The Hong Kong University of Science and Technology

Department of Information Systems, Business Statistics and Operations Management

Seminar Announcement

A Man with a Machine: Human–AI Augmentation for Sentiment Extraction from Firm Disclosure

by
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Date : **Wednesday, 22 March 2023**
Time : **11:00 am - 12:30 pm**
Venue : **LSK 4047, ISOM Conference Room**

Abstract: We develop a hybrid approach that links artificial intelligence (AI) to human knowledge to improve sentiment extraction from firm disclosures. This approach uses the Loughran and McDonald (LM) dictionary to represent human knowledge and the word embedding model to adjust the sentiment strength of words over time. We evaluate our approach using firms' 10-K reports and find that the augmented sentiment measures consistently explain abnormal market returns immediately after the release of 10-K reports. This indicates that inconsistent results in the literature are driven by inaccurate sentiment measures. We also find that our augmented sentiment measures, when used as a word reweighting scheme for machine learning, have improved economic significance and explanatory power for abnormal market returns. Next, we find that our augmented sentiment measures help predict firms' future earnings. Last, we find that our human–AI hybrid approach is more effective for firms with more uncertain information environments. Our work highlights the complementarity between human knowledge and AI in the context of textual information processing in financial markets.

Bio: Dr. Rong Zheng is an associate professor of information systems at the HKUST Business School. He earned his doctoral degree in information systems from the Stern School of Business at the New York University. His general research interest is about realizing business value with AI. More recently, his research examines how the use of AI methods can change the information environment of financial market. He is currently an associate editor at Business & Information Systems Engineering and was the associate editors for special issues at ISR and MISQ. His work has been published in leading outlets such as *Information Systems Research, Management Science, the Accounting Review and, the Communications of the ACM*.