

Amateur drone videos could aid in natural disaster damage assessment

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Drone video of damage from Hurricane Laura in Lake Charles, LA, was processed automatically by a Carnegie Mellon University system. Areas bounded in orange are considered severely damaged, while those in yellow are slightly damaged. Credit: Carnegie Mellon University

It wasn't long after Hurricane Laura hit the Gulf Coast Thursday that people began flying drones to record the damage and posting videos on social media. Those videos are a precious resource, say researchers at Carnegie Mellon University, who are working on ways to use them for rapid damage assessment.

By using [artificial intelligence](#), the researchers are developing a system that can automatically identify buildings and make an initial determination of whether they are damaged and how serious that damage might be.

"Current damage assessments are mostly based on individuals detecting and documenting damage to a building," said Junwei Liang, a Ph.D. student in CMU's Language Technologies Institute (LTI). "That can be slow, expensive and labor-intensive work."

Satellite imagery doesn't provide enough detail and shows damage from only a single viewpoint—vertical. Drones, however, can gather

close-up information from a number of angles and viewpoints. It's possible, of course, for first responders to fly drones for damage assessment, but drones are now widely available among residents and routinely flown after [natural disasters](#).

"The number of [drone](#) videos available on [social media](#) soon after a disaster means they can be a valuable resource for doing timely damage assessments," Liang said.

Xiaoyu Zhu, a master's student in AI and Innovation in the LTI, said the initial system can overlay masks on parts of the buildings in the [video](#) that appear damaged and determine if the damage is slight or serious, or if the building has been destroyed.

The team will present their findings at the Winter Conference on Applications of Computer Vision (WACV 2021), which will be held virtually next year.

Provided by Carnegie Mellon University

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