

Drone research may benefit farmers

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A Binghamton student researcher has been using drones to check crop stress in upstate New York, working with local farmers to identify problems before the plants cannot recover.

Samantha Wong, an [environmental science](#) major and GIS minor, used drones to monitor the health of [crops](#) last summer.

A plant's health isn't always immediately apparent, and sometimes when the sickness is visible, it's too late to save it. Farmers can lose large amounts of crops before being able to take any action. For small farmers like the ones Wong partnered with, the loss of any crops has a deep effect on their livelihood.

Wong worked at Shared Roots, a family-owned [organic farm](#) in Cortland county. Her drones were equipped with imaging sensors and flown over the crops to test for Photosynthetically Active Radiation (PAR). Plants that are considered stressed or unhealthy reflect less light and ultimately measure lower on the index. The organic farm acted as an ideal control for her data.

"I honestly didn't realize I'd be doing this much computer work at first," Wong says. "Trial and error has been the best way to learn, even though it can be a bit time consuming."

Fieldwork is her favorite aspect of research, but between downloading and processing data, trial and error with new computer programs and flying the drones, Wong has developed a unique skill set.

"She actually led the writing of [the project] which is really cool," says Jeffrey Pietras, Wong's advisor and an associate professor of geological sciences at Binghamton. "The presentation she gave was great. She was able to say, 'This is what I was looking at, this is why I was looking at it, these are the tools we used, and here are my results.' ... She laid it out without much guidance."

The Brooklyn native is now devoting her time to more research with practical applications. She has re-visited a project she began through the Freshman Research Immersion program, locating abandoned oil and [gas wells](#) throughout New York. These wells pose serious threats to the environment, as not all were capped correctly and some are leaking

methane into the soil.

When she isn't trying to save the planet, Wong is the treasurer for the swimming club, which is one of her favorite ways to unwind. She also is a member of the Philippine American League and has interned with City Parks back home. There, her research experience has already come in handy when developing geographic maps of local parks. Wong hopes to return to the city to make a difference for the environment.

"Through research, you can solve any problem you want and help the environment," Wong says. "We can make it better for the future."

Provided by Binghamton University

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