

Rubenstein School of Environment and Natural Resources

University of Vermont

Perennial Summer Internship Program - 2024

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 Transportation Research Center (TRC). The UAS team 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 summer floods. The team's work in carrying out nearly 300 flights, sped up FEMA's disaster declaration by weeks. [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.
- 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 workflows to identify non-native aquatic invasive species in Vermont's waterbodies, such as water chestnut and Eurasian milfoil.
- 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 and geospatial 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.

Desired qualifications/skills/coursework: An interest in using cutting-edge technology to solve environmental problems. **No previous drone/UAS experience is required!** At least one geospatial technology course, with experience 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.

Supervision: The UAS team is led by Adam Zylka and falls under the Spatial Analysis Lab, which is overseen by Jarlath O’Neil-Dunne. Adam and Jarlath will jointly serve as the internship supervisor. Over the course of the internship, operational supervision will be transferred to other SAL personnel. The intern will always be working as part of a team.

Start and End Dates: Mid-May – Mid-August, 2024 (exact start/end dates are negotiable)

Total Hours: 30-40 hours/week for 12 weeks

Compensation: \$18.00/hour

How to Apply: Rubenstein students who will have completed their sophomore or junior year by summer 2024 are eligible to apply. Students graduating in May 2024 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 great 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 Monday, February 5th, 2024.**

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

i. You should write and upload a unique cover letter for each position to which you are applying.

ii. 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 5th, deadline.

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

- The Rubenstein Student Advisory Board members are great at reviewing resumes/cover letters and providing helpful feedback! Email the SAB to schedule an appointment after the start of the semester, or stop by their peer mentoring hours when the Spring semester starts (schedule to be posted by Jan 16, 2024): rsenrsab@uvm.edu

- 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](#).

- Get connected with folks in the Rubenstein Student Services Office for resume and cover letter review during drop-in hours:

Meghan Young – Tuesdays, 10:00am-12:00pm, Aiken 219 Emily LeForce – Thursdays, 1:00-3:00pm, Aiken 220 Hub
Cathy Shiga-Gattullo – Mondays, 1:00-3:00pm, Aiken 220 Hub

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.