Data-Driven Urban Informatics and Technologies

- ## Research Team

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- ## Grand Challenge

  Gaining insights on urban grand challenges using novel Big Data algorithms and cyberinfrastructure (CI) and heterogeneous, multi-scale data and models.

- ## Research Questions

  (1) How can urban data be made useful for informing research, policy, and commercial applications (e.g., flood warning systems and transit optimization around flooded areas), while avoiding privacy breaches (e.g., social media posters that report flooding at socially stigmatized locations)?

  (2) How can missing data be inferred from publicly available sources? For example, aggregated data are currently used for hazard damage modeling, but missing data on individual buildings or infrastructure could be inferred from a variety of sources such as satellite data, aerial photos, and street view data.

  (3) When working with datasets from different providers or points in time or space, how can ontology mismatches be detected and computational solutions be designed for solving them?

  (4) How can creative and innovative visualization of scientific information be used to inform and inspire decision making by diverse stakeholders?