

## Information Design and Multi-Item Pricing

**Faculty Member:** [Dirk Bergemann](#)

This project is eligible for remote work.

### Proposal Description:

In sponsored search and display advertising auctions, these are the allocation mechanism that generate much of the revenue in e-commerce, the bidder (advertiser) has private information about his own preferences, but the characteristics of the item (the viewer) are held by the seller. This suggests the analysis of market design with bilateral private information. In this project we seek to determine the nature of the optimal selling mechanism and the nature of the optimal bundle or segmentation by the advertisers.

The research will involve advanced techniques in game theory and mechanism design, using optimization and algorithm as its core technique. The analysis is largely intended to be theoretical and analytical. It will involve numerical analysis but almost no data work.

### Requisite Skills and Qualifications:

Students with a very strong background in mathematics and computer science are strongly encouraged to apply, thus in particular students majoring in mathematics or related majors. Some background in economics is desired but not necessary. The project will use optimization techniques such as linear programming and duality and use software packages such as matlab and mathematica.

**Award:** Alden Tan

Fred Zhang

**Tobin Application Link:** [Tobin Application](#)

**Project Type:** Tobin RA

**Project Year:** 2020

**Term:** Fall 2020

**Source URL:** <https://economics.yale.edu/undergraduate/tobin-ra/fall-2020/information-design-and-multi-item-pricing>