CHOI, HANA

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EDUCATION

PhD	**Duke University**, Quantitative Marketing	June 2018 (expected)
MA	**University of Pennsylvania**, Economics	2012
BS	**Yonsei University**, Dual in Business Administration and Economics	2007

RESEARCH INTERESTS

Internet, Advertising, Startup Business, Dynamic Decision Making, Empirical Industrial Organization

WORKING PAPERS

- **Online Marketplace Advertising**
  with Carl Mela, under 1st review Marketing Science
  Available at SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2839802

WORK IN PROGRESS

- **A Review Essay on Display Advertising Market**
  with Carl Mela, Santiago Balseiro
- **Optimizing Design Decisions in Display Advertising Markets**
  with Carl Mela, Santiago Balseiro
- **Finite Mixture Models of Dynamic Discrete Choices with Hyperbolic Discounting**

Presentations

- **Online Marketplace Advertising**
  Marketing Science Conference, Baltimore 2015
- **Optimizing Design Decisions in Display Advertising Markets**
  CBS Interactive 2015, 2016

CONFERENCE PARTICIPATION

Quantitative Marketing and Economics, Northwestern	2016
Quantitative Marketing and Economics, MIT	2015
Marketing Science Conference, Baltimore	2015
Marketing Science Conference, Atlanta	2014
ISMS Doctoral Consortium, Atlanta	2014
Workshop on Quantitative Marketing and Structural Econometrics, Duke	2013

HONORS AND AWARDS

MSI Research Grant, co-PI with Carl Mela, Santiago Balseiro, Adam Leary, $5000	2016
Graduate Fellowship, Duke University	2013
Korea Foundation for Advanced Studies Fellowship	2007
BK 21 Research Scholarship	2007
DK Korea Fellowship	2006
Higher Civil Service National Examination Scholarship	2005
Yonsei University Scholarships for Academic Excellence	2003

TEACHING EXPERIENCE

Duke University

Teaching Assistant, Marketing Core (MBA), 2015, 2016

Teaching Assistant, Product Management (MBA), 2014

University of Pennsylvania

Head Teaching Assistant, Microeconomic Foundations (MBA), 2012

Head Teaching Assistant, Advanced Topics in Managerial Economics (MBA), 2012

Head Teaching Assistant, Business Economics and Public Policy, 2012

Teaching Assistant, Managerial Economics, 2010-2011

Yonsei University

Teaching Assistant, Intermediate Microeconomics, 2007

INDUSTRY EXPERIENCE

CBS Interactive, Data Science Team

Academic Research Fellow, Summer 2015, Summer 2016

The-Nuvo, Seoul

Data Analyst (Part Time), Winter 2011 – Winter 2012

CMO, Winter 2012 – Summer 2013

Ernst & Young, New York, Transfer Pricing Division

Intern, Summer 2012

SELECTED ABSTRACTS

- **Online Marketplace Advertising** with Carl F. Mela

This paper considers the allocation of "shelf space" in the context of online marketplaces, where items' positions are linked to advertising. While featuring advertised products makes search less efficient, lowering transaction commissions, it incentivizes sellers to compete for better placements via advertising. We consider this trade-off by modeling both sides of the platform. On the demand side, we develop a joint model of search (impressions), consideration (clicks), and choice (demand). On the supply side, we consider sellers' advertising competition under various fee structures and ranking algorithms.

Using buyer, seller, and platform data from an online marketplace specializing in handmade goods, we find that sorting goods by consumer preferences decreases platform profits, as it leads to more lower price item purchases. On the seller side, the high advertising commissions create an incentive for sellers to advertise items in the hope of selling them elsewhere with lower fees. Reflecting this hope, there is a negative valuation from demand for the sellers who advertise, whereas the median valuation for consideration is estimated to be \$0.13. We find that both the platform and its sellers are better off when the platform lowers the cost-per-action (CPA) and instead increases the cost-per-consideration/click (CPC).

- **A Review Essay on Display Advertising Market** with Carl F. Mela, Santiago Balseiro

Given the substantial economic importance of display advertising, the objectives of this paper are as follows: The first objective is to overview the display advertising ecosystem which has evolved remarkably with the introduction of programmatic real time buying. Second is to organize what is known in existing literature from the perspective of all players involved and their key managerial decisions, including advertisers, publishers, and intermediaries. In doing so, we take an interdisciplinary view and draw connections among diverse streams of theoretical and empirical research in marketing, economics, decision, operations, and computer science. By providing an integrated view of the display advertising ecosystem, we hope to bring attention to the outstanding research opportunities and burgeon fruitful studies in this economically consequential and rapidly growing market.

- **Finite Mixture Models of Dynamic Discrete Choices with Hyperbolic Discounting**

Although the importance of unobserved heterogeneity has been emphasized in depth with standard discrete choice models, it has not been studied yet, whether the standard identification argument with unobserved heterogeneity can be applied to models with hyperbolic discounting preferences. In this

paper, I show that if we have type-invariance in the transition process, along with the exclusion restrictions mentioned in Fang and Wang (2011), we can identify all three discount factors, type probabilities and type-specific component distributions in finite mixture models of dynamic discrete choices with three periods data. I would like to further extend this argument to the case where we have variables that affect the decision makers' static payoff functions, but do not affect the transition probabilities of states over time (not necessarily type-invariance in the transition process.