

HAYOUNG CHEON

Ph.D. Candidate in Quantitative Marketing

+1 734-773-8440 cheonha@umich.edu <https://www.linkedin.com/in/hayoung-cheon/> Ann Arbor, Michigan

PROJECT EXPERIENCE

Creator's Pitch and Funder's Reviews in Crowdfunding.

Work In Progress

Joint work with Dr. S.Sriram (University of Michigan) and Dr. Justin Huang (University of Michigan).

- Using the self-scrapped daily HTML pages of a crowdfunding platform in South Korea over 2 years, quantified how messaging tones have changed after the platform introduced funder review pages on successful projects.
- Extracted texts in images using Google Cloud Vision OCR API. Cleaned Korean texts with customized Khaii dictionary (produced by a Korean messenger service, Kakao corp.). Translated Korean into English with Google Cloud Translator API. Measured messaging styles with varying packages (e.g. NLTK, textstat, TextBlob and DICTION).
- Found significant changes of messaging tone (improvement in readability and interaction) in categories with more uncertainty in quality (e.g. Food, Clothes > Technology). Even in crowdfunding where donation comes first based on unrealized products with uncertainty, the review function improved the signal precision, filtered out low-quality projects, built credibility of the platform, and increased the transactions.
- Currently, building CNN for extracting constructive feedbacks from funder's reviews which can direct the early-staged creators considering the commercial debut.

The Impact of Medical Marijuana Legalization on Opioid Prescriptions.

SSRN 3917975 (https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3917975)

Joint work with Dr. Tong Guo (Duke University), Dr. S.Sriram (University of Michigan), Dr. Puneet Manchanda (University of Michigan).

- Using 125 million opioid claims (1.3 million of physicians, 20 million of patients) data in the U.S. between 2001 and 2016, quantified the change in opioid prescription after medical marijuana legalization (MML) in physician-patient pair level and tested whether the change has been more initiated by physicians (or patients).
- Estimated the changes in opioid prescriptions in physician-patient pair level using Causal Forest algorithm (i.e. an extension of random forests) on external computation from AWS. Inferred physician-initiation using variation of changes within physician across all his/her patients.
- Found that MML reduced 5% of opioid dosage per physician-patient pair. The role of physicians in decreasing prescriptions was more prominent than their corresponding role of increasing prescriptions.
- Highlighted the need of physician education on medical marijuana since physician initiation can drive the substitution, contrary to common belief that medical marijuana is objected by conservative physicians.

Carryover Effect and Risk Aversion: Dynamic Incentives in Sales Force Compensation.

Dissertation for Master Degree

1st author advised by Dr. Inseong Song (Seoul National University).

- Using the simulated data, solved discrete dynamic decision of sales agent's effort allocation under a quota-bonus compensation when carryover from the past period is introduced in sales.
- Estimated segment-wise (high vs. low risk-averse sales agents) optimal effort function and accordingly realized sales pattern using conditional choice probability with non-parametric functions and EM algorithm.
- Found that the performance is lower for high risk-aversion group in both average and the frequency of quota achievement. With carryover sales increasing both mean and variance of future sales, the performances of sales-agents vary across their degree of risk-aversion.
- Highlighted the necessity of considering carryover sales in designing compensation schemes. Across degree of risk-aversion, optimal compensation plan can be very different.

OTHER EXPERIENCES

Main Instructor

Marketing Management (MKT 302), Ross Business School, University of Michigan, 2020 Winter Semester.

- Taught 80+ undergraduates for a full semester as the main instructor.

TA

Marketing Core, Executive MBA Program (Dr. Puneet Manchanda, Fall 2020, Fall 2021).

Quantitative Doctoral Seminar (Dr. Puneet Manchanda, Fall 2019, Fall 2021).

New Product and Innovation Management, MBA Program (Dr. S. Sriram, Fall 2019, Winter 2020, Winter 2021).

R package

Synthetic Control estimation using ADMM (https://github.com/cheonhaumich/synth_rcpp).

- Improved Synthetic Control R package in speed (2X faster) using ADMM optimizer and RcppParallel.

OTHER EXPERIENCES

Conferences and Presentations

Presenter, INFORMS Marketing Science Conference 2018, 2020.
Presenter, Poster Session, MIDAS Annual Data Science Symposium, University of Michigan 2018.
Presenter, Annual Marketing Camp, Ross Business School, University of Michigan, 2018, 2019, 2020, 2021.

Courses

Graduate-level courses in Marketing, Economics and Statistics taken during Ph.D. program (GPA 3.68/4.0)

- Behavioral doctoral seminars, Quantitative doctoral seminars.
- Microeconomic Theory, Econometric Analysis, Applied Econometrics, Industrial Organization.
- Bayesian Statistics, Advanced Topics in Computational Statistics.

HONORS AND GRANTS

Honorable Mention (top 3) in Data Challenge, 2021. Michigan Institute of Data Science, University of Michigan.	Doctoral Program Grant (\$250K), 2017-2022. Kwanjeong Educational Foundation, South Korea.	Full Stipends and fellowship, 2017-2023. Rackham Graduate School, University of Michigan.
Early Candidacy Grant (\$1K), 2019. Ross School of Business, University of Michigan.		

EDUCATION

PhD in Marketing - Quantitative Ross Business School, University of Michigan	09/2017 - Ongoing
Master in Marketing Seoul National University, South Korea	03/2015 - 08/2017
Bachelor of Business Administration Seoul National University, South Korea	03/2010 - 02/2015
Exchange Program - Business Administration Marshall Business School, University of Southern California	01/2013 - 05/2013

LANGUAGES

Korean (Native) ●●●●● **English** (Proficient) ●●●●●

SKILLS

R , Rcpp, SAS, SQL, Python, AWS, Google Cloud API, Causal Inference, Machine Learning, Natural Language Processing.

REFERENCES

Dr. S.Sriram Associate Dean for Part-Time MBA Programs Professor of Marketing Michael R. and Mary Kay Hallman Faculty Fellow 734-647-6413 ssrira@umich.edu	Dr. Justin Huang Assistant Professor of Marketing 734-764-9779 huangjt@umich.edu
--	--