

第 108 回行動計量シンポジウム: Applications of analyzing asymmetric relationships

プログラム

Atsuhō Nakayama (Tokyo Metropolitan University)

Title: Marketing analytics with machine and deep learning: Exploiting data asymmetry for enhanced decision-making

10:30AM-11:05AM

Aleix Alcacer and Irene Epifanio (Universitat Jaume I and ValgrAI, Spain)

Title: Representing asymmetric relationships by h-plots. Discovering the archetypal patterns of cross-journal citation relationships

11:05AM-12NOON

Chair: Akinori Okada (Rikkyo University)

発表は全て英語です.

日時: 2025 年 8 月 23 日 (土) 10 時開場, 10:30 開始, 12 時終了

場所: 青山学院大学青山キャンパス 17 号館 17404 教室

アクセスマップ: <https://www.aoyama.ac.jp/outline/campus/access.html>

参加費無料

講演の要旨

Title: Marketing analytics with machine and deep learning: Exploiting data asymmetry for enhanced decision-making

Author: Atsuhō Nakayama (Tokyo Metropolitan University)

Abstract: Currently, vast amounts of marketing data are available online. The automated collection of various data, such as online clickstreams, messaging, word-of-mouth communication, transactions and location information, has significantly lowered the cost of data collection. This has made it possible to acquire unprecedented volumes of data and gain a highly detailed understanding of consumer behavior.

In recent years, convolutional neural networks (CNNs) have emerged as powerful algorithms for a variety of computer vision tasks, including digital image acquisition, processing and analysis. Consequently, a large number of research and application projects using deep learning, AI and machine learning technologies are underway. These methods are also being promoted for practical business applications. Consequently, marketing researchers are grappling with how to best leverage these approaches, and their influence on marketing operations is expected to increase further in future.

Research focusing on the asymmetry inherent in diverse data is advancing to support decision-

making in marketing. Specifically, the following research examples can be cited:

- Competitive analysis of currently used and planned future brands, based on survey data obtained via web panels and crowdsourcing.

- Topic analysis considering the order in which words co-occur in brand-related word-of-mouth text data.

Brand discrimination analysis using brand advertisement images and videos.

- Competitive situation analysis through brand switching data analysis based on brand purchase history.

- Page transition analysis using web access log data.

- Inter-area movement data analysis using visitor location information obtained via GPS data.

Against this background, the importance of research into formulating marketing strategies that combine highly regarded machine learning and deep learning approaches with insights from conventional marketing research is growing. In this presentation, we will introduce case studies in which analyses were conducted to support marketing decision-making, with a focus on the asymmetry inherent in diverse data.

Title: Representing asymmetric relationships by h-plots. Discovering the archetypal patterns of cross-journal citation relationships

Authors: Aleix Alcacer and Irene Epifanio (Jaume I University in Spain)

Abstract: This work approaches the multidimensional scaling problem from a novel angle. We introduce a scalable method based on the h-plot, which inherently accommodates asymmetric proximity data. Instead of embedding the objects themselves, the method embeds the variables that define the proximity to or from each object. It is straightforward to implement, and the quality of the resulting representation can be easily evaluated. The methodology is illustrated by visualizing the asymmetric relationships between the citing and cited profiles of journals on a common map. Two profiles that are far apart (or close together) in the h-plot, as measured by Euclidean distance, are different (or similar), respectively. This representation allows archetypoid analysis (ADA) to be calculated. ADA is used to find the archetypal journals (or extreme cases). We can represent the dataset as convex combinations of these archetypal journals, making the results easy to interpret—even for non-experts. Comparisons with other methodologies are carried out, showing the good performance of our proposal.