

Interactive Human-Drone Partnerships in Emergency Response Scenarios

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DroneResponse Challenge:

- Deploy sUAS as autonomous, fully-fledge partners in a Human-on-the-loop emergency response team.
- Create trustworthy partnerships between humans and drones.

Solution:

- Front-end UI that empowers emergency responders to dynamically specify their mission
- A configurable onboard pilot running on a companion computer that empowers the sUAS to understand its environment and the current state of the mission, and to contribute to the mission through taking autonomous actions.

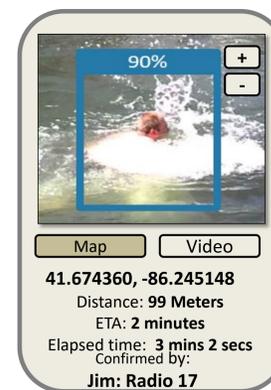
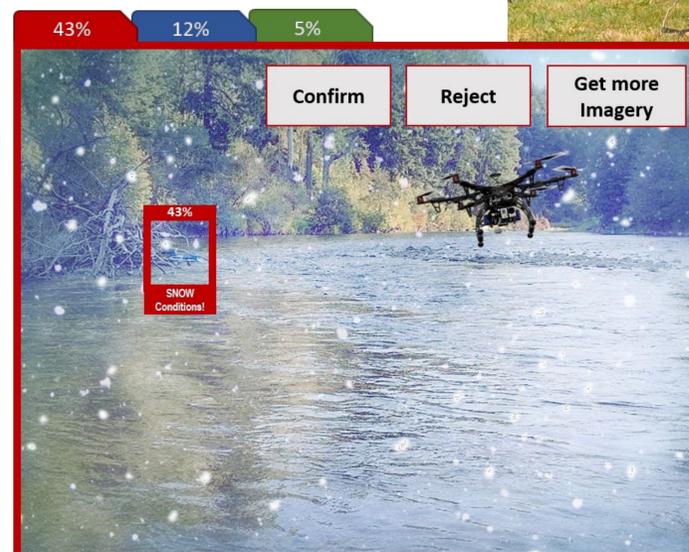
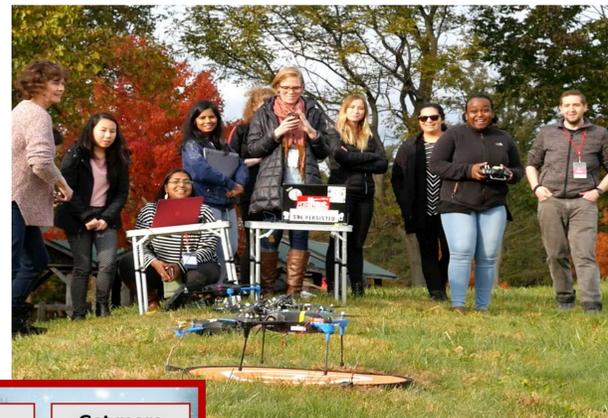
Societal Impact:

- sUAS deployed in missions are expected to save human lives.



Scientific Impact:

- A product line of configurable sUAS missions specified dynamically at runtime by emergency responders.
- Novel computer vision algorithms for victim detection and tracking.
- Enhanced safety of sUAS applications to minimize human error, increase situational awareness, and empower human interaction.



Educational Outreach:

- Over 16 REU students engaged in the past two years including females and underrepresented ethnic groups.
- 2 REUs in PhD programs
- UAV research event at "Hello Research"

Potential Impact:

- Fire departments
- Coast Guard
- Park rangers
- Police departments
- Flood relief
- Agriculture
- Military reconnaissance

