Chair of Engineering Geodesy
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Multisource and multitemporal geomonitoring based on point clouds: Rock Update

Background and state-of-the-art

- Rockfalls pose a significant threat to humans and nature
- Potential areas like Hochvogel or Höllentalklamm are monitored in many epochs based on point clouds
- Used sensors are TLS, MLS, UAV-LiDAR and UAV-photogrammetry

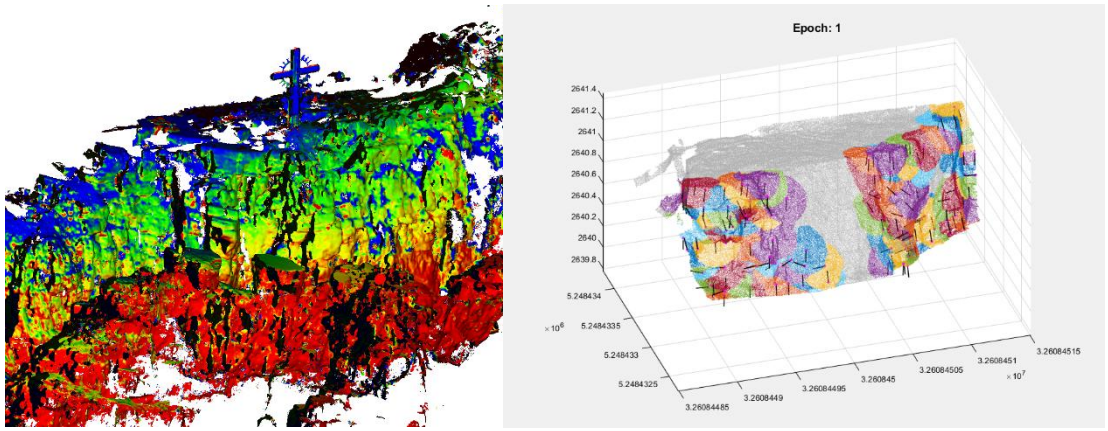
Left: UAV with laser scanner; Right: Measurement campaign at Mt. Hochvogel

Research questions

- How to identify instable areas and track their change over time?
- How to merge point cloud data of stable areas to decrease uncertainty of digital twin?
- How to reduce and quantify random errors as well as systematic errors in point clouds, e.g., due to drifts within registration?

Research methods

- Point cloud processing algorithms
- Multisource registration using patch-based approaches
- Strategies for deformation analysis



Left: Point cloud analysis; Right: Deformation vectors based on patches

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