

RAPID/Collaborative Research: Data Collection for Robot-Oriented Disaster Site Modeling at Champlain Towers South Collapse

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See video at: <https://www.dropbox.com/s/7c665wpc4mnzc4g/ESRI%202022%20just%20surfside.mp4?dl=0>

This is the first work to reconstruct the interior of an actual rubble pile from imagery in order to determine the frequency and scale of internal voids.

Opportunity:

FSU flew drones multiple times a day at Champlain Towers Collapse, Surfside, FL during response--

Could the daily maps be treated like slices of tomographic CT scan- reassembled into a 3D reconstruction?

Challenges:

- generate a 3D volumetric aggregated model
- register highly complex maps that dynamically changed due to search and excavation
- create metrics for characterizing voids

Broader Impacts:

- better robot designs for rubble
- new procedures and processes for drones at disasters
- metrics for characterizing void spaces
- better understanding of interior of structural collapses
- save lives!
- *plus trained 4 graduate students (2 female), 1 undergraduate honors thesis, 1 visiting professor (Japan)*



Birds-eye view of the collapse and area of rubble

