

PhD week 19-Weekly summary

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In this week, I was looking at:

- Paper [1] recommended on UQLAB
- PCA-PCE

PCA has main two advantage:

- Dimensionality reduction
- Decouple

As mentioned in [2]: "PCA utilizes an orthogonal transformation to express Y in a new basis of uncorrelated principal components Z "

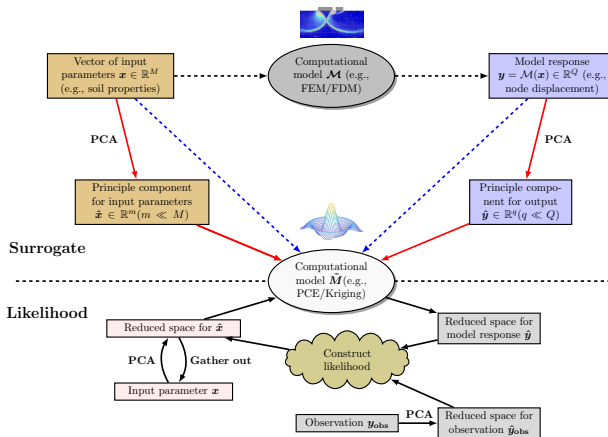


Figure 1: PCA-PCE

Reference

- [1] Giovanni Angelo Meles, Niklas Linde and Stefano Marelli. “Bayesian tomography with prior-knowledge-based parametrization and surrogate modelling”. In: *Geophysical Journal International* 231.1 (2022), pp. 673–691.
- [2] P-R Wagner et al. “Bayesian calibration and sensitivity analysis of heat transfer models for fire insulation panels”. In: *Engineering structures* 205 (2020), p. 110063.