THE HONG KONG POLYTECHNIC UNIVERSITY
DEPARTMENT OF MANAGEMENT AND MARKETING
Departmental Research Seminar

Music-Motion Synchronicity:
A Crossmodal Transformer Model of
Customer Engagement with Social Media Videos
By

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Date : 24 Jan 2024 (WED)
Time : 10:30 am – 12 noon
Venue : M802

Abstract

In this talk, I will start with a big picture on how AI/ML is transforming marketing, MIS, management, operations, strategy theories and practices. AI chatbots, GPT, and LLMs can be leveraged for sales promotions, customer services, call center operations, employee training, operations management, and managerial tasks such as coaching and job recommendations. AI can boost not only efficiency but also creativity in workplace. I will then highlight cutting-edge multimodal transformer models that can empower startups and big tech platforms to improve their sales revenues by analyzing music, audio, and video data. Specifically, short-form videos are rapidly gaining popularity on social media platforms as a primary content format. These contents naturally encode multiple modalities (e.g., image and audio) and especially the complex interactions between modalities. Prior literature has documented the importance of cross-modal interactions in the field of management and business for multiple aspects such as evaluating products, shaping brand perception, and enhancing work performance. However, to date, little is known about how marketers can scientifically quantify reinforcement between multi-modalities and use such information as a decision support tool to improve business revenue. This paper proposes a novel framework, Music-Motion Synchronicity (MM Sync), to learn the rich and dynamic interactions between modalities using Multimodal Transformer model (MulT). MulT is a state-of-art multimodal deep learning algorithm and its cross-modal attention mechanism allows can learn interactions between multi-modal sequences across distinct time steps and latently adapt streams from one modality to another. Our experiment results show that the model-learned MM Synchronicity can significantly predict customer engagement. In addition, we conduct heterogeneity analyses across influencer types and music genres. Furthermore, we demonstrate a real-world usage of our framework as a decision-making tool to assist platforms and influencers. Finally, we provide actionable suggestions to content creators by analyzing what interpretable features contribute to the overall MM Synchronicity and how to improve the performance. Overall, our findings and methods provide managerial implications for influencers, brands, and short-video platforms on how to improve the popularity and engagement of social media videos in this booming entertainment market.

Prof. Xueming Luo is Charles Gilliland Distinguished Chair Professor of Marketing, Professor of Strategic Management, Professor of Management Information Systems. He is the Founder/Director of the Global Institute for Artificial Intelligence and Business Analytics in the Fox School of Business at Temple University. He is interested in digital mobile marketing, omnichannel customer analytics, and social responsibility with machine learning, artificial intelligence, engineering models, and big data field experiments. His current research focuses on sharing economy platform algorithms, unstructual audio/image/video data, and smart city analytics for personalized recommendations, promotions, competitive pricing, omnichannel, social media networks advertising, and customer equity metrics. His work has been featured by most top ranking journals in Marketing, Strategy, Information Systems, and Management, as well as popular trade press such as the *Wall Street Journal*, *ScienceDaily*, *Forbes*, *Financial Times*, *Harvard Business Review*, *MIT Sloan Management Review*, and others. Professor Luo has been ranked as 8th worldwide regarding Author Productivity in the Premier Marketing Journals (*Marketing Science*, *Journal of Marketing*, *Journal of Marketing Research*, *Journal of Consumer Research*) during 2013-2022.

All interested are welcome.

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