



Project Title

Unmanned Aerial Radiological Detection

Project Reference Code: DNDO-NSTec-Malchow

Hosting Site

National Security Technologies
Las Vegas, NV

Project Description

An internship is available at the Department of Energy National Nuclear Security Administration's [Remote Sensing Laboratory](#) (RSL) in Las Vegas, Nevada. The successful applicant will carry out research with manned and unmanned aircraft supporting one or more research and development projects focusing on aerial remote sensing, including aerial radiological detection.

RSL operates several manned and unmanned aircraft as platforms for multispectral and radiological detection systems. The manned aircraft are used for [emergency response](#) and research and development programs. The unmanned aircraft systems (UAS) are flown primarily at the Nevada National Security Site. In December 2013, the Federal Aviation Administration named Nevada as one of the six FAA authorized test sites for unmanned aerial vehicles.

Because of its long history in aerial radiological emergency response, RSL is taking the lead in developing protocols and standards for integrating data collected by a variety of platforms. Depending on the size of the emergency, a number of different data sets would need to be merged and analyzed to provide a cohesive picture of the prevailing situation. Since different detector systems output data in a variety of formats, these data need to be homogeneously formatted to facilitate a coherent analysis.

The successful candidate may be involved with:

- UAS flight planning and coordination.
- UAS data analysis, including evaluation and improvement of quality control and assurance processes.
- Creating software to re-format data from a variety of aerial radiological detection systems.
- Developing user interfaces for aerial data analysis.
- Other project-related tasks.

The RSL Intern may travel to the NNSS with the RSL team to collect both aerial and ground radiological data. The intern will be expected to prepare a final report and give an oral presentation to RSL staff covering their research at the conclusion of their term.

Keywords: aerial, radiation, detector, aircraft, nuclear, hardware, software, quality control, quality assurance, measurements, unmanned aerial systems, UAS, UAV

Disciplines

Software Engineering

Human Computer Interaction

Operating Systems and Middleware

Mentor(s)

Russell Malchow, malchorl@nv.doe.gov, 702-295-8770

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Internship Coordinator

Eric Wagner, wagnerec@nv.doe.gov, 702-295-8828

The name and contact information of the hosting site internship coordinator is provided for further assistance with questions regarding the hosting site; local housing availability, cost, or roommates; local transportation; security clearance requirements; internship start and end dates; and other administrative issues specific to that research facility. If you contact the internship coordinator, identify yourself as an applicant to the DNDO Summer Internship Program.

Interns will not enter into an employee/employer relationship with the Hosting Site, ORAU/ORISE, DHS, DNDO or DOE. No commitment with regard to later employment is implied or should be inferred.