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Hana Choi

Ph.D. Candidate, Quantitative Marketing

Duke University

CONTACT

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EDUCATION

PhD	**Duke University**, Quantitative Marketing	June 2019 (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

- **Publishers' Strategies in Display Advertising Markets**
  with Carl F. Mela
  Job Market Paper
- **Monetizing Online Marketplace**
  with Carl Mela
  Under 2nd round at Marketing Science
- **Online Display Advertising Markets: A Literature Review and Future Directions**
  with Carl F. Mela, Santiago Balseiro, Adam Leary
  Invited for minor revision at Information Systems Research

WORK IN PROGRESS

- **The Optimal Targets of Retargeted Ads: A Large Field Experiment**
  with Monic Sun
  Data collected, analysis in progress

INDUSTRY EXPERIENCE

- **CBS Interactive, Data Science Team**, San Francisco, CA
  Academic Research Fellow — June 2015 - Present
- **The-Nuvo**, Seoul, Korea
  CMO — Feb 2013 – Aug 2013
  Data Analyst (Part Time) — Nov 2011 – Jan 2013
- **Ernst & Young, Transfer Pricing Division**, Manhattan, NY
  Intern — Summer 2012

HONORS AND AWARDS

Dissertation Research Travel Award, Duke University, $2000	2017
MSI Research Grant, co-PI with Carl Mela, Santiago Balseiro, Adam Leary, $5000	2016
Graduate Fellowship, Duke University	2013
Korea Foundation for Advanced Studies (KFAS) Fellowship	2007
BK 21 Research Scholarship	2007
DK Korea Fellowship	2006
Higher Civil Service National Examination Scholarship	2005
Yonsei University Scholarships	2003

PRESENTATIONS

- **Monetizing Online Marketplace**
  NBER Summer Institute IT and Digitization, Boston — 2017
  INFORMS Marketing Science Conference, Johns Hopkins — 2015
- **Publishers' Strategies in Display Advertising Markets**
  Duke-UNC Brownbag — 2017
  CBS Interactive, San Francisco — 2015, 2016

CONFERENCE PARTICIPATION

Marketing Science Conference, Temple	2018
ISMS Doctoral Consortium, Temple	2018
NBER Summer Institute, Boston	2017
Quantitative Marketing and Economics, Northwestern	2016
Quantitative Marketing and Economics, MIT	2015
Marketing Science Conference, Johns Hopkins	2015
Marketing Science Conference, Emory	2014
ISMS Doctoral Consortium, Emory	2014
Workshop on Quantitative Marketing and Structural Econometrics, Duke	2013

TEACHING EXPERIENCE

- **Duke University, Teaching Assistant**
  Strategy and Tactics of Pricing (MBA), taught by Wilfred Amaldoss — 2017

Marketing Core (MBA), taught by Carl Mela and Bryan Bollinger 2015, 2016
Product Management (MBA), taught by Carl Mela 2014

- **University of Pennsylvania, Teaching Assistant**
  Microeconomic Foundations (MBA) 2012
  Advanced Topics in Managerial Economics (MBA) 2012
  Business Economics and Public Policy (undergraduate course) 2012
  Managerial Economics (undergraduate course) 2010, 2011

- **Yonsei University**
  Intermediate Microeconomics (undergraduate course) 2007

DISSERTATION COMMITTEE

- **Carl F. Mela (Chair)** mela@duke.edu
  T. Austin Finch Foundation Professor of Marketing
  Executive Director, Marketing Science Institute
  Duke University
- **Bryan Bollinger** bryan.bollinger@duke.edu
  Assistant Professor of Marketing
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  Assistant Professor of Decision, Risk, and Operations
  Columbia University
- **Hema Yoganarasimhan** hemay@uw.edu
  Associate Professor of Marketing
  University of Washington
- **Giuseppe Lopomo** giuseppe.lopomo@duke.edu
  Professor of Economics
  Duke University

CONTACTS FOR LETTERS

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  Duke University
- **Santiago R. Balseiro** srb2155@columbia.edu
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  Columbia University

SELECTED RESEARCH ABSTRACTS

- **Publishers' Strategies in Display Advertising Markets**
  With Carl F. Mela

Abstract: This paper considers how publishers' ad inventory pricing decisions, the allocation of ad inventory across distribution channels (direct/exchange channels), and the amount of customer information it shares with the advertisers affect its revenues in display advertising markets. Focusing on the first question, and in particular setting the optimal reserve price in the exchange channel, a series of field experiments show that setting the reserve price can increase publisher's revenues substantially (32%). Further, we find that advertisers appear to behave as if they face minimum impressions constraint and deviate from truth-telling. Based on this insight, an advertiser bidding model is constructed to incorporate the minimum impressions goal. The optimal reserve price with the minimum impressions constraint is computed and the magnitude of the profit loss in ignoring this constraint is assessed. Subsequent iterations of this research will address the remaining allocation and information provision questions.

- **Online Display Advertising Markets: A Literature Review and Future Directions**
  with Carl F. Mela, Santiago Balseiro, Adam Leary

Abstract: This paper summarizes the display advertising literature, organizing the content by the agents in the display advertising ecosystem, and proposes new research directions. In doing so, we take an interdisciplinary view, drawing connections among diverse streams of theoretical and empirical research in marketing, economics, operations, and computer science. By providing an integrated view of the display advertising ecosystem, we hope to bring attention to the outstanding research opportunities in this economically consequential and rapidly growing market.

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

Abstract: This paper considers the monetization of online marketplaces. These platforms trade-off fees from advertising with commissions from product sales. While featuring advertised products can make search less efficient (lowering transaction commissions), it incentivizes sellers to compete for better placements via advertising (increasing advertising fees). We consider this trade-off by modeling both sides of the platform. On the demand side, we develop a joint model of browsing (impressions), clicking, and purchase. On the supply side, we consider sellers' valuation and advertising competition under various fee structures (CPM, CPC, CPA) and ranking algorithms.

Using buyer, seller, and platform data from an online marketplace where advertising dollars affect the order of seller items listed, we find that ranking items by consumer utility lowers platform's profits as it leads to more lower price item purchases. Combining a ranking algorithm that sorts items by expected sales revenue with a CPC auction limited to the top 5 positions improves profits the most, because this practice monetizes the highest valuations for advertising on top, while enhancing the transaction revenues in the lower positions.