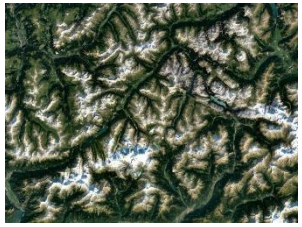
Earth Observation Simulator

Master Thesis / Bachelor Thesis / Practical

```
http://localhost:1700/camera-view?longitude=10&latitude=46.5&altitude=600000
&heading=0&tilt=0&roll=0&fov=9.15&px=1024&py=544&colorformat=gray8&sleep=0.5
```



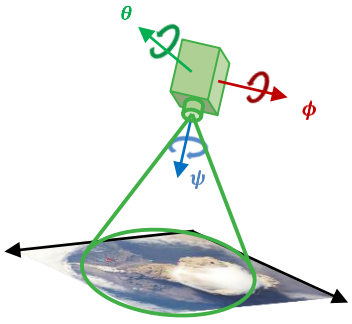
For ZfT's CubeSat missions (e.g. TOM and CloudCT), the ability to simulate the view of the satellite's camera(s) will be very helpful during all mission phases, for example for testing of vision-based attittude determination&control algorithms or planning of overpasses. The main goal of this thesis/practical is the design and implementation of a simulation tool which provides the view of a satellite's camera depending on various parameters (satellite position, attitude, camera field of view, resolution, etc.).

Required Previous Knowledge

- Programming & software engineering
- Satellite orbit and attitude calculations
- Image processing (beneficial)

Language

- German or English



Tasks

- Analyze requirements
- Find fitting source for image data (e.g. Copernicus data)
- Do required calculations (e.g. coordinate system transformations)
- Implement core software which provides images based on the input parameters
- Provide interfaces for our inhouse simulation framework, our operations software and other software/tools
- Create application for usage on local PC and server application (accessible e.g. via REST call or similar)
- Design user-friendly GUI
- Optimize runtime of application

Contact

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We are always looking to expand, so you are welcome to stay with us after the project!

TOM, CloudCT, QSAT Projects / Simulation