Emelie Holmén – ITASCA Sweden

Project Engineer

Expertise Rock Mechanics

Education

M.Sc. Civil and Architectural Engineering (Soil and Rock Mechanics), 2026
Royal Institute of Technology, Stockholm, Sweden

Professional Experience

2026–Present	Itasca Consultants AB, Luleå, Sweden Project Engineer
2026	Swedish Defence Research Agency, Fortification and Materials, Sweden M.Sc. Thesis Student
2025	Itasca Consultants AB, Luleå, Sweden Summer Internship
2024	Chalmers University of Technology, Geology and Geotechnics, Gothenburg, Sweden Student Research Assistant
2022	COWI AB, Project Management, Gothenburg, Sweden Summer Internship

Project Experience

Research:
Numerical modelling (LS-DYNA, RHT constitutive model) of rigid-body projectile penetration in intact granite at impact velocities of 400–1200 m/s. Identified material parameters (strength surfaces, strain-rate dependence, equation-of-state coefficients) from literature data and validated the model against small-scale ballistic penetration experiments. Structured meshing performed in TrueGrid, with simulations run on an HPC cluster (Linux, Slurm).

Numerical modelling (FLAC3D, Griddle) of tunnel excavation through a weakness zone, evaluating general rock mass behavior under various scenarios to provide recommendations on spiling reinforcement guidelines.

Developed Python scripts for processing and evaluation of geotechnical laboratory test data (CRS, triaxial, oedometer).

Infrastructure:
As-built documentation for the Hisingsbron project in multiple disciplines including geotechnical, railway, and electrical.

Mining:
Geotechnical core logging.