

## **Tutorial by Bruce Hansen**

**17 December 2021**

### **Model Selection, Model Averaging, Shrinkage, and Machine Learning**

#### **Schedule and Topics**

The tutorial will be organized into four 45-minute sessions, each starting on the hour.

- 15:00 to 15:45: Model Selection
  - BIC, AIC, Mallows, CV, Consistent Selection, Asymptotic Optimality
- 16:00 to 16:45: Model Averaging
  - SBIC, SAIC, Least Squares Averaging, Mallows Averaging, Jackknife Averaging, Optimality
- 17:00 to 17:45: Shrinkage
  - Stein-Rule, theory, applications
- 18:00 to 18:45: Machine Learning
  - Principle components, Ridge regression, Lasso, Random Forests