Finite Difference Approximations in the Presence of Noise for Identifying Discontinuities

Michael McCourt, SigOpt

In the process of sequential kriging optimization, as is the case for many kernel-based approximation methods, the choice of kernel basis can play a significant role in the quality of the outcome. This talk discusses a strategy for trying to identify the best smoothness for a kriging model fit to scattered noisy data by studying the behavior of localized gradient approximation. Results are discussed which explore how the information derived from this can help guide an efficient optimization process.