

# 中央研究院統計科學研究所

## 學術演講

講題：Automated Analysis of Experiments using Hierarchical Garrote

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of Technology

時間：2024-12-19(Thu.) 10:30-12:00

地點：Auditorium, B1F, Institute of Statistical Science ; The tea  
reception will be held at 10:10.

備註：Online live streaming through Cisco Webex will be available.

### Abstract

In this work, we propose an automatic method for the analysis of experiments that incorporates hierarchical relationships between the experimental variables. We use a modified version of nonnegative garrote method for variable selection which can incorporate hierarchical relationships. The nonnegative garrote method requires a good initial estimate of the regression parameters for it to work well. To obtain the initial estimate, we use generalized ridge regression with the ridge parameters estimated from a Gaussian process prior placed on the underlying input-output relationship. The proposed method, called HiGarrote, is fast, easy to use, and requires no manual tuning. Analysis of several real experiments are presented to demonstrate its benefits over the existing methods.



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