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Title: Leveraging Community-Sourced Artificial Intelligence for Scalable and Equitable Disaster Resilience

Abstract: The increasing number and intensity of climate disasters, combined with the asymmetric population growth in disaster-prone areas, has made it extremely difficult to rely on conventional methods of disaster risk mapping and impact assessment. Current methods that use historical evidence to predict the impact of future disasters largely fail to account for the fast pace of urbanization, unfolding consequences of climate change, and constantly evolving natural-built environment interface. If effectively and responsibly used, new data analytics and sensing technologies can transform our approach to disaster resilience by enabling the reliable and equitable quantification of disaster impacts at high spatiotemporal scales, and augmenting the human ability to perceive disaster risk in an effective and unbiased manner. This keynote will discuss research aimed at addressing socio-technological challenges that have emerged from the use of big data and artificial intelligence (AI) in disaster management at the intersection of natural and built environments. The primary focus will be on demonstrating the thought process, design, and pilot implementation of human-centered AI algorithms and supporting systems that transform raw multi-sourced data into actionable spatiotemporal knowledge to improve disaster damage assessment, decision-making, and risk communication in a responsible and fair manner.