

# Master's Project (MP, 5 ECTS)



IFMT

## Termination Coding for Joint Traces in Digital Images

### Description

To estimate the persistence of joints within a rock mass is one of the most challenging tasks in rock mass characterization. However, it is also one of the most important factors influencing the overall stability of a jointed rock mass as well as the possible insitu block size distribution. A common attempt to estimate the persistence of a discontinuity is the definition of a termination code.

In this project, a tool shall be elaborated which tracks joint traces in (scaled and rectified) digital images wrt. a digital surface model and determines:

- Aligned cluster ( $\pm$  similar linear equation)
- Intersections of the discontinuities
- Termination codes: I (intact rock), A (terminated by another discontinuity), O (obscured), P (persistent)
- Trace length (referred to a scaling target)

### Methodology

- Literature research on joint trace mapping, digital image processing and persistence
- Elaboration of the joint tracing tool with Matlab
- Writing a technical report with the found results

This project shall contribute to an improvement in rock mass characterization using remote sensing techniques.

Templates for the scientific report can be found on the institute's homepage. There is also a guideline for scientific writing free downloadable at the homepage, whose compliance is mandatory. The language for the report can either be in English or in German.

**Requirements:** good skills in Matlab

<b>Supervisor</b>	MSc Andreas Buyer Graz University of Technology Institute of Rock Mechanics and Tunnelling
<b>Start</b>	by appointment
<b>Duration</b>	ca. 125 h
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