Summer Internship Description for WildCam Vashon project on Anecdata

This project proposal describes the development of small and incremental features on the Anecdata platform to help support the development of the WildCam Vashon project on Anecdata.org through a summer internship program that will be supported by Vashon Nature Center, Vashon Island.

The budget to support the student internship is funded by Conservation, Research and Education Opportunities International (CREOi) and will be disbursed by Vashon Nature Center to support the training and mentorship of up to 3-4 university students in citizen science, software engineering and science communications. The internship stipend will be fixed at $500 per intern as an honorarium for a period of 10-12 weeks starting mid-June 2021. All payments (and related communications) will be processed by Vashon Nature Center at the end of the internship. VNC would provide the standard intake contract form for students to sign off when accepting the offer of internship.

Applications will be accepted for the internships starting April 20, 2021 till May 31, 2021 and offers will be made on a rolling basis after a formal review of applications which may include an interview round and a cv/resume/portfolio review. The final deadline for all application review and internship acceptance will be June 14, 2021 and students may begin their internship during a time convenient to them between May - August 2021. Communication regarding the internship applications will be shared through online citizen science listservs, social media, Vashon Nature Center, and the Anecdata website.

Applications can be submitted at the following google form - https://forms.gle/vUMQXvxmePNHhYHN9

Any formal questions/enquiries regarding the internship should be directed to Turam Purty, Anecdata Research Fellow 2020-21 at turamp@uw.edu.

Summer Internship Structure (10-12 weeks)

The summer 2021 internship will happen remotely. The internship program will last anywhere between 10-12 weeks and students will be provided with a list of development and research topics that they can pick up and work on during the duration of the program. Students are expected to submit a final documentation report, GitHub code repository and a 10–12-minute recorded presentation towards the successful completion of their internship.

Students who successfully complete the research and development topics may be provided with Letters of Recommendation from the Internship Advisory Committee (IAC) members upon request and can be considered for any future internship/fellowship/research positions at the discretion of the committee members. The IAC will advise, mentor, and guide the students for the duration of the program as per the following schedule and availability of the IAC members.

Name	Designation/Contact	Availability (weekly, bi-weekly or monthly)
Dr. Jaime Snyder & Turam Purty	Researchers at VSRS Lab, University of Washington. Contact: vsrs.citscistudy@gmail.com	Weekly - 1 hour Bi-weekly - 2 hours Monthly - 5 hours
Dr. Bianca Perla	Director, Vashon Nature Center bianca@vashonnaturecenter.org	With interns: Introduction meeting, 1 progress meeting with students' mid-way, 1 concluding meeting. With IAC: Monthly check-in with Turam Available through email anytime for questions.
Cait Bailey	Systems Developer, MDI Biological Laboratory cait@mdibl.org	Weekly - 1 hour Bi-weekly - 2 hours Monthly - 5 hours
Dr. Jane Disney	Director of Research Training, Senior Staff Scientist, Community Lab Director, jdisney@mdlbi.org	As needed
Anna Farrell	Community Lab Manager, MDI Biological Laboratory afarrell@mdibl.org	As needed
Ashley Taylor	GIS Specialist, Anecdata ataylor@mdibl.org	As needed

All student interns will be added to a slack channel and a mailing listserv through which they can communicate with the IAC and their cohort, share their work, ideas and build a shared sense of teamwork and community. Student interns may also request a 1 on 1 meeting with the members of the committee, depending on their availability to discuss their work and related training and professional development.

Summer Development & Research Topics

The students will be selected and shortlisted for an offer of internship based on their profile and fit as per the following research topics. These research and software development topics will be available in the application form and communications that will go out with the call for applications.

WildCam Vashon Project Introduction - The WildCam Vashon project is run by Vashon Nature Center on Anecdata.org and citizen scientists across the island upload pictures taken from wildlife trap cameras spread across the island to capture pictures of various wildlife such as coyote, beavers, bear, cougar etc. Currently, our primary focus is to measure the population of coyotes on the island. A small set of citizen science volunteers have set up the WildCam project on Anecdata and have identified research and development topics through which the program can greatly benefit. Additionally, our goal is to develop these features in a manner that extends and benefits the broader citizen science community on Anecdata.org. Additional information about the WildCam Vashon project can be found in the link - https://vashonnaturecenter.org/WildCam-vashon/

Vashon Nature Center, in collaboration with researchers at University of Washington and the Anecdata team at MDI Biological Laboratory have identified the following research and development topics for the summer internship program. Interns are expected to complete at least 1 topic over the course of the program.

1. **Data Visualization** - The WildCam Vashon citizen science project collects data about wildlife species on the Vashon Island. We would like interns to develop and enhance the data analysis page of the platform where we can plot and visualize the aggregated species data over time and over a map. We welcome students to explore various ways in which data can be visualized for the WildCam Vashon project.
2. **Data Mapping features/updates** - The data mapping feature, also called hotspots on anecdata, is a feature which is very useful across many projects. However, we are looking for an overhaul and flexibility in the ways in which project administrators can set up hotspots during the creation of projects and make it available to citizen science volunteers who select these hotspots/geolocation features when they are uploading their datasets. Currently, the WildCam Vashon project would like to add labels and names of the hotspots to be easily visible and accessible to the community members when they are adding their observations.
3. **Data Sheet Setup Templates -** The datasheet template is at the core of Anecdata and citizen science as it allows us the project administrators to set up the data collection

schema of their projects. We are looking for interns to develop and enhance the ways in which project administrators can set up datasheets with minimal supervision. The WildCam Vashon project is one of the first wildlife species observation projects on Anecdata and we would like to set up a reusable datasheet template that can be used by other organizations who would like to use Anecdata for wildlife monitoring and conservation.

4. **Community Engagement -** The citizen science community on Vashon island have a lot of stories and anecdotes to share that are related to their species observations. People generally share them in their observation notes. The community also discusses this information during community meetings and over email communications. We would like the interns to explore and enhance ways in which Anecdata features such as discussion boards and comments can be reused to engage and start an online conversation with other members of the WildCam project.

5. **Data & Geo-location Privacy** - Anecdata already has many features to support privacy of the data contributors such as geolocation, anonymity, and private fields. However, few volunteers of WildCam Vashon project have requested the ability to submit their observations in complete anonymity and without creating an account. Using the WildCam Vashon project as a test case, we are looking for interns to support the development of advanced privacy features that will allow project administrators more freedom to set up custom settings for geolocation, anonymity, and private fields in the projects.

6. **Data to Action toolkit -** The data collected by the communities can be analyzed and published along with the datasets and a short blog to call for action and awareness with the community. We are looking for the development of a completely new feature, where community members can take data to action and influence the local policy decisions. In case of the WildCam Vashon project, we would like community members to generate visualizations from the data and publish their findings and results in consensus with the community members.

7. **Large image dataset processing** - Citizen scientists of the WildCam project collect images from their trap cameras on a weekly basis or a monthly basis. On an average, community members spend at least 1-2 hours going through all the images and finding the good quality images and uploading them on Anecdata. We would like the interns to explore development of a tool that can reduce this time and make it easier for members to upload and label their images.

8. **Short video processing (20 sec) -** Some citizen scientists in the WildCam project also use the "short video burst" mode in their wildlife trap camera that records a short 20-sec video when a wildlife species is nearby. Currently, we do not have the capability to process these videos and we store them in a google drive for analysis. We are looking

for innovative ways to capture valuable data such as image timestamps from these short 20 second videos that can contribute quality images into the overall WildCam Vashon database.

9. **Data Integration and interoperability -** Anecdata is currently connected with SciStarter and we would like the interns to develop Application Programming Interfaces (APIs) and documentations that will allow the project administrators with the option to share their datasets easily with other citizen science platforms such as Zooniverse, SciStarter and iNaturalist databases and contribute to the global efforts in citizen science research.

Anecdata uses the following technologies and databases:
- Backend platform using CakePHP and MariaDB.
- Website front-end using Angular 11 and TypeScript.
- Mobile app using Cordova (soon Capacitor) with Ionic Angular and TypeScript