

Computational Medical Imaging

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What's up today?

- some info on organization
- brief motivational introduction
- topic selection for preparation

Schedule

- Arrival: Sunday, Sep. 23, 2018
- Departure: Friday, Oct. 5, 2018
- (almost) every morning: sessions
- some of the afternoons: sessions
- rest: spare time (hiking, sightseeing, gaming, ...)

What to bring

- Sessions: a personal laptop would be good
- Spare time:
 - bring hiking equipment
 - bring games (e.g. chess, table tennis, ...)

Sessions

- **Part 1:** presentations by you on selected topics
- **Part 2:** project that you will be working on together

Topic list

- Basics of X-ray CT:
 - analytical reconstruction
 - iterative reconstruction
 - line integral discretization
 - including prior information
 - modeling issues
 - incomplete data
- Applications of CT:
 - optical tomography
 - light field tomography
- X-ray phase-contrast
- X-ray tensor tomography
- Deep Learning:
 - basics
 - embedding of operators
 - generative adversarial networks
 - adversarial examples
 - task-based losses
 - recurrent networks
 - image reconstruction

Topic selection

- check out our topic list handout
- send your three preferred topics (ranked in order of preference) to lasser@in.tum.de by **July 19, 2018**

Questions?

Brief motivation

- Applications of Computational Medical Imaging [[T. Lasser](#)]
- Deep Learning in Signal Processing [[A. Maier](#)]