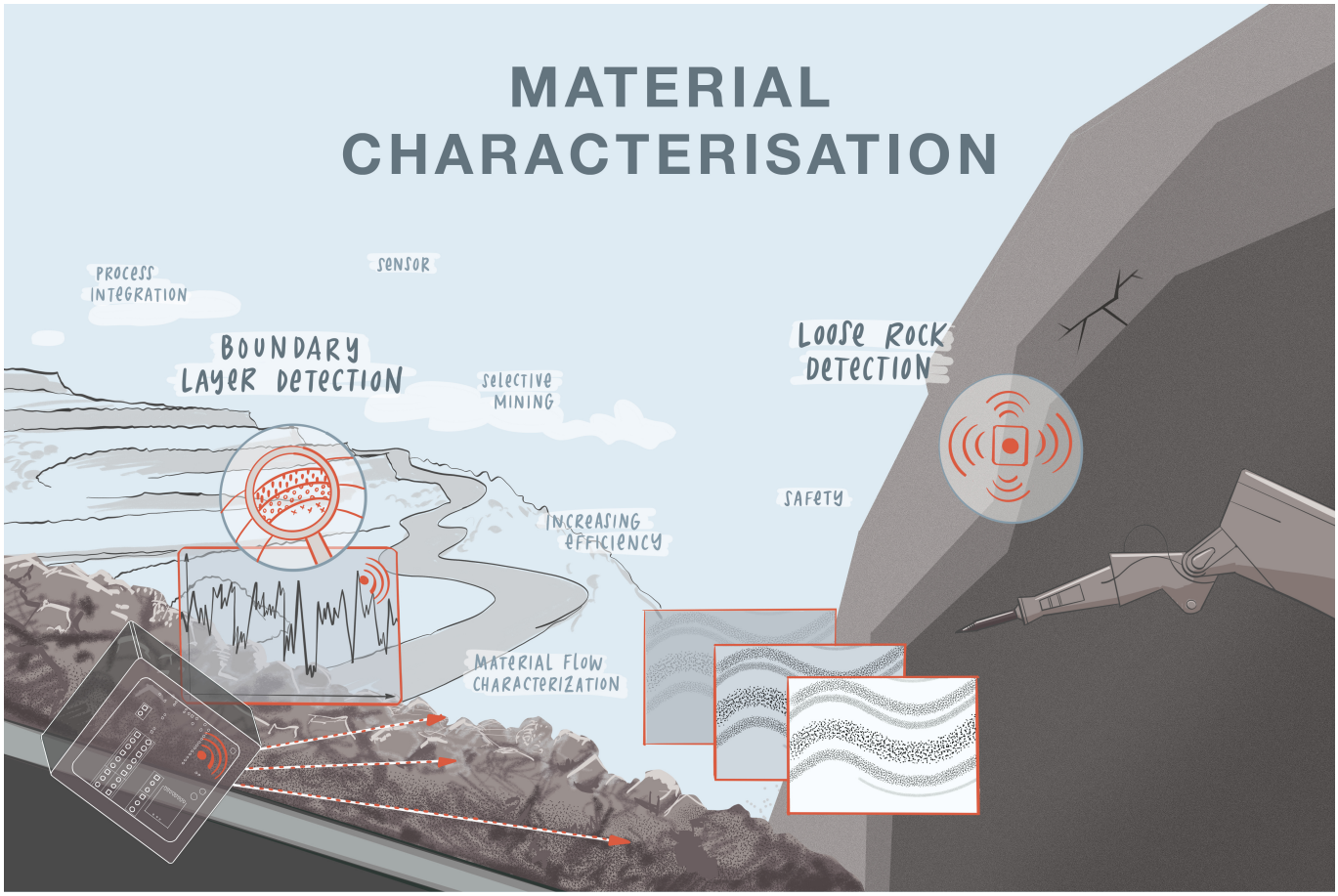
Material Characterisation



The global population growth and increasing living standards result in an increasing demand for mineral raw materials. To meet this demand, deeper and more complex deposits need to be exploited. At the same time, there are increasing requirements with regard to topics such as safety and environmental protection. In order to meet the demand for mineral raw materials, the efficient process control is of great importance. Thus, selective mining is enabled, which leads to increasing amount of valuable resources and reduced cut-off grades. Furthermore, the material characterisation in the context of mining processes forms the bridge between the excavation and mineral processing and therefore contributes to an efficient process control beyond the excavation. Through the identification of weak points in rock masses, material characterisation furthermore contributes to increasing safety in mining.

The main goal of the research area is the identification of process-relevant material properties using sensor-based methods in the context of mining processes. The information is generated in the process and provided in real time. For this purpose, sensor-based methods for the identification of material properties in the context of mining processes are developed and applied.

Specific topics addressed in the field of material characterisation are:

- The characterisation of material flows,
- Boundary layer detection,
- The detection of loose rock and
- Material characterisation within rock cutting.

Topics and current projects:

- Use of Hyperspectral Cameras as an Extension of the Mineral Optimization System (HyperMOS)
- Determination of sand moisture using an Acoustic Emission sensor (HySand)

Completed projects:

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- Boundary layer detection, crack detection (NEXGEN SIMS)
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- Real time process control in mining
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