FUZZY LOGIC, CLEAR IMPACT: FUZZY LOGIC SOLUTIONS IN CONSTRUCTION ENGINEERING AND MANAGEMENT

Dr. Aminah Robinson Fayek has worked with fuzzy logic in her research for more than 30 years, and she will share her experience in using this and other artificial intelligence techniques to improve construction industry performance, competitiveness, and innovation. After providing an overview of fuzzy logic, Dr. Robinson Fayek will illustrate the unique challenges presented by construction problems and how fuzzy logic and artificial intelligence can be used to overcome those challenges. Throughout her career, Dr. Robinson Fayek has worked closely with both academics and construction industry leaders to develop fuzzy hybrid techniques that combine fuzzy logic with other modeling approaches, including machine learning, optimization, multi-criteria decision-making, and simulation. She will describe how these varied hybrid techniques have been used to predict and improve crew motivation and productivity, enhance the analysis of risks and opportunities, and in other applications. She will describe the impact her research program has had through industry collaboration as well as her vision for research into new fuzzy hybrid methods adapted specifically for use in the construction domain. She will conclude by discussing challenges and solutions for increasing research impact.

DR. AMINAH ROBINSON FAYEK
VICE PRESIDENT OF RESEARCH AND INNOVATION
PROFESSOR OF CIVIL ENGINEERING
UNIVERSITY OF ALBERTA

Dr. Aminah Robinson Fayek is Vice-President (Research and Innovation) and a professor of Civil Engineering at the University of Alberta. Dr. Robinson Fayek earned a Bachelor of Engineering from McGill University, Canada, and a Master of Applied Science from the University of British Columbia, Canada. She completed her Ph.D. in Construction Engineering and Project Management at the University of Melbourne, Australia. Throughout her academic career, Dr. Robinson Fayek has demonstrated excellence in teaching, research, innovation, and partnership. She is a renowned expert in artificial intelligence techniques for developing decision support systems for the construction industry. She has created an internationally renowned research program that has been recognized by a Tier 1 Canada Research Chair and three consecutive terms of an NSERC Industrial Research Chair. Dr. Robinson Fayek has received further recognition in the form of many national- and international-level awards, including a commendation award from the International Council for Research and Innovation in Building and Construction, the Peurifoy Construction Research Award from the American Society of Civil Engineers, and the Walter Shanly Award from the Canadian Society for Civil Engineering.

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