

Tsung-Yiou Hsieh

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Current Position

2023 – Present

D’Amore-McKim School of Business, Northeastern University

Postdoctoral Research Associate

DATA Initiative Research Affiliate

Education

Sep. 2018 – May 2023

University of Houston

Ph.D. in Business Administration

Primary Field: Marketing

Supporting Field: Econometrics

AMA-Sheth Foundation Doctoral Consortium: Fellow

Aug. 2016 – Dec. 2017

University of California San Diego

MS in Business Analytics

Sep. 2011 – May 2015

National Chengchi University

BS in Finance

Research Interests

Substantive:

Marketing Analytics, Digital Marketing, Customer Analytics

Methodological:

Empirical Modeling, Causal Inference, Econometrics, Machine Learning, Bayesian Estimation

Papers

Published

“Leveraging Online Search Data as a Source of Market Intelligence”

with Rex Du. *Foundations and Trends in Marketing*, 17(4), August 2023, 227-291.

Working Paper

“Leveraging Large-Scale Granular Single-Source Data for TV Advertising”

with Rex Du and Shijie Lu. *Revise & resubmit at Marketing Science*

“Measuring Targeting Effectiveness in US TV Advertising”

with Samsun Knight and Yakov Bart. *Revise & resubmit at Journal of Marketing Research*

Work-in-Progress

“Advertising in Food Desert: Evaluation of Cross-Category Advertising Spillover”

“Estimating the Causal Effect of Complaint-Recovery Strategy: A Double Machine Learning Approach”

“Assessing the Potential of Addressable Linear TV Advertising”

Recognitions

6/2022	AMA-Sheth Foundation Doctoral Consortium: Fellow
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6/2022	Marketing Strategy Consortium: Fellow
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4/2022	UH Marketing Doctoral Symposium: Fellow
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Professional Activities

2024	<i>Presentations</i> (Leveraging Large-Scale Granular Single-Source Data for TV Advertising): 2024 Interactive Marketing Research Conference, 2024 Marketing Dynamic Conference*
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- 2023 *Presentations* (Measuring Targeting Effectiveness in US TV Advertising):
2023 Marketing Dynamic Conference
- 2022 *Presentations* (Dynamic Addressable TV Advertising over the Customer
Lifecycle): 39th UH Marketing Doctoral Symposium, 2022 Marketing
Dynamic Conference, 2022 Attribution & Analytics Accelerator, University of
Delaware, UC Davis, Warwick University, University of Melbourne
- 2021 *Presentations* (Assessing the Potential of Addressable Linear TV Advertising):
43rd Marketing Science Conference, 2021 AUDIENCExSCIENCE

**by coauthor*

Teaching

Instructor (C.T. Bauer College of Business)

Summer 2021 **MARK 4339: Marketing Analytics**

Level: Undergraduate

Course Evaluation: 4.23/5.00

Institutional and Professional Service

2023 – Present Ad Hoc Reviewer: Journal of Marketing Research

2022 University of Houston 39th Marketing Doctoral Symposium

Role: Faculty Nominated Organizer

2021 University of Houston 38th Marketing Doctoral Symposium (Virtual)

Role: Faculty Nominated Organizer

Industry Experience

2023 – Present Direct Avenue

Role: Data Scientist

2019 – 2022 LG Ads Solutions

Role: Research Intern

2017 – 2018 Direct Avenue

Role: Data Scientist

Computing

R, Python, SAS, STAN, JULIA, SQL, High-Performance Computing Services

Selected Graduate Coursework

Marketing:

Marketing Management and Strategy	Michael Ahearne
Marketing Models	Sam Hui
Multivariate Methods in Marketing	James Hess
Marketing Research Methods	Edward Blair
Behavioral Constructs in Marketing	Vanessa Patrick
Introduction to Management Research (UCSD)	Ken Wilbur
Customer Analytics (UCSD)	Vincent Nijs

Economics

Quantitative Economic Analysis	Vikram Maheshri
Econometrics I	Nathan Canen
Econometrics II	Bent Sorensen
Applied Econometrics	Aimee Chin
Microeconomic Analysis	Steven Craig

Data Science and Machine Learning

Nonparametric Density Estimation (Rice)	David Scott
Automatic Learning and Data Mining	Robert Azencott
Collecting and Analyzing Large Data (UCSD)	Karsten Hansen
Business Forecasting (UCSD)	Allan Timmermann
Big Data for Business Application (UCSD)	Natasha Balac

References

Rex Du

Professor of Marketing
Alvin and Helene Eicoff Professorship in
Direct Broadcast Marketing
McCombs School of Business
The University of Texas at Austin
rex.du@mcombs.utexas.edu

Shijie Lu

Howard J. and Geraldine F. Korth Associate
Professor of Marketing
Mendoza College of Business
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Yakov Bart

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Marketing
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Appendix: Abstracts of Working Papers

Measuring Targeting Effectiveness in TV Advertising: Evidence from 139 Brands

We estimate the heterogeneous effects of TV advertising on revenues of physical retail stores and restaurants in the United States for 139 brands using a novel panel of store-level revenue data and a two-way fixed effects design. We find a mean revenue elasticity to TV advertising of 0.094 and a median elasticity of 0.044, along with a significant estimated S-curvature in the marginal effect of advertising. We document significant heterogeneity in estimated effectiveness across store-level characteristics, and in particular find that advertising is more effective for stores in denser areas and for stores in areas with higher numbers of competitor locations. We then use these heterogeneity estimates to construct optimal allocations of ad expenditure across DMAs and

project that these counterfactual reallocations would increase returns on advertising by a median of 4.3% and a mean of 22.1%. This study advances recent research demonstrating that TV advertising is less effective than is generally assumed by highlighting the role of suboptimal geographic targeting and by quantifying how much realized effectiveness can understate advertising’s potential effect.

Leveraging Large-Scale Granular Single-Source Data for TV Advertising

Advances in audience measurement technologies have made second-by-second TV viewing data for tens of millions of smart TV and set-top-box households available to advertisers. When merged with first-party CRM data, the resulting modern-day single-source data hold the promise of transforming the landscape of TV advertising by empowering advertisers with more advanced attribution and targeting capabilities. Against such a backdrop, we develop a flexible and scalable ad response model with a novel identification strategy. We first estimate propensity scores for each household nonparametrically, capturing their probabilities of exposure to each and every focal brand ad airing. We then include in our ad response model a control variable constructed using the propensity scores, following in the vein of the regression adjustment approach. We illustrate the proposed model using a panel dataset that tracks, for 1.4 million households over 4.5 months, TV viewing behavior and purchases from a major U.S. food delivery platform. We show that TV advertising effects vary nonlinearly with respect to purchase frequency and recency; the full impact of TV ads can be decomposed into same-day, carryover, and state-dependence effects; and dynamic ad targeting policies can be tailored to individual households and customer lifecycle stages to maximize customer long-term value.