

## May 24 SFASA Seminar

### A Simple Method for Detecting Interactions Between a Treatment and a Large Number of Covariates

**Speaker:** Lu Tian , Assistant Professor, Health Research & Policy - Biostatistics  
**Date:** Thursday, May 24th  
**Time:** 4:30 P.M. - 6:30 P.M.  
**Location:** Stanford University, Center for Clinical Sciences Research (CCSR), Room 4105

#### **Abstract:**

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We consider a setting in which we have a treatment and a large number of covariates for a set of observations, and wish to model their relationship with an outcome of interest. We propose a simple method for modeling interactions between the treatment and covariates. The idea is to modify the covariate in a simple way, and then fit a standard model using the modified covariates and no main effects. We show that coupled with an efficiency augmentation procedure, this method produces valid inferences in a variety of settings. It can be useful for personalized medicine: determining from a large set of biomarkers the subset of patients that can potentially benefit from a treatment. We apply the method to both simulated datasets and gene expression studies of cancer. The modified data can be used for other purposes, for example large scale hypothesis testing for determining which of a set of covariates interact with a treatment variable.

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Use of the public transportation (Cal Train) is highly recommended. Parking is free after 4pm.

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