**HW6**

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1st order Sobol index and Total-effect index were calculated to perform global sensitivity analysis (GSA) for the four inputs: E1, E2 , E3 and E4 (the load P is set to be deterministic).

The inputs are generated from:

E1~N(24000,2400);

E2~N(26000,2600);

E3~N(28000,2800);

E4~N(30000,3000);

Both Gaussian process model and PCE surrogate model were used to generate the outputs and compute the indices. For PCE, the analytical solution is NOT used here since I am not sure what formula I should use. The results of these two models are compared.

For GPR model:

Si = [0.392863372255511 0.247802602144579 0.166419785904055 0.192914239695854];

S1 = [0.743254614314294 0.625072583791633 0.832320839750603 0.799351962143470];

For PCE model:

Si = [0.302716464637185 0.239146953203515 0.264366882890695 0.193769699268605];

S1 = [0.808179766689077 0.817589572737954 0.860465525586443 0.513765134986526];