

Trust in AI and Implications for the AEC Research: A Literature Analysis

Newsha Emaminejad¹, Alexa Maria North¹, and Reza Akhavian, Ph.D., M.ASCE¹

¹Department of Civil, Construction, and Environmental Engineering, San Diego State University, 5500 Campanile Dr., San Diego, CA 92182; e-mails: {nemaminejad859; anorth3467; rakhavian@sdsu.edu}

ABSTRACT

Engendering trust in technically acceptable and psychologically embraceable systems requires domain-specific research to capture unique characteristics of the field of application. The architecture, engineering, and construction (AEC) research community has been recently harnessing advanced solutions offered by artificial intelligence (AI) to improve project workflows. Despite the unique characteristics of work, workers, and workplaces in the AEC industry, the concept of trust in AI has received very little attention in the literature. This paper presents a comprehensive analysis of the academic literature in two main areas of “trust in AI” and “AI in the AEC”, to explore the interplay between AEC projects’ unique aspects and the sociotechnical concepts that lead to trust in AI. A total of 490 peer-reviewed scholarly articles are analyzed in this study. The main constituents of human trust in AI are identified from the literature and are characterized within the AEC project types, processes, and technologies.