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Turning Disaster Data into Knowledge: Field Reconnaissance, Damage Assessment, and Lessons Learned from Hurricane Sandy, Harvey, and Michael

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The recent hurricanes in 2012, 2017, and 2018, and efforts of researchers to capture vast quantities of perishable data through support of the National Science Foundation and other agencies, have created enormous databases of hurricane impacts to coastal structures that can be used to extract fundamental knowledge as to why these structures perform as they do during hurricanes. But exploration of these large data sets, untangling the complex factors contributing to various hurricane damages, and forming a holistic understanding of damage mechanisms are challenging tasks, requiring convergent approaches in system modeling, data science, and cyberinfrastructure design. In this presentation, Dr. Gong will discuss three hurricane reconnaissance trips, the associated data collection and analysis, and the advances in analytics for damage modeling with new AI and cyberinfrastructure approaches. He will also explain the findings as to the dominant factors contributing to damages based on the synthesis of these hurricane events and their implications to the New Jersey coastal community.