# 國立中山大學應用數學系
# 學術演講

講　者：Professor Wei-Yin Loh
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講　題：Subgroups from regression trees with adjustment for prognostic effects and post-selection inference

時　間：2019/05/23（Thursday）14:10 ~ 15:00 pm

地　點：理學院四樓理 SC 4009-1 室

茶　會：15:00 於理 SC 4010 室 (系辦公室)


**Abstract**

Identification of subgroups with differential treatment effects in randomized trials is attracting much attention. Many methods employ regression tree algorithms. This article addresses two important questions arising from the subgroups. How to ensure that treatment effects in subgroups are not confounded with effects of prognostic variables? How to determine the statistical significance of treatment effects in the subgroups? We address the first question by selectively including linear prognostic effects in the subgroups in a regression tree model. The second question is more difficult because it falls within the subject of post-selection inference. We use a bootstrap technique to calibrate normal-theory t- intervals so that their expected coverage probability, averaged over all the subgroups in a fitted model, approximates the desired confidence level. It can also provide simultaneous confidence intervals for all subgroups. The first solution is implemented in the GUIDE algorithm and is applicable to data with missing covariate values, two or more treatment arms, and outcomes subject to right censoring. Bootstrap calibration is applicable to any subgroup identification method; it is not restricted to regression tree models. Two real examples are used for illustration: a diabetes trial where the outcomes are completely observed but some covariate values are missing, and a breast cancer trial where the outcome is right-censored.


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