

Flying robots swoop and swarm as a team

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Tech-savvy TED-goers watched in wonder as flying robots darted through tossed hoops, worked together in swarms and even formed a band to play trademark "James Bond" film theme music.

A video of University of Pennsylvania professor Vijay Kumar showing off palm-sized "agile aerial robots" from the college lab logged more than 200,000 views online at ted.com by the time the prestigious gathering ended on Friday.

"Robots like this have many applications," Kumar said.

"They can be sent in buildings as [first responders](#) to look for intruders or check for biochemical leaks..into collapsed buildings after disasters or into reactor buildings to check [radiation levels](#)," he continued.

Kumar held in one hand a small robot resembling a miniature helicopter with four [rotors](#).

It was fitted with [gyroscopes](#) and other sensors to feed information about its position and things around it to an on-board processor, which operated as a brain letting it react autonomously and instantly to situations.

"There is no GPS," Kumar explained. "The coordinate system is defined by the robot, where it is and what it is looking at."

He showed groups of flying robots working as teams to carry heavy

objects or build block structures based on blueprints alone.

The professor likened the robots' behavior to desert [ants](#) naturally working together to haul a piece of fig back to their nest.

"Once you know how to fly in formation, you can actually pick up objects cooperatively," Kumar said. "We can double, triple, quadruple the robots strength by getting them to team with neighbors."

His presentation finished with nine flying robots banding together to play the James Bond spy film on musical instruments.

"Magnificent," a person writing under the name Kimani Burton said in a chat forum beneath Kumar's video at ted.com.

"Its technological breakthroughs like these that remind me daily of the limitless creative capacity of humans."

Meanwhile, some in the forum lamented the potential military uses of what they saw as self-guided mini-drones.

TED (Technology, Entertainment and Design) is a series of conferences designed to present cutting-edge ideas. Speakers are given only 18 minutes to give deliver their pitch.

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