

Faculty Scholar Presentations

Neighborhood-Based Sustainable Food Waste Management

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3 p.m. - 4 p.m.

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Rice Building, Suite 400

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One in six people in Cook County are food insecure (Feeding America, 2012). Meanwhile, nearly 550,000 tons of food waste are annually generated in the City of Chicago alone and most of the discarded food are landfilled (City of Chicago, 2010). Globally, about one-third of food produced for human consumption, approximately 1.3 billion tons, is lost or wasted each year (FAO, 2013; Vermeulen et al. 2012).

The disparity between excessive food consumption and inadequate/inconvenient food supply, the missing link between food waste generation and potential uses of food discards (e.g., direct reuse, animal feed, industrial reuse, fertilizer, and composting), and the missing conduit to convey information to consumers and producers have led to critical challenges in complex and intertwined ways, such as economic inefficiency, environmental pollution, and social inequity.

Integrating two distinct fields of urban planning and computer science, this study develops a neighborhood-level approach to sustainable food waste management, models food waste generation from various land use types, and matches food discards with potential recycling opportunities. This study aims to provide refined data references to support participatory decision-making process, to facilitate collaboration among businesses, residents, and industries as community consortia in food waste reuse and recovery, and to minimize food waste disposal and its ensuing environmental, economic, and social impacts.

Dr. Ning Ai's research and teaching interests focus on urban environmental planning and its integration with land use, industrial ecology, and sustainable economic development. She has worked for the World Bank, the Massachusetts Bay Commuter Railroad Co., and the Georgia State Department of Natural Resources. Her previous work experiences include the application of GIS in environmental protection, urban sustainability indicators, and the socioeconomic impact analysis of natural disasters. Most recently, Dr. Ai has engaged in the socioeconomic and spatial analysis of material and waste management, with a focus on electronic waste, post-consumer carpet, and municipal solid waste.

Dr. Isabel Cruz research areas include databases, geographic information systems, semantic web, information visualization, and security. Her current topics of research include information extraction and matching, big data (e.g., for geographical and biomedical information), visual analytics, context-aware role-based access control, data linking for urban resilience and sustainability, and crowdsourcing. With her students, Dr. Cruz has developed GIVA, an award-winning framework for the integration of spatial and temporal data.



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