Simulation-Based Analytics for Quality-Associated Decision-Support

PhD Candidate: Wenying Ji; wenying.ji@ualberta.ca
Supervisor: Simaan AbouRizk; abourizk@ualberta.ca

BACKGROUND AND OBJECTIVES:
The overall goal of this research is to develop a novel, analytics-based decision support system to enhance quality-associated practices of the industrial construction sector.

METHODOLOGY:
• Fuse multiple data sources, such as quality management system, engineering design system, and cost management system, to extract usable information
• Utilize advanced data analytics and simulation techniques to conduct descriptive and predictive analyses
• Propose reliable, interpretable, informative decision-support metrics for enhanced decision making
• Develop a dynamic, data-driven decision support system to reduce the interpretation load of practitioners

INDUSTRIAL APPLICATIONS AND EXPECTED OUTCOMES:
The developed decision-support system enhances quality-associated decision-support processes by facilitating the following functionalities:
• Project quality performance forecast
• Product quality performance measurement
• Product complexity analysis
• Operator quality performance assessment
• Quality-induced rework man-hour estimation and control

7-232 Donadeo Innovation Centre for Engineering
University of Alberta
uab.ca/constructionssimulation