

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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Time : 10:30 am - 12:00 noon
Venue : ISOM Conference Room 4047, LSK Business Building



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

Jiexin (Jason) Zheng is a PhD candidate in Information Systems at the Hong Kong University of Science and Technology. His research mainly focuses on human-AI interaction. He studies (1) how to integrate human intelligence and artificial intelligence to effectively process large-scale data and get new insights, and (2) ways to maximize AI's benefits (e.g. augmenting workforce efficiency) while minimizing its risks (e.g. algorithm manipulation). Before his doctoral studies, he also obtained an MPhil degree in Information Systems from HKUST and a BSc in Computer Science from Sun Yat-sen University.