

# Adaptive Design for Variable Selection in Normal Linear Models\*

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# Introduction

- All models involve uncertainty.
- Of particular interest is to select the “best” model / models that explains the data, e.g., to select variables to be included in the model.
- In many real problems, we may have (or have control over) the values of predictor variables.
- But collecting the response variables may be expensive.

- In carrying out a large scale investigation from a pilot study, with variable selection as one of the ultimate goals, one question is “how to sample efficiently?”
- It is desirable to collect data adaptively, based on the information we have already obtained.
- Here, we propose an adaptive design strategy based on Bayesian decision theoretic approach.
- Hopefully, we may achieve the desired accurate level earlier (to save \$\$\$).