Imperial College London

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PhD week 9-Weekly summary

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In this week, I studied:

- Learn Uqlab for the deflection of an excavation
- Read UQlab documentation (still looking the output)
- Some knowledge on sampling

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Monte Carlo sampling

In general, Monte Carlo sampling consists:

- Direct sampling (known PDF and CDF, e.g., LHS)
- Accept/Reject sampling (MCMC)
- Importance sampling (Sequential Monte Carlo-Particle filtering)

Sequential Bayesian Inference (excavation/strip footing)/KDE/95 confidence interval?

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Surrogate model

- One surrogate model to represent the pattern of deflection
- Split parameters?

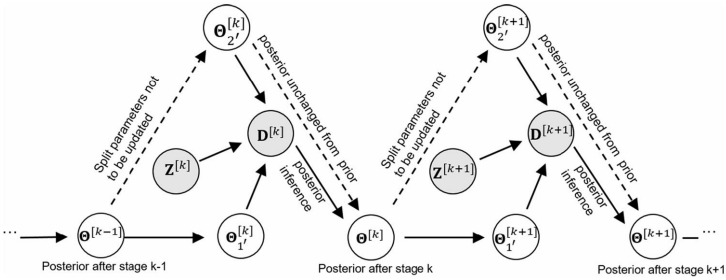

Figure 1: Model structure of sequential Bayesian reference [1]

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Reference

[1] Yingyan Jin, Giovanna Biscontin and Paolo Gardoni. "Adaptive prediction of wall movement during excavation using Bayesian inference". In: *Computers and Geotechnics* 137 (2021), p. 104249.