

New research to help safer emergency aircraft landings

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Queensland University of Technology (QUT) aviation researchers are developing an information system to help Unmanned Aerial Vehicles (UAVs) make safer emergency landings and better enable their wider commercial use.

Aerospace Engineering lecturer at the Australian Research Centre for Aerospace [Automation](#) (ARCAA), Dr Luis Mejias Alvarez, said UAVs could not fly in commercial airspace over populated areas because they lacked the ability to sense and avoid other [air traffic](#), and had no ability to make a safe landing in an emergency.

"UAV flight plans are set pre-flight, and if something goes wrong and they need to land they have no way to determining where the safest landing spot is," he said. "In most cases they just drop."

"We expect the system we're developing will fit UAVs with a higher level of intelligence so that they can both sense and avoid other traffic and determine appropriate landing spots should the need arise."

"If we can do that we will have gone a long way towards enabling UAVs to fly in commercial [airspace](#) and enable their wider use."

Dr. Mejias said the research would also be applicable to [commercial aviation](#).

He said during emergencies pilots focussed on regaining as much control

of their [aircraft](#) as possible and there was a need for a system to help them choose appropriate landing sites. "When things go wrong with an aircraft while it's in flight a [pilot](#) has to try to manipulate a lot of instruments to gain control of their aircraft."

"The focus of their attention is on the instruments within the cockpit. It's very difficult to also visually scout around the surrounding area to find the best possible places to land, particularly when the terrain below may be unfamiliar to the pilot."

"At QUT we're working on a GPS-based system that will incorporate a camera to pinpoint to the pilot any larger, vacant spaces that would provide landing options." "This might be a field or farm, or even a road or river."

"It will help the pilot navigate away from populated areas and find the safest landing spot."

Dr Mejias said the landing of US Airways Flight 1549 in the Hudson River in New York in January 2009 was going down in history as the 'Miracle on the Hudson'.

"The aircraft lost power in both engines when it struck a flock of geese shortly after take-off and the pilot managed to land the aircraft safely in the Hudson River with all 155 people on board surviving."

"The performance of the pilot in this scenario is exemplary, but in such situations the outcome relies heavily on the individual reactive abilities of each human pilot." Dr Mejias said if pilots could be alerted to potential landing spots on a simple screen as well as the best way to approach them it would help ease a very stressful situation and assist pilots to choose the best [landing](#) spots.

The project called Developing novel concepts for improved safety in aircraft emergency situations has been awarded \$375,000 from the Australian Research Council and is expected to take three years to complete.

Provided by Queensland University of Technology

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