint polygons to match point cloud better and produce nicer 3D models.</li> </ul> <p>Instructor: Arttu</p>	<p><b>Processing Airborne Images</b></p> <p>TPhoto focused session</p> <ul style="list-style-type: none"> <li>Camera definition</li> <li>Mission set up</li> <li>Creation of image list</li> <li>Placing tie points manually, automatic tie points search</li> <li>Orthomosaic production</li> <li>Visualization options</li> </ul> <p>Instructor: Justina</p>	<p><b>Matching of drive passes</b></p> <ul style="list-style-type: none"> <li>Defining signal markers – known XYZ tie points</li> <li>Defining tie lines – Find paint corners</li> <li>Estimation of correction</li> <li>Position / Filter bad</li> <li>Applying correction to several types of data, such as tie lines, laser data, and trajectories.</li> </ul> <p>Instructor: Ana</p>	<p><b>Powerline extraction from DJI L1 data</b></p> <ul style="list-style-type: none"> <li>Introduction to powerline tools in TerraScan</li> <li>Data preparations for powerline extraction</li> <li>Powerline detection and vectorization</li> <li>Danger object detection close to wires</li> </ul> <p>Instructor: Antti</p>

		TRACK 1	TRACK 2	TRACK 3	TRACK 4
DAY 3	morning 9:00 – 12:00	<p><b>Top Surface Orthophoto Production and Point Cloud Coloring</b></p> <ul style="list-style-type: none"> <li>Classifying top surface in an airborne point cloud.</li> <li>Producing true ortho like top surface ortho.</li> <li>Advanced point cloud coloring.</li> <li>Training will be run using dense UAV point cloud and images.</li> </ul> <p>Instructor: Arttu</p>	<p><b>Processing Airborne Point Clouds</b></p> <ul style="list-style-type: none"> <li>Working with project</li> <li>Creation of macros</li> <li>Checking point cloud elevation against control points</li> <li>Automatic classification and manual check of above-ground objects</li> <li>Export lattice model</li> </ul> <p>Instructor: Helen</p>	<p><b>Classification of the road surface</b></p> <ul style="list-style-type: none"> <li>Cutting overlap</li> <li>Cut by range method</li> <li>Classify hard surface</li> <li>Classify asphalt</li> <li>Compare road surface with a theoretical designed surface</li> </ul> <p>Instructor: Ana</p>	<p><b>Feature extraction and end products using DJI L1 data</b></p> <ul style="list-style-type: none"> <li>Digital elevation model (DEM) generation with TerraScan and TerraModeler</li> <li>Elevation profile generation</li> <li>Basic feature digitization from point cloud</li> <li>Building vectorization</li> </ul> <p>Instructor: Antti</p>
	afternoon 13:00 – 16:00	<p><b>Point Cloud Data Fusion</b></p> <ul style="list-style-type: none"> <li>Adjusting point clouds from different sources</li> </ul> <p>Instructor: Helen</p>	<p><b>Tree detection in TerraScan</b></p> <ul style="list-style-type: none"> <li>Extract individual trees automatically from a point cloud with grouping.</li> <li>Refine groups with manual editing tools.</li> <li>Extract information of individual trees to a file</li> </ul> <p>Instructor: Arttu</p>	<p><b>Analyzing road surface conditions</b></p> <ul style="list-style-type: none"> <li>Detect potholes and ruts</li> <li>Detect paint lines and arrows</li> <li>Max deviation and slope estimations</li> <li>Line-of-sight analysis</li> </ul> <p>Instructor: Ana</p>	<p><b>TerraModeler session using DJI L1 data set</b></p> <ul style="list-style-type: none"> <li>Surface model extraction from laser data</li> <li>Surface model editing</li> <li>Elevation profile extraction</li> <li>Volume computation</li> <li>Contour generation</li> </ul> <p>Instructor: Antti</p>