Statistical and Data Sciences:
- Some of My Research Interests
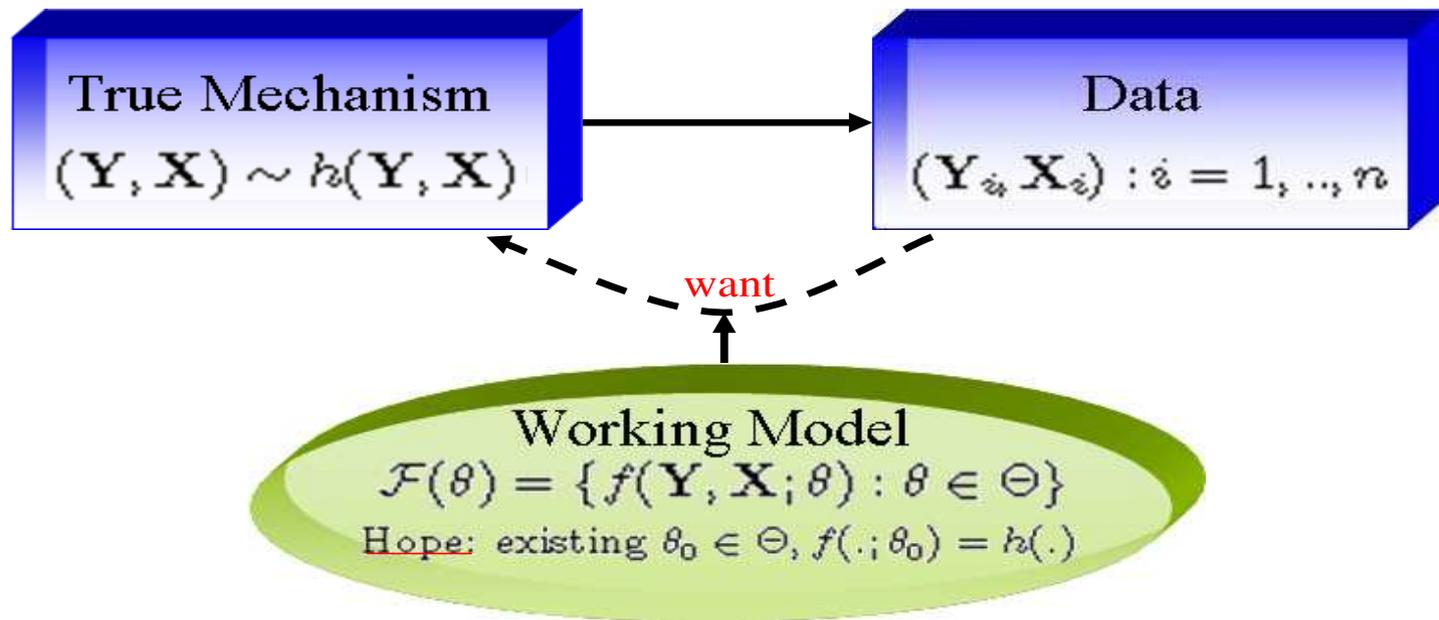
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Statistical Learning and Inference

- Statistical Modeling
- Statistical Inference

True Mechanism
$$(\mathbf{Y}, \mathbf{X}) \sim h(\mathbf{Y}, \mathbf{X})$$

Data
$$(\mathbf{Y}_i, \mathbf{X}_i) : i = 1, .., n$$

want

Working Model
$$\mathcal{F}(\theta) = \{f(\mathbf{Y}, \mathbf{X}; \theta) : \theta \in \Theta\}$$
Hope: existing $\theta_0 \in \Theta$, $f(.; \theta_0) = h(.)$

Statistical Learning and Inference

Emerging Challenges

- Noisy Data: measurement error is present
- Complete Information: no missing observations are present
- High Dimensionality of Data: dimension p of data $\gg$ sample size n

My Research Interests

- Machine Learning
- Statistical Theory
  - develop statistical methodology for various problems
- Statistical Computing
  - develop computing software packages
- Statistical Applications
  - cancer research
  - precision medicine/personalized medicine