

# Mansueto Institute for Urban Innovation

## Lunch Colloquium Series



## The Design and Deployment of a Chicago Air Quality Sensing Network

### **Madeleine Daepf**

Senior Researcher in the Urban Innovation team at  
Microsoft Research

**Wednesday, November 10**  
**12:30 - 1:30pm CST**  
**Hybrid Event**

**Register for Zoom link:**  
**<https://bit.ly/MadeleineDaepf>**

**In-Person Location:**  
**1155 E. 60th St.**  
**Room 140C**  
**Lunch will be provided**

Environmental justice leaders have long sought tools to monitor hyperlocal air pollution exposures. In this talk, Dr. Daepf will describe the collaborative effort of city, industry, academic, and community groups in Chicago to deploy a network of 115 low-cost air quality sensors. Her team developed a network design with two key priorities: (1) citywide coverage and (2) equitable allocation with community-selected sites in environmental justice neighborhoods. They evaluate accuracy through co-locations with EPA regulatory monitors, developing a calibration algorithm for fine particulate matter readings. The system enables the tracking of real-time events – including a July 4th spike and smoke from summer wildfires – as well as the detection of hotspots. This work shows how multi-disciplinary and multi-sectoral partnerships can support the creation of “climate-smart” cities; however, there remains a need for ongoing collaboration with community and city stakeholders to develop actionable analysis platforms.