

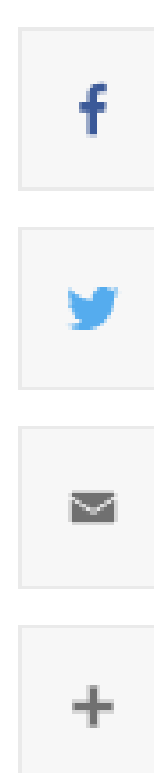
AROUND CORNELL

News directly from Cornell's colleges and centers

New assessment maps emissions in New York neighborhoods near industrial areas

By [Krisy Gashler](#)

June 23, 2022



The explosive growth of online shopping has been heralded as a benefit for the environment, as consumers avoid the fossil fuel emissions associated with traveling to and from brick-and-mortar stores. However, e-commerce goods still have to be stored and delivered, and frequently, distribution warehouses are sited in lower-income communities that already suffer disproportionately with air pollution and other environmental challenges.

[Max Zhang](#), the Kathy Dwyer Marble and Curt Marble Faculty Director of the [Cornell Atkinson Center for Sustainability](#) and a professor in the [Sibley School of Mechanical and Aerospace Engineering](#), is leading a project to quantify truck emissions around e-commerce warehouses in New York City. He will also be studying the air quality impact of wood stoves and fuel oil in Tompkins County. The three-year project will be supported by a \$330,000 contract agreement from the [New York State Energy Research and Development Authority](#) (NYSERDA).

“Typically, these e-commerce warehouses are being located near low-income neighborhoods or communities of color with existing air quality problems, and now you’re adding to the environmental burden,” Zhang said. “My goal in this research is to inform policy in a more environmentally responsible, just way.”

An expert in air pollution engineering and sustainable energy systems, Zhang has already supported projects that address air quality issues in the [U.S.](#), UK and [China](#). Zhang developed the concept for this project in collaboration with the New York City Department of Health. Zhang approached the health department and asked what he as a scientist could do to support their work. Their biggest knowledge gaps were in understanding air quality patterns throughout the city, especially in industrial areas, he said.

“There are factors that make New York City unique, but this problem exists in almost every metropolitan area. We are hoping that while we address the New York City problems, we are also providing tools that can be used elsewhere,” he said.

Zhang’s lab will work to quantify truck emissions using a wide array of methods, including satellite imagery, computer vision and machine learning to make sense of the satellite images, air quality modeling, and data mining of social media feeds to take advantage of public citizen reports about air pollution, idling trucks or other potentially relevant information.

“We are pleased that NYSERDA has funded Dr Zhang’s work,” said Sarah Johnson, executive director of the Air Quality Program in New York City’s Department of Health and Mental Hygiene. “It will help us to develop hyper-local emissions inventories in the industrial neighborhoods of our city and design policies and programs that will improve air quality in our most burdened communities.”

In upstate New York, Zhang will be using similar methods to help the Tompkins County Department of Planning and Sustainability quantify greenhouse gas emissions associated with wood stoves and fuel oil. A previous project on wood stove pollution involved mobile air quality monitoring around Ithaca. The recommendations Zhang’s group developed from that project have [already improved air quality](#) in some Ithaca neighborhoods.

“This study is a great example of research that can demonstrate how taking action on climate can also clean the air and improve quality of life for all,” said [Ben Furnas](#) ‘06, executive director of [The 2030 Project: A Cornell Climate Initiative](#). “This is a key value of Cornell’s 2030 Project: informing climate work that leaves no one behind.”

“We are creating tools that the community and policymakers can use to address these problems,” Zhang said. “Community empowerment is always my goal for research.”

Krisy Gashler is a freelance writer for Cornell Atkinson.

Energy, Environment & Sustainability

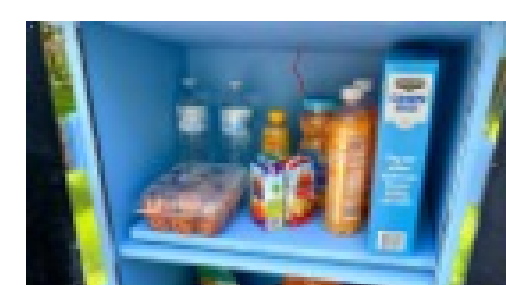


MEDIA INQUIRIES

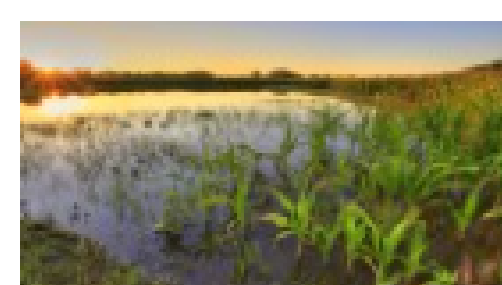
Get Cornell news delivered right to your inbox.

SUBSCRIBE

YOU MIGHT ALSO LIKE



Curbing hunger: Students build inventive outdoor food pantry



The 2030 Project offers fast grants to accelerate faculty-led climate solutions

LINKS

[About the Chronicle](#)
[Media Relations Office](#)
[Sitemap](#)
[Copyright](#)
[Web Accessibility Assistance](#)
[University Relations](#)

CONTACT

[Cornell Chronicle](#)
 312 College Ave
 Ithaca, NY 14850
 607-255-4206
cunews@cornell.edu

SUBSCRIBE

Daily and weekly newsletters
 Feeds - RSS & JSON