

Geiger Mode Lidar for Efficient Terrain Mapping and Feature Extraction

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Abstract

Unmanned aircraft systems (UAS) are transforming our airspace. Over the first 100 years of aviation, just over 200,000 aircraft are registered in the U.S., but in little over one year the FAA has registered more than 700,000 unmanned aircraft. Harris is working on the challenge of integrating these UAS in the same air space as the manned aircraft. Flying UAS within LOS is becoming common place; however the challenge to fully achieve the economic potential is to enable BVLOS UAS operations.

Harris is a leading trusted partner in the FAA's next generation air traffic control system to include supplying communications, surveillance, and critical networks infrastructure for the national airspace – we are now applying that aviation experience to unmanned aircraft. There are three keys to enabling safe UAS integration:

- Detect and Avoid (don't hit other aircraft – electronically “see”)
- Command and control (C2) (flying aircraft remotely over a radio link)
- UAS airspace management (e.g., flight planning, weather, and don't fly in airspace you are not supposed to)

Harris' solution is to develop an integrated UAS network infrastructure combining the above with additional capabilities such as real-time payload data links.

This presentation will include a feasibility study Harris led for flying UAS over the Trans-Alaska Pipeline System, and other discussion regarding use of UAS in the oil and gas industry.