Coding Assignment 1 Write-up

Andrew Sivaprakasam

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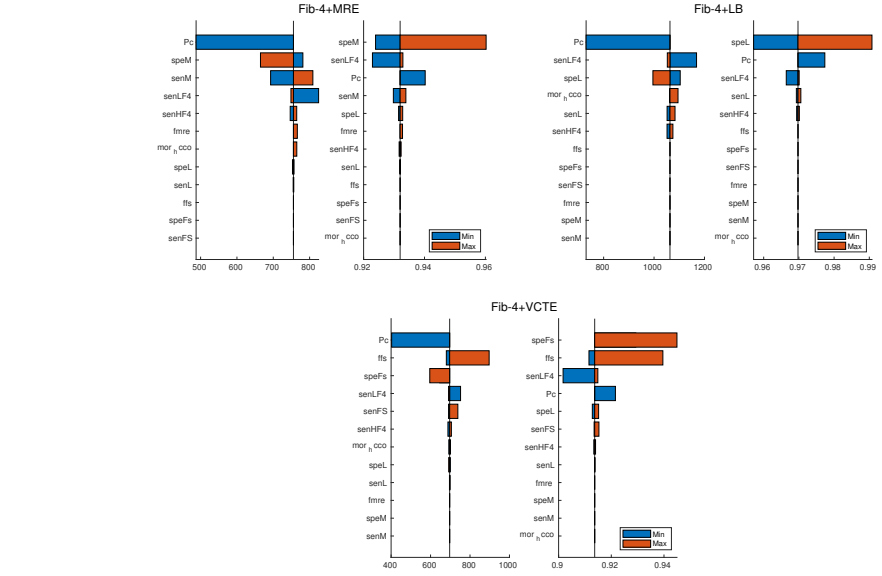
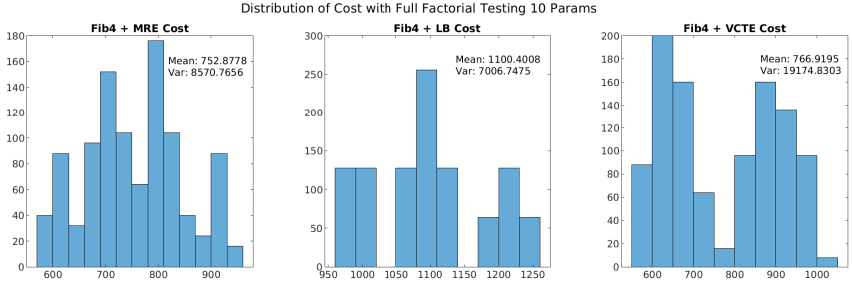
Question 2| One-Way Sensitivity Analysis Tornado Plots

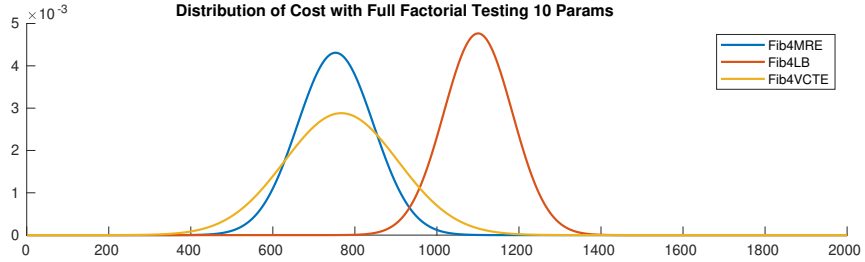
Observations of how sensitive the model output is to the specified parameters.

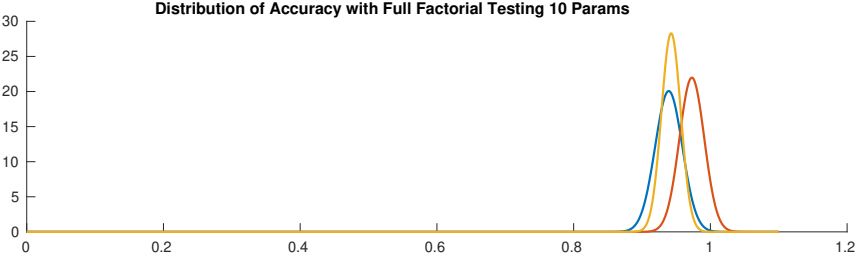


Question 3a| Full-Factorial Histograms



Question 3a| Full-Factorial Fitted Distributions





Question 3b| Full-Factorial Percent ¿ 300 (from Code)

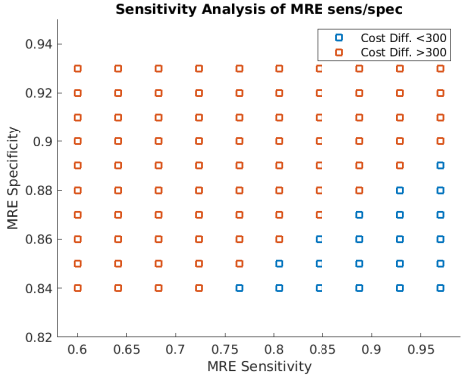
The percent of trials where the difference $|LB_{cost} - MRE_{cost}| > 300$ was 61.7188%

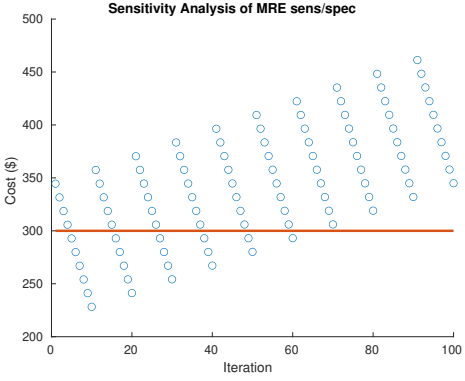
See `q3.m` 252-253:

```
diff = abs(Fib4MRE_cost_out-Fib4LB_cost_out);
percent_greater = sum(diff>300)*100/L;
```

Question 3c| Full-Factorial Sensitivity Analysis on MRE

The effect of varying MRE specificity and sensitivity params (`speM` & `senM`) on the cost difference between MRE and LB can be visualized as follows:

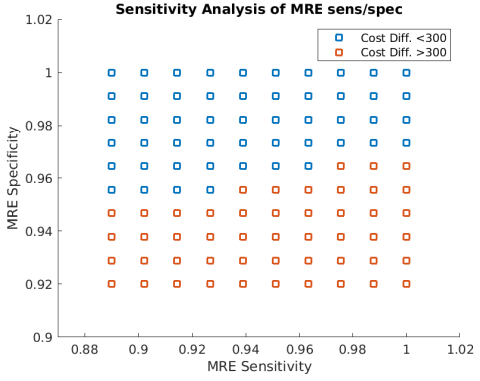


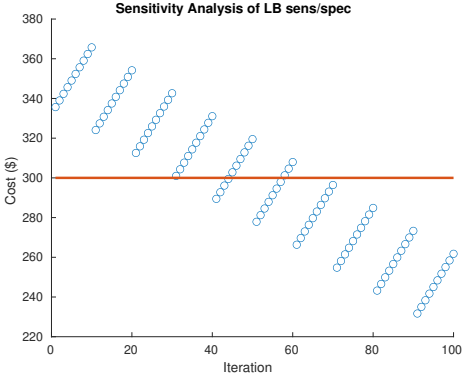


79% of the simulated outputs for cost difference were greater than 300.

Question 3d| Full-Factorial Sensitivity Analysis on LB

The effect of varying LB specificity and sensitivity params (`speM` & `senM`) on the cost difference between MRE and LB can be visualized as follows:

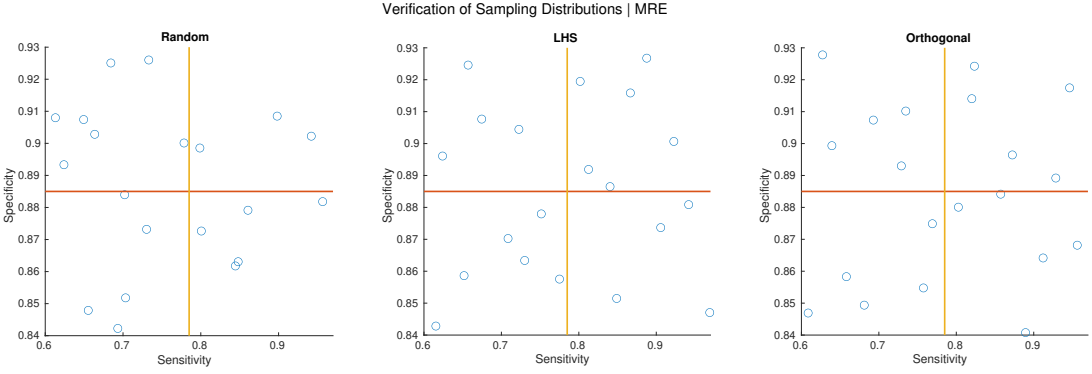




49% of the simulated outputs for cost difference were greater than 300.

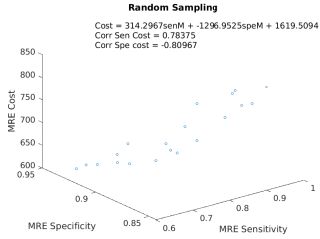
Sample-Based Sensitivity Analysis

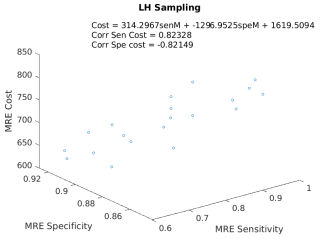
Here is a verification that my sampling was done correctly. I created a brute-force method for orthogonal sampling, `orth_samples.m`.

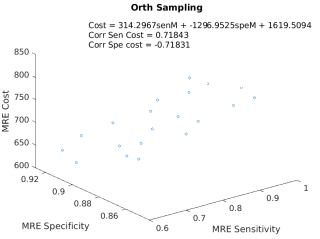


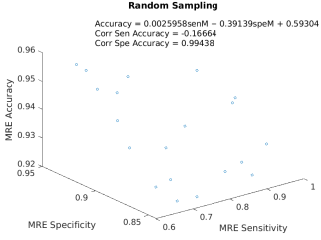
Question 3e | Sample-Based Sensitivity Analysis for MRE

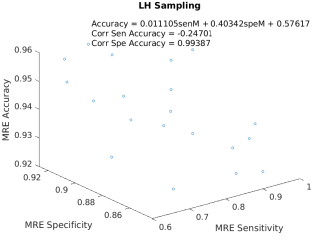
Here are the 3D plots, regression equations and Pearson's correlation coefficients for the MRE sample-based Sensitivity Analysis.

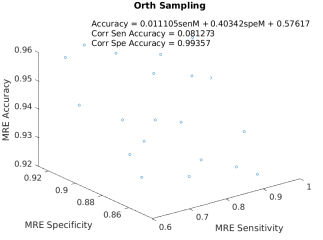












Question 3f | Sample-Based Sensitivity Analysis for LB

Here are the 3D plots, regression equations and Pearson's correlation coefficients for the LB sample-based Sensitivity Analysis.