Yunfei (Jesse) Yao

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EDUCATION

University of California, Berkeley, Ph.D. Business Administration, 2023 (expected)
Stanford University, Exchange student in Economics, 2019
University of Michigan, B.S. Mathematics, B.S. Statistics, 2017
Peking University, Major in Mathematics, 2012 - 2015

RESEARCH INTERESTS

◦ Competitive Strategy ◦ Incentives and Contracts ◦ Economics of Information

PAPERS

◦ **Dynamic Persuasion and Strategic Search** *Job Market Paper*

Consumers frequently search for information before making decisions. Since their search and purchase decisions depend on the information environment, firms have a strong incentive to influence it. This paper endogenizes the consumer's information environment from the firm's perspective. We consider a dynamic model where a firm sequentially persuades a consumer to purchase the product. The consumer only wishes to buy the product if it is a good match. The firm designs the information structure. Given the endogenous information environment, the consumer trades off the benefit and cost of information acquisition and decides whether to search for more information. Given the information acquisition strategy of the consumer, the firm trades off the benefit and cost of information provision and determines how much information to provide. This paper characterizes the optimal information structure under a general signal space. We find that the firm only smooths information provision over multiple periods if the consumer is optimistic that the product is a good match before searching for information. If the search cost for the consumer is high, the firm designs the information such that the consumer will be certain that the product is a good match and will purchase it after observing a positive signal. If the search cost is low, the firm provides noisy information such that the consumer will be uncertain about the product fit but will still buy it after observing a positive signal.

◦ **Failure of Reputation for Privacy**

As consumers become increasingly concerned about their privacy, firms can benefit from committing not to sell consumer data. However, the holdup problem prevents them from doing so in a static setting. This paper studies whether the reputation consideration of the firm can serve as a commitment device in a long-run game when consumers have imperfect monitoring technology. We find that a patient enough monopoly can commit because its reputation will be permanently destroyed if consumers observe the data sale. The persistent punishment provides the monopoly a strong incentive not to deviate. In contrast, reputation may fail to serve as a commitment device when there are multiple firms. The penalty for selling data is smaller as consumers cannot know which exact firm sold the data. Also, other firms can hurt the reputation of a particular firm even if it does not sell data. We find some sufficient conditions under which the incentive to deviate is so strong that firms lose the commitment power. Reputation failure in the presence of multiple firms persists when we consider endogenous or asymmetric monitoring.

◦ **Multi-attribute Search**

When considering whether or not to buy a product, the consumer can often evaluate different attributes of it. Sometimes, the consumer chooses which attribute to search for because of exogenous reasons (e.g., one attribute is more important than others). However, the consumer often is unclear which attribute is more important ex-ante. Assuming that a product has two symmetric attributes, we study the optimal search strategy of the decision-maker by endogenizing the optimal attribute to search, when to keep searching, and when to stop and make a decision. We find that it is always optimal to search the attribute the consumer has the highest uncertainty due to the fastest learning speed. The optimal search region has a butterfly shape - the decision-maker searches on a broader region when the belief about one of the attributes is more extreme. The decision-maker only searches the more uncertain attribute if she holds a strong prior belief on one of the attributes and may search both attributes otherwise.

◦ **Choice Deferral and Search Fatigue** (with *Z. Eddie Ning* and *J. Miguel Villas-Boas*)

When gathering information to make decisions, individuals often have to delay making a decision because the process of gathering information is interrupted, and the individual is not yet ready to make a decision. The paper considers a model of choice deferral based on time-varying search costs, potentially based on search fatigue, in which individuals have to strategically decide whether to defer choice, taking into account the current available information, and when they will have again a chance to gain further information. We find that individuals are more likely to defer choice when the amount of information gained when gathering information is greater, when there is an opportunity to gather information again sooner, when the individuals discount less the future, and when the likelihood of having search fatigue is lower. We also consider the case in which individual incur costs of restarting a process of information gathering, and when the individual has greater information about the extent of search fatigue.

◦ **A Dynamic Model of Optimal Retargeting** (with *J. Miguel Villas-Boas*) ***Marketing Science***, 2021

A consumer searching for information on a product may be indicative that the consumer has some interest in that product, but is still undecided about whether to purchase it. Some of this consumer search for information is not observable to firms, but some may be observable. Once a firm observes a consumer searching for information on its product, the firm may then want to try to provide further information about the product to that consumer, a phenomenon which has been known in electronic commerce as retargeting. Firms may not observe all activities by a consumer in searching for information, may not be able to observe the information gained by consumers, and may not be able to observe whether a consumer stopped searching for information. A consumer could stop searching either because he received information of poor fit with the product, or because he bought the product (which may be unobservable to the firm), or because he exogenously lost interest in the product. This paper presents a dynamic model with these features characterizing the optimal advertising retargeting strategy by the firm. We find that a forward-looking firm can advertise more or less than a myopic firm to gain more information about whether the consumer is searching for information, advertising more if the effect of advertising is relatively high. We characterize how the optimal advertising retargeting strategy is affected by the ability of the firm to observe when the consumer purchases the product, when the firm is better able to observe the consumer search behavior, and by the informativeness of the signal received by the consumer. We find that better tracking of consumer search behavior could be beneficial for consumers, because it may reduce the length of time when a consumer receives retargeting, but that it also enlarges the region of firm's beliefs where retargeting is optimal. Finally, we also find that the value of retargeting is highest for an intermediate value of the likelihood of the consumer receiving an informative signal, and that retargeting may allow the firm to charge higher prices if consumers are forward-looking.

WORK IN PROGRESS

◦ Optimal Contract with Lockout Technology (with *Brett Green*)

◦ Unifying Fairness and Efficiency in Multi-dimensional Screening: A Decentralization Approach

TEACHING

- ◦ Graduate Student Instructor, Marketing Strategy (MBA), Fall 2022
- ◦ Graduate Student Instructor, Microeconomic Theory (graduate), 2020
- ◦ Graduate Student Instructor, Marketing (undergraduate), 2019

INDUSTRY EXPERIENCE

SAP America, Development Intern (advertising attribution group), May 2018 – Dec. 2018

HONORS AND AWARDS (GRADUATE)

- ◦ ISMS Doctoral Consortium Fellow, 2020, 2021
- ◦ AMA-Sheth Foundation Doctoral Consortium Fellow, 2020
- ◦ Sasakawa Young Leadership Fellowship, 2018
- ◦ Dean of the graduate division award, 2017

SELECTED COURSEWORK

*: audited while fully participated in the lectures, assignments, and exams

Marketing:

Marketing Strategy	J. Miguel Villas-Boas
Special Research Topics in Marketing Strategy	Ganesh Iyer
Discrete Choice Model	Przemek Jeziorski
Choice Theory and Modeling	Fred Feinberg
Structural Models*	Puneet Manchanda
Bayesian Modeling*	Anocha Aribarg
Judgment and Decision Making	Ellen Evers
Teaching Business	Todd Fitch

Economics:

Microeconomic Theory I	David Ahn
Microeconomic Theory II	Haluk Ergin
Macroeconomic Theory I	Andrés Rodríguez-Clare, Pierre-Olivier Gourinchas
Decision Theory and Epistemic Game Theory	David Ahn
Game Theory and Economic Applications	Gabriel Carroll
Game Theory	Yuichiro Kamada
Mechanism Design	Philipp Strack
Contracts, Information, and Incentives*	Ilya Segal
Theory and Practice of Auction Market Design*	Paul Milgrom, Michael Ostrovsky
Continuous-time Methods in Economics*	Yuliy Sannikov
Continuous-time Asset Pricing Theory	Richard Stanton
Corporate Finance Theory	Brett Green, Dmitry Livdan
Industrial Organization (theory)	Joseph Farrell
Industrial Organization (empirical)	Kei Kawai

Econometrics, Statistics, OR, and CS

Econometrics I	Michael Jansson, Bryan Graham
Econometrics II	Demian Pouzo, James Powell
Machine Learning	Jacob Abernethy
Statistical Inference	Ya'acov Ritov
Linear Model	Ya'acov Ritov
MCMC	Yves Atchade
Linear Programming	Jon Lee

Extensive and rigorous mathematical training

in analysis, algebra, geometry, topology, combinatorics, number theory, differential equations, and probability

REFERENCES

- **J. Miguel Villas-Boas** (dissertation chair)
  Professor of Marketing, Haas School of Business, UC Berkeley
  (510) 642-1250, villas@haas.berkeley.edu

- **Ganesh Iyer**
  Professor of Marketing, Haas School of Business, UC Berkeley
  (510) 643-4328, giyer@haas.berkeley.edu

- **Yuichiro Kamada**
  Associate Professor of Marketing, Haas School of Business, UC Berkeley
  (510) 643-4376, y.cam.24@gmail.com