



Perennial Internship Program – Summer 2025

Internship Position Description



Internship Title: UVM Unoccupied Aircraft Systems (UAS) Intern

Internship Site: Spatial Analysis Laboratory, Aiken Center, Room 205

Description:

The University of Vermont’s Unoccupied Aircraft Systems (UAS) team was formed in 2015 to bring high-end drone mapping technology to Vermont. The UAS team is comprised of faculty, staff, and students from the Spatial Analysis Laboratory (SAL) and is a core-member of the FAA’s [ASSURE UAS Center of Excellence](#), which focuses on carrying out research on the integration of drones into the national airspace. The UAS team operates about 25 different drones with a wide variety of sensors, including true-color mapping, multispectral



SAL UAS fleet and data examples (true-color mapping and LiDAR elevation) from a 2024 landslide

mapping, LiDAR, and thermal.

The SAL is nationally recognized for its work in applying drone technology to a broad range of mapping, monitoring, and research activities, including:

Disaster Response

- Responding to Vermont's severe 2023 and 2024 summer floods. The team carried out more than 500 flights and sped up FEMA's disaster declaration by weeks in 2023. The data captured has also been used for critical assessment of the ability for impacted Vermont communities to work towards resiliency in the face of climate change. [Learn more about their work here](#) and [here about the support the team provided to farmers](#).
- Mapping and modeling some of the state's most major landslides, including Smugglers Notch, Cottonbrook, and the many landslides that occurred during the floods of summer 2023 and 2024.
- Vermont wildfire response during October 2024 utilizing UAS thermal sensors to map out hotspots for fire crews.
- Training first responders about UAS flight operations and how to process and analyze the data that UAS can capture. [Learn more about these trainings and how it will impact the nation's ability to respond to disasters here](#) and [here \(NBC Boston\)](#).
- Carrying out the first drone response to a train derailment in the country. [Learn more here](#).

Research

- Monitoring the impacts of non-native species on local ecosystems, such as [spongy month caterpillars](#).
- Tracking harmful algal blooms in Lake Champlain and lakes/ponds in Vermont using multispectral imagery.
- Developing AI/machine learning tools to identify non-native aquatic invasive species from UAS imagery in Vermont's waterbodies and river corridors, such as water chestnut, Eurasian milfoil, Japanese knotweed, phragmites, and more.
- Capturing UAS-LiDAR data to calculate measurements of snow depth along the summit and slopes of Mount Mansfield.
- Mapping corn and hay fields to support NSF-funded research that will inform the future of agriculture.

Other Projects

- Carrying out income-expense contracting work to provide drone services that would otherwise be inaccessible to organizations and companies in Vermont and across the nation. Projects have included:
 - Estimating biomass for local sustainable energy generation
 - Tracking changes at the state's landfill
 - Monitoring [changes in river and stream corridors for communities](#) and landowners.
- Capturing striking images and videos of our state's natural beauty



Past UAS student team members have gone on to successful careers in the drone technology, geospatial, and environmental industries. UVM's UAS team works with federal, state, and local agencies, along with academic researchers.

As a UAS team intern you will participate in vetting flight requests, obtaining flight permissions, conducting flight operations, data processing, analysis, research, and report writing. A typical week could include:

- Charging and preparing high-end UAS equipment. Completing maintenance and inspections on UAS and payloads.
- Preparing flight plans for a specific UAS and sensor/payload/camera.
- Carrying out flight operations for a project (field work).
- Downloading, preparing, and processing the captured data with a variety of software packages.
- Generating ArcGIS Online webapps to share UAS data outputs.
- Developing training content and participating in training workshops for various audiences, including professional first responders.

Field work for UAS operations may be conducted under demanding conditions including irregular schedules, long days, extreme temperatures, and/or in disaster response situations. May involve foot travel for distances up to several miles. Travel to/from field sites may involve several hours of driving. and will typically involve carpooling in UVM and/or personal vehicles with other members of the UAS Team. Interns with a valid driver's license may complete the UVM Driver Training process in order to independently operate UVM vehicles. Must be able to lift and carry up to 50lbs of equipment. Office work will occur at a computer workstation.

Desired qualifications/skills/coursework*:

An interest in using cutting-edge aerial and geospatial technology to solve environmental problems. **No previous drone/UAS experience is required!** At least one geospatial technology course, with experience in ArcGIS Pro or coursework in remote sensing preferred. Interns must be willing to carry out field work under a variety of conditions and be equally as comfortable working at a computer for long periods of time. Occasional rapid response deployments during non-standard working hours may occur during disaster events. Interest in opportunities to teach and train other undergraduates and K-12 students about UAS, as well as geospatial professionals and first responders.

Prior to the start of the internship, it is required to acquire a [FAA Part 107 Commercial Remote Pilot Certification](#). This is the license required to operate drones under current federal regulations and involves an in-person exam at an FAA-approved testing facility (nearest is located at BTV airport). The SAL maintains study materials and recommends 15-25 hours of preparation – the intern will be supported by guidance from UAS Research Staff during their preparation. Reimbursement will be provided for the cost of the exam (\$175) to the intern when the test is passed.

Supervision:

The UAS team is led by Adam Zylka and falls under the Spatial Analysis Lab, which is overseen by Director Paige Brochu. Adam will serve as the internship supervisor. Over the course of the internship, operational supervision will be transferred to other SAL UAS research staff. The intern will always be working as part of a team.

Start and End Dates: Mid-May to Mid-August 2025 – exact start/end dates are negotiable

Total Hours: 20-40 hours/week for 12 weeks

Compensation: \$18/hour

How to apply:

Rubenstein students who will have completed their sophomore or junior year by summer 2025 are eligible to apply. Students graduating in May 2025 are not eligible to apply. Earning Independent Study or Internship credit through the Rubenstein Internship Program is required.

1. Click the following link to view the Rubenstein Perennial Internship Descriptions in Handshake:

<https://uvm.joinhandshake.com/employers/226837>

- If asked to log in: click “UVM Net ID Login” & login.
- Click the Favorite button to enable easier searches in the future.

2. Click “View All Jobs” in Jobs at Rubenstein Perennial Internship Program box on right side of page.

3. You should now see the Perennial Internship opportunities! Click “View Details” to learn more about each position.

- Please do take the time to carefully read each individual description so that you don’t miss a great opportunity by judging an internship solely on its title.
- You may apply for up to **three** Perennial Internships.
- All applications are due by **11:59pm, on Friday, February 7th, 2025.**

4. You’ll need to upload both required documents in Handshake before you can apply for any Perennial Internship:

- Click on your name at top right of screen in Handshake
- Select Documents.

5. Please upload all documents as PDFs. The following are the required documents:

- Resume
- Cover Letter
 - You should write and upload a unique cover letter for each position to which you are applying.
 - In your cover letter, provide the name & contact information for at least one professional reference. This could be someone who supervised you in a past work/internship/volunteer position, or a professor or teacher, etc. The person listed should not be the person who completes your recommendation form.

6. In addition to the documents listed above, a **recommendation form will need to be completed by a Rubenstein faculty, graduate student, or staff member of your choosing**. When you ask your recommender if they are willing to complete the form to support your application, please provide your recommender:

- This link: [RECOMMENDATION FORM](#)
- Only one recommendation form needs to be completed regardless of how many Perennial Internships you are applying for.
- Your recommender will complete & submit this form online and then your recommendation will be confidentially added to your application(s). This recommendation form needs to be submitted by the February 7th, deadline.

7. Make sure that your resume and cover letter(s) are as strong as they can be! Utilize the resources around you:

- Get your resume and cover letter reviewed by a Career Counselor at the Career Center. You can check the Career Center's drop-in hours [here](#). The Career Center also offers a guide on building your resume available [here](#).
- Set up an appointment with one of Rubenstein's Career Coaches - [Emily LeForce](#) or [Cathy Shiga-Gattullo](#) - or with PIP Coordinator, [Sarah Mell](#). Sarah Mell will also be available on Wednesdays from 1pm-3pm for PIP Drop-ins! Just swing by Aiken 220 to connect!

8. If you are selected to interview for a Perennial Internship, you will be contacted by the site to set up an interview during late February to early March.