
Geomechanics Engineer

Expertise	Numerical Modeling of Geomechanics, Machine Learning Methods and Techniques
Education	M.S. (Geoengineering, Machine Learning), 2021 University of Minnesota, Minneapolis, Minnesota B.GeoE. (Geoengineering), 2020 University of Minnesota, Minneapolis, MN
Registration	Engineer in Training (EIT), Minnesota
Professional Affiliations	Member: American Society of Civil Engineers (ASCE), Society of Mining, Metallurgy, & Exploration (SME). Officer: Minnesota Geotechnical Society (MGS-GI).
Honors	2021 Tekne Award: Innovation in Artificial Intelligence and Machine Learning Advances Safety and Efficiency in Wind Energy Construction

Professional Experience

2021 – Present	ITASCA Minneapolis Geomechanics Engineer
2020 – 2021	Engineering Intern
2019 – 2021	University of Minnesota, Minneapolis, Minnesota Teaching & Research Assistant
2019 – 2019	American Engineering Testing, St. Paul, Minnesota Engineering Technician Intern

Project Experience

Machine Learning Model Development for Underground Mining: Developed a workflow to predict intact rock strength using random forests trained with a combination of point load test (PLT) data and comprehensive borehole logs. This workflow is used to predict rock mass strength variation at large cave mines where full coverage with point load tests would be cost prohibitive. Developed a methodology to train machine learning based surrogate models using synthetic data generated by numerical models. ITASCA was awarded the 2021 Tekne award for the application of these surrogate models to construction crane bearing capacity analysis.

Numerical Analysis for Practical Geo-engineering Application: Developed and applied numerical models in a variety of practical geo-engineering studies including slope stability analyses, open pit blasting analyses, and sublevel caving blasting analyses.

Geomechanics Consulting: Used ITASCA software to give design recommendations and insights into the mechanical behavior of rock in the engineered environment to a variety of customers in the mining, civil, and energy industries.