IOM Research Seminar

Organized by: Department of Intelligent Operations and Marketing

Computational Design Science: A Critical Information Systems Research Area Contributing to Artificial Intelligence and Data Science

Presenter

Michael Chau is a Professor in the Faculty of Business and Economics (HKU Business School) at the University of Hong Kong. His research focuses on the cross-disciplinary intersection of information systems, computer science, business analytics, and information science, with an emphasis on the applications of artificial intelligence and machine learning in various business, education, and social domains. He has published more than 90 papers in top journals in information systems and other disciplines. He has received multiple awards for his research and is a member of the AIS College of Senior Scholars. He is currently the Editor-in-Chief of the International Journal of Information Management and a Senior Editor of MIS Quarterly. He is also serving as the AIS Vice-President (Region 3) and the Conference Chair of PACIS 2027, and was the Program Chair of PACIS 2024 and ICIS 2013. He received his PhD degree in management information systems from the University of Arizona and his BSc degree in computer science and information systems from the University of Hong Kong. More information can be found at https://www.business.hku.hk/~mchau/ .

Abstract

In the era of artificial intelligence (AI) and data science, the demand for advanced AI methods and systems capable of analyzing voluminous, diverse, and granular data to tackle grand challenges in businesses and society is paramount. Situated at the intersection of information technology with business and social sciences, the information systems (IS) discipline is uniquely equipped to lead cutting-edge research that develops advanced AI solutions to address important business and societal challenges. But the potential of IS to contribute to this critical area has not been fully realized, largely due to its inadequate recognition of the relevance and importance of computational design science (CDS) research. As a specific genre of design science, CDS aims to develop novel computational algorithms and methods to solve business and societal problems with significant impacts. Prior literature elaborates on how to conduct and assess design science research in a general sense, but lacks guidelines for conducting and evaluating CDS research. We thus uncover the relationship of CDS with AI and data science, and stress that CDS is a vital IS area that can make substantial methodological contributions to AI and data science, in addition to the IS knowledge base. We further identify issues that prevent the IS community from fully appreciating the relevance and significance of CDS research. By addressing these issues, we delineate what CDS research is and what its contributions are, clarifying that CDS research should be evaluated based on its methodological contributions. Moreover, we explicitly elaborate the identity of CDS research, particularly specifying its differences from machine learning (ML) research in computer science and applied ML studies in other business fields. Finally, we propose a holistic template that offers clear and thorough guidance for IS scholars preparing CDS papers. The session will total 90 minutes, including 45 minutes of discussion on journal submission and review experiences in the IS field, and 45 minutes of presentation on the above paper.

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Time

1:00PM-2:30PM (China Standard)

Location

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