

THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY

Department of Information Systems, Business Statistics and Operations Management

IS SEMINAR ANNOUNCEMENT



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

by

Dr. Xueming LUO

Charles Gilliland Distinguished Chair Professor, Temple University

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| DATE | 25 January 2024 (Thursday) |
| TIME | 10:30 am - 12:00 noon |
| VENUE | 4/F Meeting Room (Room 4047), LSK Business Building |

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 (MuT). MuT 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.

BIOGRAPHY

Xueming Luo is the Charles Gilliland Distinguished Chair Professor of Marketing, Professor of Strategy and MIS, and Founder/ Director of the Global Institute for Artificial Intelligence & Business Analytics in the Fox School of Business at Temple University. His research is quantitative in nature and focuses on integrating artificial intelligence technologies, big data machine learning, econometrical methods, and field experiments to model, explain, and optimize customer experience, company strategies, platform designs, and creator & sharing economy. He is an interdisciplinary thought-leader in leveraging AI/ML algorithms, text/audio/image/video data, and causality inference for digital marketing, mobile targeting, social media analytics, brand activism, and social responsibility. Xueming has worked with leading global companies in mobile communications, banking, e-commerce, health care, education, pharmaceutical, and petroleum industries. His research has been featured by premier journals in Marketing (*MkSc*, *JM*, and *JMR*), Management and Strategy (*MgSc*, *SMJ*, *AMJ*, and *POM*), and Information Systems (*ISR* and *MISQ*). He has been ranked as top 8th worldwide regarding Author Productivity in the Premier Marketing Journals (*JCR*, *JM*, *JMR*, *MKSC*) during 2013-2022. Xueming has over 23,900 citations on Google Scholar and is ranked top 2% researchers worldwide in business by Scopus citations.