2023 Choice Symposium Proposal

Machine Learning, Marketing and Economics: Bridges Spanning Multiple Fields

Machine learning started by using and expanding ideas from statistics, blended with ideas from computer science. It then evolved into a formidable instrument to handle high dimensional data and uncertainty at scale. This created conditions for an impressive growth in research and practice of machine learning and AI. However, traditionally, this growth has been focused on their specific contexts of application and scientific fields (Proserpio et al., 2020). Interestingly, machine learning developments and applications are increasingly being found in the marketing literature, often in the form of prediction tasks (e.g., Agrawal et al., 2022; Zhang and Luo 2022) and prescription tasks (e.g., Fiez et al., 2022; Liberali and Ferecatu, 2022; Saiquan, et al., 2022), in streams of research that simultaneously tap into multiple fields.

The premise of this workshop is that the fact that machine learning has been so successful across a wide variety of domains means that it is also uniquely positioned to act as a communication bridge across communities and fields and between academia and industry (Anderson and Zettelmeyer, 2020). The workshop has the following goals:

1. **Communicate recent advances surrounding consumer decision-making applications across several fields**

Consumer decision-making is now at the core of several fields. The first goal of this workshop is to exchange information about how machine learning applications in consumer decision-making are being developed in each field of interest, including marketing (Chen et al., 2021;), economics (Assad et al., 2022), information systems (Wan et al., 2022), operations (Rooderkerk et al. 2022), and general issues, such as regulation and explainability (Candelon et al., 2021; Goethals et al., 2022;).

2. **Identification of synergies and opportunities**

The second goal is to identify methodologies and advances with the highest potential of addressing fundamental consumer decision-making problems that can benefit from marketing and economic insights. For example, consider the market outcomes when competing firms use AI algorithms for setting prices. The extant literature has found several mechanisms by which long-run prices can be above competitive levels (Calvano et al., 2020; Hansen et al., 2021; for empirical evidence see Assad et al., 2022). Additionally, we will explore avenues to leverage combinations of ML techniques, econometric models, and lab experiments to better exploit synergies across these research methods for marketing and economics problems (e.g., Ansari et al., 2018; Troncoso and Luo 2022;).

3. **Integration with Practice**

The third goal is to synchronize scientific developments with practical challenges faced by industry. We will explore how practitioners and academics-in-industry have changed and challenged academia. We will consider how real-world constraints render otherwise optimal methods unusable or irrelevant (Rooderkerk et al. 2022).

4. **Set Out an Agenda**

The final goal is to set a concrete agenda for future research, focusing on avenues of high-impact collaborative opportunities across scientific fields and industry.

In order to accomplish these goals, this workshop features renowned researchers from several disciplines as well as researchers at Amazon operating in the Advertising and Video platforms.

Participant List

Chairs:

- **Gui Liberali**, Professor of Digital Marketing at RSM/Erasmus, liberali@rsm.nl
- **Pedro Gardete**, Professor of Marketing at NOVA SBE, pedro.gardete@novasbe.pt

Participants (in addition to organizers, in alphabetical order):

- **Andres Musalem**, Associate Professor of Industrial Engineering at University of Chile, amusalem7@gmail.com - Retail analytics
- **Avi Goldfarb**, Rotman Chair in AI & Healthcare; Professor of Marketing, University of Toronto, avi.goldfarb@rotman.utoronto.ca - Artificial intelligence
- **Daniel Ershov,** Assistant Professor of Marketing at University College London, d.ershov@ucl.ac.uk - Algorithmic pricing
- **Emilio Cuilty,** Manager Economist at Amazon Prime, cuilte@amazon.com - Industry expertise
- **Florian Zettelmeyer**, Director of Advertising Economics and Data Science at Amazon; Nancy Ertle Professor of Marketing, Northwestern University, zettelmeyer@kellogg.northwestern.edu - Measuring advertising effectiveness
- **Juanjuan Zhang**, John Little Professor of Marketing, MIT Sloan School of Management, jjzhang@mit.edu - Product recommendations and product design
- **Kanishka Misra**, Professor of Marketing and Analytics, UCSD, kamisra@ucsd.edu - Algorithmic pricing
- **Lalit Jain,** Assistant Professor, Foster School of Business, University of Washington, lalitj@uw.edu - Adaptive experimental designs
- **Lan Luo**, Associate Professor of Marketing, USC; Principal Economist, Amazon Prime Video, lluo@narshall.usc.edu – AI and new product design
- **Li Yang,** Associate Professor of Marketing, CKGSB, yangli@ckgsb.edu.cn - Recommendation systems
- **Mallesh Pai,** Lay Family Associate Professor of Economics, Rice University, mallesh.pai@rice.edu - Prediction heterogeneity
- **Michael Trusov,** Dean's Professor of Digital Marketing and Analytics, University of Maryland, mtrusov@umd.edu - Streategic interactions
- **Rodrigo Belo,** Professor of Information Systems at Nova SBE, rodrigo.belo@novasbe.pt - AI explainability
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