
Geomechanics Software Engineer

Expertise Fracture Mechanics, Experimental Rock Mechanics, Reliability Analysis, Scaling and Size Effect, Deep Learning, Computer Graphics

Education Ph.D. (Civil Engineering), 2023
University of Minnesota, Minneapolis, Minnesota, USA
M.Sc. (Computer Science), 2023
University of Minnesota, Minneapolis, Minnesota, USA
M.Sc. (Civil Engineering), 2019
University of Minnesota, Minneapolis, Minnesota, USA
B.C.E. (Civil Engineering), 2017
University of Minnesota, Minneapolis, Minnesota, USA

Honors Hsiao Shaw-Lundquist Fellowship (2022)
Sommerfeld Scholarship Fund (2016)

Professional Experience

2023 – Present ITASCA Minneapolis
Geomechanics Software Engineer
2017 – 2023 University of Minnesota, Minneapolis, Minnesota
Research and Teaching Assistant

Project Experience

Experimental and Theoretical Investigation of SiC/SiC Composites: Designed a rigorous testing system for SiC/SiC composite tubular specimens under high tension and pressure conditions. Formulated a time-dependent probabilistic model to describe the damage behavior of SiC/SiC under evolving stress history. Extrapolated laboratory testing results to predict the failure risk of SiC/SiC nuclear claddings.

Real-Time Ray Tracing and Collision Detection Game Engine: Adapted a real-time ray-tracing pipeline in OpenGL with frustum culling, level of detail and deferred shading to improve large-scene rendering. Implemented a collision detection system that used bounding volume hierarchy to only check nearby collisions and created FPS and 2.5D platform game based on improved game engine.

Cross-lingual Transfer Learning for Irony Detection: Performed irony detection on English twitter and Chinese weibo dataset via sentiment-based transfer learning with XLM-RoBERTa transformer model. Investigated cross-lingual similarities on irony sentences and incorporated sentiment features inside model to better detect explicit and implicit context incongruity.