

901809 - Deep Sea Bioinspiration

Week 51

1. Akshay Hinduja
 - a. Sync up and attend OceanShot 3d meetings with CVision, prep work for the same
2. Carlos Rueda
 - a. Completed some previously uncommitted adjustments in the Bulk Review UI.

Week 50

1. Akshay Hinduja
 - a. Meetings with CVision to kickstart Oceanshot bigelow grant work
2. Paul Roberts
 - a. SOI planning
 - b. Scuba-EyeRIS

Week 49

1. Akshay Hinduja
 - a. Preparations for kick-off meeting with CVision for DeepPIV pipeline automation
2. Paul Roberts
 - a. Scuba-EyeRIS build

Week 47

1. Akshay Hinduja
 - a. Meetings with the team to discuss next plans for OceanShot project milestones and approach.
2. Paul Roberts
 - a. Scuba-EyeRIS assembly
 - b. Ocean Shot UAW
 - c. Ocean Shot Bigelow Falkor (too) documentation

Week 46

1. Paul Roberts
 - a. Scubris chassis fabrication
 - b. UWA image system design support

Week 45

1. Akshay Hinduja
 - a. Waiting on CVision contract to resume work on OceanShot project for DeepPIV
2. Carlos Rueda
 - a. Met with Kevin B. toward preparing for deployment of the bulk review UI.

Week 44

1. Paul Roberts
 - a. Scuba-eyeris NUC testing and chassis design
2. Carlos Rueda
 - a. Provided updated Bulk Review UI screenshot to Laura.

Week 42

1. Carlos Rueda
 - a. Met with Kevin re status of bulk review UI and associated pending API support.

Week 41

1. Carlos Rueda
 - a. Bulk review UI

Week 40

1. Carlos Rueda
 - a. New API endpoints being put in place by Kevin B., so I'm about to resume work on the Bulk review UI.

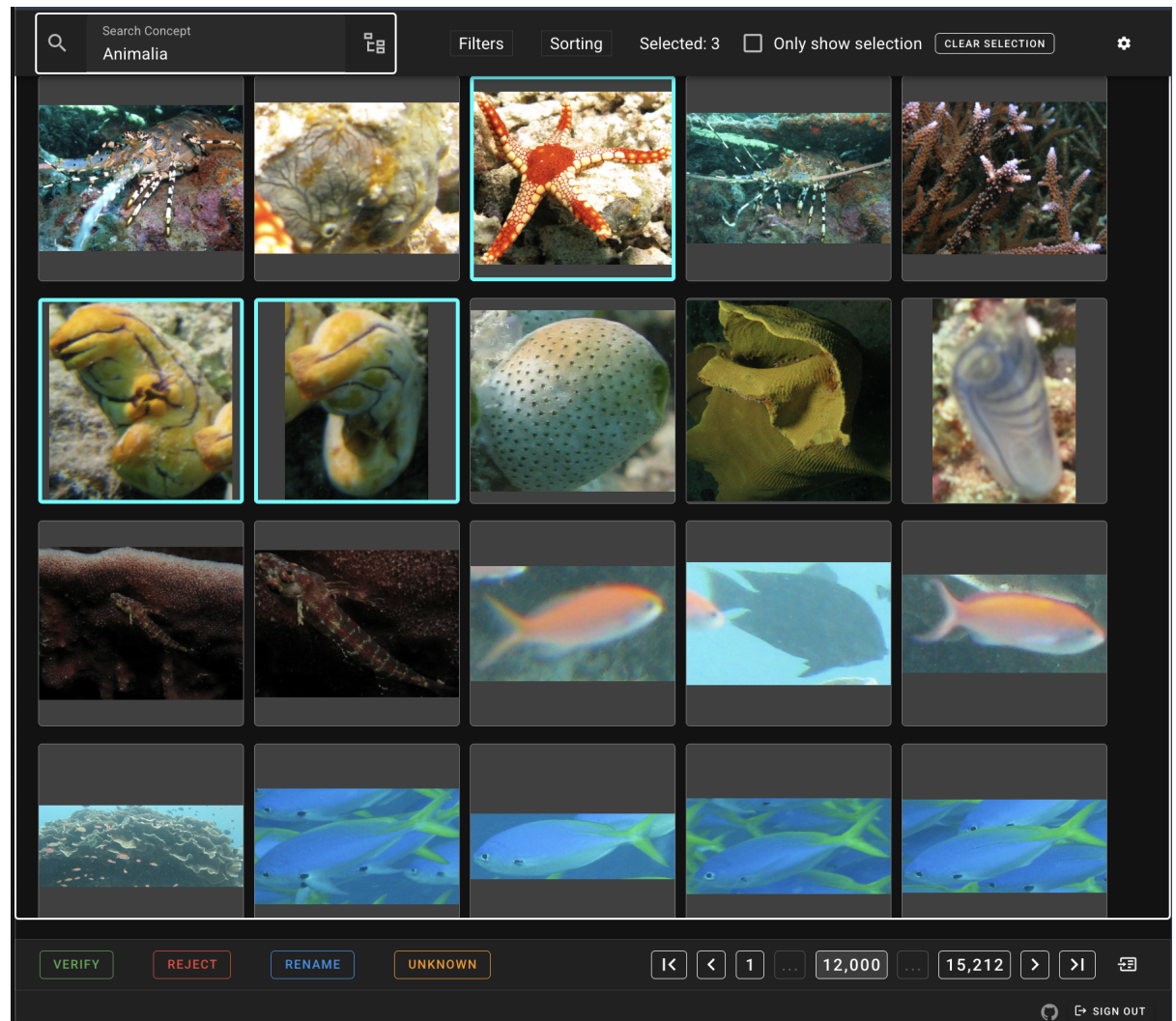
Week 38

1. Carlos Rueda
 - a. Advancing the [Fathomnet Bulk Review UI](#).

Week 37

1. Akshay Hinduja
 - a. Met with CVision for project update meeting and to touch base on further development on OceanShot 3D pipeline
 - b. Identified approach for image stabilization, installed several SOTA models to test with DeepPIV data
 - i. Concluded that no current SOTA model works for the kind of data we have
 - ii. Proposed using segmentation models with fixed aspect ratio framing works 80%
 - c. Identified potential approach for data denoising and masking for 3D slicer

- i. Testing Diffusion models for automated image masking
 - ii. Testing with a small dataset to train model on DeepPIV data
- 2. Paul Roberts
 - a. Oceanshot imaging system design
 - b. SOI cruise prep, interface documentation
 - c. CANON Triton camera data management
- 3. Carlos Rueda
 - a. Advancing the [Fathomnet Bulk Review UI](#).



Week 36

- 1. Akshay Hinduja
 - a. Testing deepPIV data on GaVS pipeline which involved
 - i. Setting up COLMAP and GLOMAP
 - ii. Setup SAM for foreground masking
 - iii. Setup ProPainter
 - b. Tested with GaVS sample dataset

- c. Testing with DeepPIV data, running through entire pipeline to generate the specific dataset
 - d. Literature review on other options
- 2. Paul Roberts
 - a. SOI hardware documentation
 - b. SOI integration and cruise planning
- 3. Carlos Rueda
 - a. Participated in the last FathomNet Tech Team Meeting, and started exploring [fathom-web-ui](#) with the idea of following similar approaches (javascript!, Vuetify, etc.) for the new development in a to-be-created repo.

Week 35

- 1. Paul Roberts
 - a. SOI 2026 cruise documentation and preparations

Week 34

- 1. Akshay Hinduja
 - a. Begin testing video stabilization models for DeepPIV pipeline
- 2. Paul Roberts
 - a. SOI interface can documentation
 - b. SOI interface can assembly

Week 33

- 1. Akshay Hinduja
 - a. Prepare plan for testing pipelines for OceanShot project

Week 32

- 1. Akshay Hinduja
 - a. Literature review for DeepPIV ML based improvements
 - b. Prep work for ML@MBARI workshop
- 2. Denis Klimov
 - a. Feedback on intern dry run talks.

Week 31

- 1. Carlos Rueda
 - a. Met with FathomNet Database group (Kakani, Kevin, Laura) for planning and scoping of UI development later in the year.

Week 30

- 1. Akshay Hinduja

- a. Meet with Joost to go over DeepPIV objectives
- b. Start initial research on video stabilization and image denoising pipelines

Week 29

- 1. Carlos Rueda
 - a. Brief chat with Joost about the status of CMS UI, and future work.

Week 28

- 1. Akshay Hinduja
 - a. Test lcm broadcasting
 - b. Implement bug fixes on thread safe shutdown
 - c. Intern support for setting up detection pipeline
- 2. Brian Schlining
 - a. Added code to drop large annotation sets to support ML output for Galene/Optim

Week 27

- 1. Akshay Hinduja
 - a. Implementation of LCM broadcasting into Triton camera driver

Week 25

- 1. Akshay Hinduja
 - a. Refactored triton camera driver to be more modular
 - b. Fixed bugs with saving images in different formats
 - c. Added offset configuration and set cropping for 2K res for all 3 cameras
 - d. Added video recording in h264 and h265. Files are chunked as per config
 - e. Halfway through setting up rtsp streaming of video
 - f. TODO: Finish RTSP streaming, add lcm broadcast
- 2. Denis Klimov
 - a. Looking at the conditions in the lab A284, how to configure lab A247, and what projects could be moved there. We are looking to temporarily use lab A247 as is with deep cleaning, before the renovation could be completed in 2026.
- 3. Brian Schlining
 - a. Looking into merging LRUAV data (from Galene) with video annotations.

Week 23

- 1. Akshay Hinduja
 - a. Alpha version for AVT multicam driver complete, tested with external triggering
 - b. Working on beta version which modularizes the framework and will add config changing and video streaming features

Week 22

1. Akshay Hinduja
 - a. Worked on Multicam driver for allied vision CSI/2 MIPI cameras.
 - b. Migrated to VmbPy backend to have better control over camera settings.
 - c. Driver can now run at max frame rate and resolution
 - d. Modularized driver to choose individual settings for each camera parameters and saving
 - e. Wrote profiles for setting + custom profiles
 - f. Working on video streaming

Week 21

1. Akshay Hinduja
 - a. Resume writing VmbPY based driver for Triton.
2. Paul Roberts
 - a. Review of Optim Galene 27 video and planning for next deployment

Week 20

1. Akshay Hinduja
 - a. Resume writing Triton drivers using VimbPy as backbone instead of GenICAM. Will offer more control over settings.
 - b. Go through documentation on Orin setup again to prepare deployment ready version.

Week 19

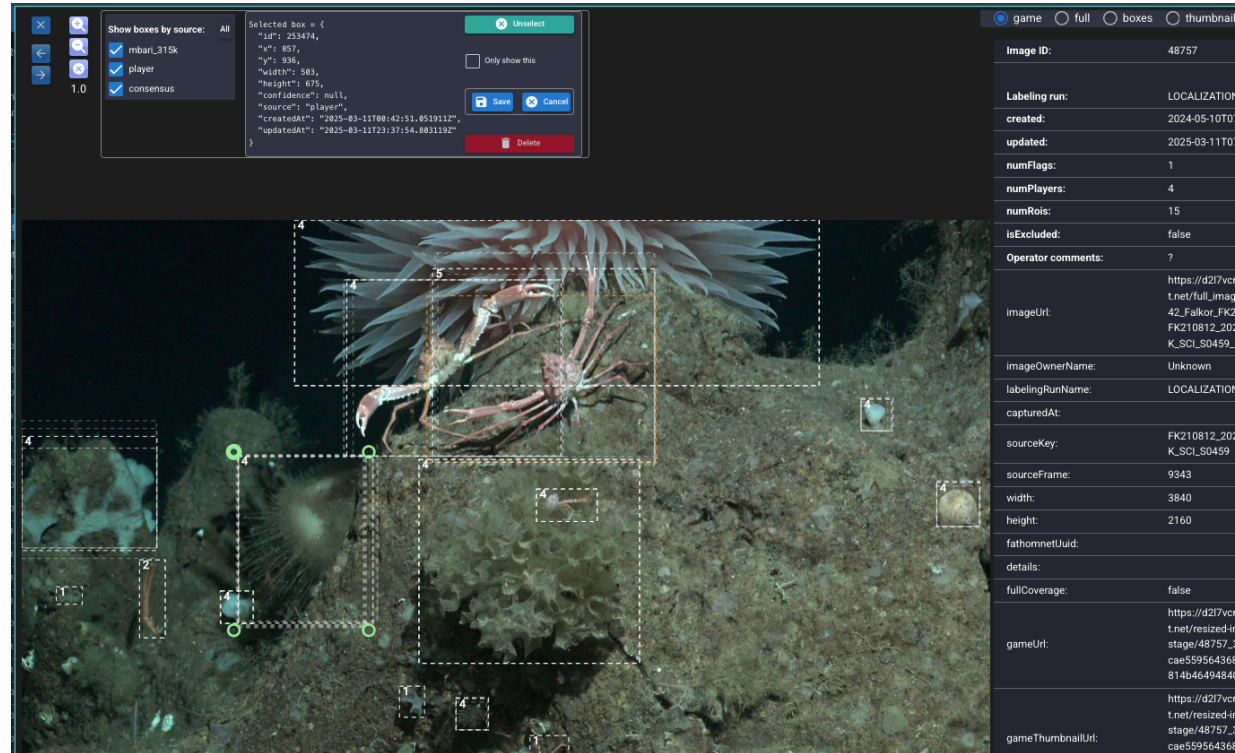
1. Kevin Barnard
 - a. Downloaded siphonophore dataset from VARS
 - b. Cleaned/filtered siphonophore data according to embargoes
 - c. Converted dataset to train YOLO OD
 - d. Trained several YOLO11x models
 - e. Evaluated models against test dataset
 - f. Ran detection & tracking on LRAUV Galene Optim midwater transects
 - g. Packaged tracks for import to VARS

Week 15

1. Kevin Barnard
 - a. Ran MBARI-315k-YOLOv8 model on 2024/2025 Optim video
 - b. Preparing dataset for siphonophore model
2. Denis Klimov
 - a. Various discussions on operating space for Geo-Sense DAs instrument; indeed, operating such an instrument in the A284 Laser Lab presents safety and scheduling issues; trying to find a work-around.

Week 13

1. Carlos Rueda
 - a. Advancing CMS UI for handling of image boxes (selection/filtering, deletion, graphical editing).



2. Brian Schlining
 - a. Discussions around adding the LRAUV optim video to VARS.

Week 12

1. Carlos Rueda
 - a. CMS UI - Advancing image box handling

Week 10

1. Paul Roberts
 - a. Optim/Galene deployment and eng. testing

Week 8

1. Carlos Rueda
 - a. Group meeting to discuss next additions/adjustments in the CMS UI.

Week 7

1. Carlos Rueda

- a. Brief chat with Joost re planning next steps for the CMS UI.

Week 5

1. Johann Voigtlander
 - a. MiniROV Dive, 12 hour day, collected animals

Week 3

1. Akshay Hinduja
 - a. Looking into VimbaPy to get better control over camera config setting
 - b. V4L system has issues where sometime settings are not registered as expected on startup

Week 2

1. Akshay Hinduja
 - a. Fixed issues with allied cameras on CTI boards. First board was defective/damaged hence probably why there were issues with it. Unfortunately not covered by warranty.
 - b. Change code to access camera feeds. Currently using V4L-ctl, but not able to consistently set parameters for fps with it. Explore the use of Vimba Python library instead.

Week 1

1. Akshay Hinduja
 - a. Finished maintenance and clean up of titanCAM repo
 - b. Completed new feature requests
 - c. Looked up cloning for CT BSP for Jetson Orin, seems a bit involved and requires opening up the bulkhead, will wait for next week.