



## CMU Prof Helps Residents Yearning to Breathe Free

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**T**ake a breath of fresh air. Now do it again: In Homewood or Mount Washington or McKees Rocks.

Despite the efforts to improve air quality citywide, you won't be breathing exactly the same air.

Unfortunately, this disparity often exists along racial or

economic lines. Poorer neighborhoods are often unhealthy neighborhoods, lacking tree cover or green spaces.

CAPS, a snappy acronym for CMU's Center for Atmospheric Particle Studies, is investigating this disparity. Using a data-driven approach, researchers like Albert Presto examine health impacts of varying levels of pollutant exposure in

local neighborhoods.

Data collection, Presto says, is a multifaceted process, with several available methods. "One thing we've done a lot of, is use a mobile laboratory... it's basically like one of those same vans that Amazon uses but ours isn't painted blue, ours says CMU all over it."

The paint job isn't the only

difference from Amazon. The van is not loaded with packages, but expensive lab equipment.

Not only is data collection through this method inefficient, driving around with “a million dollar’s worth of equipment” is “harrowing,” Presto says.

The solution: a network of 50 relatively low-cost sensors, which, at the cost of slightly less precise measurements than the mobile lab, more than make up by providing a constant stream of useful data.

The impressive scale of this network is made even more obvious in comparison to similar sensor networks run by the EPA. “They have seven sites,” Presto says. “You know, so we’re seven times bigger than that.”

Outside of his lab work, Presto has also embarked on creative endeavors such as his “Shared Air” podcast. Starting with the simple goal of [reaching] “anyone who was interested,” the podcast produced a number of episodes on various environmental topics ranging from industrial pollution to environmental justice.

It was the environmental justice episode that served as a turning point in the conversation. In the episode, the guest discussed the issue of scientists and academics coming into minority areas, collecting their data and leaving, while patting them-

selves on the backs about the good work they’ve done.

Ultimately, the episode contended, this whole process plays into a “white savior complex.”

Presto openly acknowledged the risk of coming across this way and does his best to ensure his work is “bilateral” and “not an extractive exercise.”

Presto said he understands the delicate balance the work requires.

“Because I’m a white dude, right? I don’t live in that neighborhood ... I don’t have the same lived experience as everyone that I’m going to interact with on these sorts of projects ... I don’t know if I’m successful in that or not,” Presto says.

Ultimately, he’s concluded that it’s best to take a learn-as-you-go approach, and to embrace both positive and negative feedback.

Neil Donahue, Presto’s colleague and former professor, added that in terms of environmental justice, the disparity between communities “is very real.”

From poorer communities being in areas more susceptible to floods, less able to afford air condition or simply exposure to pollutants, “there’s an inequity in exposure. There’s also an inequity in vulnerability.”

Presto pauses when asked, “Do you have a favorite project that you worked on?”

Citing the distinctiveness of some projects and length of others, Presto finally settles on CASES, a large-scale collaborative project.

CASES, or Center for Air, Climate and Energy Solutions, features the work of several universities that were instrumental in Presto’s work.

“A lot of the work we did both with the mobile sampling and with the low-cost sensors sort of sprung out of CASES,” he says. “A highlight of the event was the ability to directly discuss findings with those involved in Epidemiology and had the ability to work with the data in a very real way.

Colleague Hamish Gordon agrees that collaboration is an important facet of work in this field.

“All of these research enterprises are highly collaborative,” he says. Emphasizing that climate models themselves were the collective work of hundreds of dedicated researchers, he concluded that “the number of people active in the research area...is relatively small compared to the importance of the research.”

In the end, despite the breadth and complexity of his research, Presto says the objective is relatively simple: “Air quality is important because it does impact people’s health getting it a little bit cleaner actually can have a big benefit because it impacts everybody.” ●