

901809 - Deep Sea Bioinspiration

Week 51

1. Jon Erickson
 - a. Finished motor specs for new particle injector.
 - b. Part prints next week.
2. Denis Klimov
 - a. Making final touches to the procedure of using DeepPIV of ship's deck. Label for the fiber cable had been designed and documented in procedure.

Week 50

1. Jon Erickson
 - a. Finished motor specs for new particle injector.
 - b. Part prints next week.
2. Denis Klimov
 - a. Making final touches to the procedure of using DeepPIV of ship's deck

Week 48

1. Denis Klimov
 - a. Documenting calibrating jig

Week 47

1. Tom O'Reilly
 - a. Met with Dana Yoerger, Hobson, Kieft, and Raanan to discuss options for MesoBot acoustic comms. Afterward discussed how to move forward with WHOI in a way to bring MesoBot back to Monterey Bay.

Week 46

1. Jon Erickson
 - a. Still trying to select a motor gearbox assembly from Maxon for the particle injector pump.
2. Denis Klimov
 - a. Working on a procedure on using DeepPIV on ship deck, integrating feedback from 2019 Falkor cruise.
3. Tom O'Reilly
 - a. Discussing BioBot acoustic comm software options with LRAUV team and Dana Yoerger. Dana is interested to use relevant LRAUV acomm software/formats for BioBot.

Week 45

1. Denis Klimov
 - a. Working on the procedure for DeepPIV ship use; implementing feedback from 2019 Falkor cruise

Week 44

1. Jon Erickson

- a. Try to finalize a motor shaft design in order to purchase a maxon motor/gearbox assembly for the particle injector pump assembly on PIV.
2. Alana Sherman
 - a. Still working on motor spec for pump

Week 43

1. Denis Klimov
 - a. Revising handbook for operating DeepPIV on a deck of the ship

Week 42

1. Jon Erickson
 - a. Have all the parts to test a new motor controller for PIV particle injector. This is Dales design, that Alana wants to use.
2. Denis Klimov
 - a. Revising fiber optic penetrator assembly report; new laser targets are ready for black anodizing
3. Tom O'Reilly
 - a. Collaborating with WHOI's Dana Yoerger to define acoustic protocols between MesoBot and other vehicles such as MBARI's Wave Glider hotspot. Eventually we want to send MesoBot camera images over the acoustic link so that human operators are aware of science targets and can modify MesoBot's mission over the acoustic link.

Week 41

1. Jon Erickson
 - a. Trying to come up with a new Particle injector pump for PIV.
2. Tom O'Reilly
 - a. Working with Kakani Katija and Dana Yoerger (WHOI) to plan acoustic communications with MesoBot, using Wave Glider hotspot as a relay.
3. Alana Sherman
 - a. The dye injector continues to be a problem were spin around but dont land somewhere. We have two ideas and will see what works.

Week 40

1. Denis Klimov
 - a. Revising fiber optic penetrator assembly report; and working on the drawings for laser target for the lab

Week 39

1. Mike Risi
 - a. Documenting LCM types for mid-water tracking control system

Week 38

1. Denis Klimov
 - a. Editing fiber optic penetrator assembly procedure; and working on the drawings for laser target for the breadboard optical setup
2. Alana Sherman
 - a. Updated all the software and fixed the last couple bugs (for now) for DeepPIV4
 - b. Debugged a problem with our new laptops and DeepPIV3, turned out to be a driver issue with a serial server. There is still one mystery left which seems to be a network issue to resolve.
 - c. Looking into a motor controller for a new dye injector.

Week 37

1. Denis Klimov
 - a. Editing fiber inserts report
2. Alana Sherman
 - a. Revisited code for DeepPIV4 fixed the following:
 - i. Update rate of camera data
 - ii. Changed zoom speed and added zoom reset
 - iii. Tried to fix initialize issue with labjack
 - iv. Debugged issue with Iris

Week 36

1. Jon Erickson
 - a. Still getting parts out of the shop. Assembling the Remote head assembly jig.

Week 35

1. Alana Sherman
 - a. Fixed a couple bugs in the code

Week 34

1. Alana Sherman
 - a. Fixed several issues with the Coherent GUI
 - i. Focus slider reset
 - ii. Added zoom reset button
 - iii. Fixed bug with lens parameters reporting

Week 33

1. Jon Erickson
 - a. Mounting parts for version 4. Waiting on the remote head parts in the shop[for version 8.
2. Denis Klimov
 - a. Helping with interns (Brooke Pauken and Jill Alexander) presentations dry-run
3. Mike Risi
 - a. Helped MOB MiniROV for ML-Tracking tests on 8/10/2020 cruise. The cruise was canceled but I'm planning on doing some software testing in the test tank with Paul Roberts since MiniROV is currently configured for this work.
4. Alana Sherman
 - a. Cruise prep and some demob for cancelled Flyer cruise

Week 32

1. Danelle Cline
 - a. No requests yet on allocated time

Week 31

1. Mike Risi
 - a. Misc. MOB meetings for BioInspr August Flyer cruise

Week 30

1. Denis Klimov

- a. Figuring out laser remote head mounting to optical table.
- 2. Mike Risi
 - a. Finished ML-tracking tests in test tank
 - b. Tested ML-tracking and control code on two day cruise series using MiniROV on Rachel Carson
- 3. Alana Sherman
 - a. Pulled all the pieces together to set up ROV-emulating interface can to test DPIV4 and DPIV3
 - b. Began documenting interface can
 - c. Got software for DPIV4 working on two laptops

Week 29

- 1. Alana Sherman
 - a. Worked on proposal

Week 28

- 1. Jon Erickson
 - a. Version Version 4.2 hardware parts are in the shop (Cruise 8/14) as well as a new design for the remote head (Version 8).

Week 26

- 1. Mike Risi
 - a. Working on GUI mid-water tracking control system
 - b. Camera testing and calibration of mid-water tracking cameras
- 2. Alana Sherman
 - a. Fixed a couple bugs in the laser control software in both the old and new versions of the code.

Week 25

- 1. Alana Sherman
 - a. Tested DPIV4 with both old and new software versions, I have a couple bugs to fix on both

Week 24

- 1. Mike Risi
 - a. Worked on stitched stereo image publisher using USB camera for testing
 - b. Added frame grab feature to stere_sub util to grab calibration images

Week 23

- 1. Danelle Cline
 - a. Need to inquire again about model training needs. All went pretty quiet with this project over the Covid period.
- 2. Denis Klimov
 - a. Revising DeepPIV laser safety document for ship use.
- 3. Mike Risi
 - a. Started test of midwater tracking control system
- 4. Alana Sherman
 - a. Fixed bug with manual focus setting in GUI
 - b. Integrated dye injector but need motor to test
 - c.

Week 22

1. Denis Klimov
 - a. Re-writing handbook for DeepPIV deck operation
2. Ben Raanan
 - a. Spun up the new Jetson NX

Week 21

1. Denis Klimov
 - a. Brainstorming on right-angle laser housing disassembly limiter
2. Alana Sherman
 - a. Weekly meeting
 - b. GUI work: cleaned up some of the reading of camera data, trying to track down new bug I created. Finally got it all loaded on bit bucket. Adding ability to control elmo motor controller.

Week 20

1. Jon Erickson
 - a. Finished the print package for the Version 8 remote laser head, and an assembly jig to protect the fibers during assembly.
2. Denis Klimov
 - a. Restructuring handbook on DeepPIV use on ships
3. Alana Sherman
 - a. Weekly meeting
 - b. Looked into motor control options
 - c. DeepPIV 4 GUI:
 - i. Added focus slider control for better step resolution
 - ii. Improved reading of camera parameters
 - iii. Working on setting initial conditions and control values after transitions between modes (ie. auto to manual transitions)

Week 19

1. Alana Sherman
 - a. Zoom meeting update, demo'd new GUI
 - b. Working on gui:
 - i. Logging almost all complete
 - ii. Working on changing focus control
 - iii. Still debugging a read error

Week 18

1. Jon Erickson
 - a. Working on yet another version of the remote laser head. Also need a means of holding and assembling the optics head part of that. I'm two days into this, but $\frac{1}{3}$ of my time is taken up in time lag and freezes in the remote desktop connection. I'm billing that to Dept. overhead.
2. Denis Klimov
 - a. Reviewing right angle remote laser housing design and assembly procedure
3. Alana Sherman
 - a. Continued work on GUI, working on logging of camera data. Debugged some issue with reading the iris values and with focus commands. Getting there but lots of time spent on administrative tasks.

Week 17

1. Danelle Cline
 - a. Need to get details from the project on model training needs
2. Denis Klimov
 - a. Reviewing new right-angle remote laser head design (by Jon Erickson) against assembly and testing procedure
3. Ben Raanan
 - a. Gathering materials for Mesobot backseat interface
 - b. TX2 setup with the folks at CVisionai
4. Mike Risi
 - a. Added stitched stereo capability to mid-water tracking apps
5. Alana Sherman
 - a. Got Sony labview GUI working with LV 2018 then merged with the DeepPIV GUI. Now working through all the bugs left over.
 - i. Have to add features to gray-out buttons that are not active
 - ii. Still need to do work on focus
 - b. Hoping to merge the logging code this week as well

Week 16

1. Mike Risi
 - a. Shared LCM type repo with cvision
 - b. Update of control system re-write at weekly meeting
2. Alana Sherman
 - a. Spent a lot of time trying to add what I thought would be a simple feature to display the zoom ratio of the sony camera. I have that working now.
 - b. Working on initial settings for the camera on start up, and disabling features when in auto vs. manual conditions.
 - c. Working on adding focus speed control and an indicator, also need to integrate logging.

Week 15

1. Mike Risi
 - a. More clean up of midwater tracking apps
 - b. Sent out stereo stitch concept to group for comment
2. Alana Sherman
 - a. Continuing my work on the sony camera labview gui, this week I was able to get gain, shutter, and reading the exposure settings working. Next I have to integrate logging into the system and setting a specific focus position. Progress!

Week 14

1. Mike Risi
 - a. Cleaning up mwt-apps repo (AKA mesobot-tracking)
 - b. Created repo for shared LCM types and associated classes
 - c. Implemented stitched stereo message to deal with stereo sync issues
2. Alana Sherman
 - a. Continuing working on my labview gui to interface with the Sony camera for DPIV 3 and 4. In the past week I have manual focus and iris control working and began working on querying the camera for zoom/focus position information.

Week 13

1. Danelle Cline
 - a. Generated improved [video](#) of bathos detection for external website
2. Ben Raanan
 - a. Jetson TX2 setup.
3. Mike Risi
 - a. Updating midwater tracking control system based on results from last cruise
 - b. Misc. meetings with ML-tracking team
4. Alana Sherman
 - a. Got iris working on my GUI for the sony block camera
 - b. Starting to work on logging data from the camera

Week 12

1. Ben Raanan
 - a. Setting up development environment on Nvidia Jetson TX2
2. Alana Sherman
 - a. Revisiting the labview gui I started for the sony block camera. Working on adding focus control.

Week 11

1. Denis Klimov
 - a. Chemical etching report on fiber optic penetrators is complete, reviewing report on assembly procedure (with Aarong Schnittger)
2. Alana Sherman
 - a. Replacing water damaged labjack in DeepPIV v 4.
 - b. Cleaning up DeepPIV v4 software

Week 10

1. Jon Erickson
 - a. Finalizing prints for the Version 7 right angle remote laser head. (7 parts)

Week 9

1. Denis Klimov
 - a. Taking feedback and revising a report on chemical etching of fiber optic inserts.
2. Mike Risi
 - a. Helped prepare for an external review demonstration of mid-water tracking
 - b. Preparing MiniROV for next week's cruise series to test mid-water tracking

Week 7

1. Denis Klimov
 - a. Documenting etching procedure for fiber optic penetrators
2. Mike Risi
 - a. Finished process to publish VARS annotations to LCM log and tested against the MiniROV VARS system.

Week 6

1. Danelle Cline
 - a. Requested 2020 task list from K.Katija for allocated 240 hours

2. Denis Klimov
 - a. Template for cutting glass windows for an indicator cap is ready. Material for a separation gasket is found. Need to source double-sided tape in order to make windows
3. Tom O'Reilly
 - a. Planning to implement MesoBot acoustic tracking from Hot Spot, and acoustic command/data capability of MesoBot. Discussed requirements and approaches with project teams at MBARI and WHOI.
4. Mike Risi
 - a. Testing VARS microservice that Brian S. added to access annotation information in real-time over ZMQ
 - b. Working on subscriber to publish VARS annotations to LCM log for the March cruise series
5. Alana Sherman
 - a. Order parts for tilt motor
 - b. Testing extended ODI pair

Week 5

1. Danelle Cline
 - a. Cleaned up wandb model reports organizing by project number instead of name
2. Denis Klimov
 - a. Compiling photos and text for a fiber penetrator etching process
 - b. Working on 2nd safety Indicator Cap for DeepPIV. UHMW template for a glass window is missing; ordered a replacement.
3. Mike Risi
 - a. Working with Paul on MiniROV machine vision camera integration for March cruise series
 - b. Started working on queued subscriber class so tracking software can receive updates from external processes