## Ongoing Research Projects and Recent Publications

### TomoSAR

Multiple images of Synthetic Aperture Radar (SAR) are combined to estimate height information over forests, buildings, or other volumetric backscattering processes.

### Curve-based Structure From Motion

Instead of relying on keypoints (only), three dimensional curves are detected in and matched between images. The triangulated curves provide a 3D wireframe model of the object as well as the camera calibration for SFM.

### Synthetic Benchmark for SfM/MVS

While real benchmark data provides a limited set of scene-, object-, and camera parameters, synthetic data are often simplified / stylistic and lack effects of the image formation process of real cameras (e.g. noise). SyB3R attempts to close this gap by providing a framework to produce photo- and camera-realistic images with ground truth data to evaluate SFM and MVS.

### Generic Object Recognition

A two-stage classification system derives in the first stage a first coarse classification based on low-level image features, which is used in the second stage to estimate the final class posterior based on high-level features. Although designed for PolSAR data, the framework can be applied to any image data without changes. It has been tested on PolSAR, SAR, hyperspectral, optical far-range, as well as optical near range images.

### Shape Abstraction

Shape abstraction aims to extract the essence of the shape by removing outliers and complex information while staying close to the measured data.

### Multi-Shot Multi-View Stereo

The 3D reconstruction of weakly-textured surfaces is improved by increasing the signal-to-noise ratio. Multiple shots per viewpoint are used, normalized for fixed-pattern noise, and averaged to suppress statistically uncorrelated image noise.

### Contact

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