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Using Simulation to Quantify Uncertainty in Ultimate Pit Limits and Inform Infrastructure Placement

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Uncertainty modelling is not just for geologists but should be incorporated into processes for downstream users of geological data. Examples are provided on how uncertainty affects the design of the ultimate pit and how it can be analysed to improve the mine planning process.

A stochastic framework using geostatistical simulation and parametric analysis is used to model the effects of geologic and economic variation on ultimate pit limits and overall project economics. This analysis is made possible by a new, highly efficient pit optimisation implementation which can be automated and set up to calculate ultimate pits for hundreds of different scenarios in a matter of hours. Quantifying ultimate pit uncertainty early in the mine planning process allows mining engineers to make informed decisions regarding infrastructure placement, and to mitigate the possibility of incurring substantial costs relocating critical mine facilities.

