

Engineering Weekly Report 11/10/2022 - 11/17/2022

Executive Council Notes

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Individual Activities

- Michael Anderson
- Kevin Barnard
 - 500055 - VARS, M3/RS, DSG
 - Working on Python client for Sharktopoda 2 video player spec
 - Integrated VARS GridView with Beholder (for non-framegrabbed localizations) and Raziel (configuration server); published on PyPI as `vars-gridview`
 - 701139 - ML Tracking
 - Looking for cs.RO arXiv endorsement
 - 902002 - FathomNet
 - Discussed 2023 tasks
 - 902005 - VARS Annotation Assistance
 - Started investigating automation of Deepsea AI DB tracks → VARS annotation load process
 - 902204 - Scalable Marine Robotics Foundations
 - Diving into RTAB-Map SLAM with filtered IMU + DVL measurement for visual-inertial odometry
 - Investigating additional factors (e.g. absolute depth factor) in GTSAM backend graph optimization
 - Tried running stereo calibration on Mola test tank images
 - Out of Office
 - Thanksgiving week; Nov 21-25
- Francois Cazenave
 - Out of Office
 - 1 sick day due to sick child
- Danelle Cline
- Duane Edgington
 - 901502 - Soundscape Research and Education
 - Updated new MBARI webpage for Soundscape Listening Room project with more details on Alexa Skill.
 - 902005 - VARS Annotation Assistance
 - Continued work with Danelle and Carlos on Benthic 2017 model training, inference run, and AWS new account setup (quotas and testing)
 - Out of Office
 - 11/21-11/23: Vacation Out for Thanksgiving Nov 21 - 23.
- Jon Erickson
- Kevin Gomes
 - 200105 - Core Navigation Data - MDUC
 - Looking over documents from shipyard to look at data management on David Packard
 - Working with Qt to learn capabilities
 - Met with group to discuss networking and data management
 - More diagrams related to the 'data distribution device'

- 901009 - CANON
 - More work developing docker-compose for 'production' deployment of the ODSS with the initial target being zuma so I can upgrade the OS.
- 901915 - Improving the Impact of MBARI's Data
 - Working on data models to extract common schemas across data systems we have here at MBARI
 - Working on short descriptions for the data related pages
- 902202 - MBARI Cloud Integration Exploration
 - Some discussions around SSO and key renewal
- Overhead
 - Completed sexual harassment training
 - Learned a painful lesson with crontab trying to automate weekly report emails
- Out of Office
 - 11/21-11/23: Vacation
 - 12/19-12/23: Vacation
- Andy Hamilton
- Kent Headley
 - 600034 - Precision Control Technologies for ROVs and AUVs
 - Refactoring ROV TRN to allow arbitrary number of TRN instances and multiple bathy sources
 - Updating for ocean imaging toolset (with multiple bathy inputs)
 - 902204 - Scalable Marine Robotics Foundations
 - Looking at sonar data from Monday piggyback
 - Overhead
 - Hiring
 - Met w/ Brian and Open Robotics re LRAUV sim troubleshooting
 - Out of Office
 - Quarantining this week
- Rich Henthorn
 - Out of Office
 - Oct 24 - 28, WFH
- Brett Hobson
- Scott Jensen
 - 300078 - DMO Support - AUV
 - Received motor development kit and beginning to understand how to use the system
 - 901205 - SURF Center
 - Envisioned a different method for puck manipulation for the sampler. Lots of details but first tests look promising.
 - Firmware is in a state that some instrument level testing could begin.
 - 902106 - Niobicon-Based AUV Docking Development
 - Small amounts of time spent support the electrical design.
 - DQ2113 - Tidal Turbine
 - Closing in on a final design for the housing cap to mount the electronics
 - Had optocouplers changed on boards after an over voltage event
 - Out of Office
 - Until further notice, working from home as possible.
- Brent Jones
- Chad Keczy
- Brian Kieft
 - 300082 - DMO Support - Wave Glider
 - Helping out the the PIE deployment for Yui.

- 708168 - DHS/LRAUV Under-Ice
 - Supported the first real deployment of Stella.
 - Diagnosed and fixed a problem with the DVL
- 800139 - EyeRIS (Remote Imaging System)
 - Troubleshooting on Galene for network issues to the backseat
- 902101 - LRAUV Technology Development and Fleet Operations
 - Handed off an MF DAT to Elecia for MMP mode integration. Progress is looking good with basic binary command/response flowing.
 - There may be a minor budget overage on the MMP integration task. Working on scoping. I'm inclined to spend a little more and implement the full headers at this point. Will seek \$\$
 - Working with Tanner on integrating the new lights component.
- 902102 - Multi-LRAUV Simulation Environment
 - Finally got the sim running on two machines here. Will test with Yanwu next.
- 902106 - Niobicon-Based AUV Docking Development
 - Lots of work with Michael and Rob to adjust docking algorithms in sim the past two weeks. Both now have source code access and have been contributing to the current release.
 - More interaction with AllMotion on their stepper.
 - Integrated the new docking arm stepper controller
 - Deployed Tethys from the beach for docking tests today.
- Overhead
 - More travel receipts :(
- Out of Office
 - 11/21 - 11/25 (MST)
 - 12/28-30 (PST)
- Denis Klimov
 - 902004 - Planktivore
 - We have a conceptual design of key components for Aquavore / Fluume adaptation: (1) Aquarium designed to transit water flow from round water pipe to rectangular optical section, allowing access to the flow structure from the water free surface; (2) Wide version of Aquavore Base supporting the aquarium; (3) Lifting assembly holding the Aquavore Base and Aquarium, allowing vertical adjustment under load.
 - Currently, finalizing parts, detailing drawings, and placing orders
- Eric Martin
 - 901101 - Seafloor Mapping
 - Bench testing refactored power can, working through wiring and power issues.
 - 901206 - Coastal Profiling Float Transition to Science Applications
 - Sleep on anchor testing
 - 901911 - ROVVR
 - Tests of recording using M3RS
 - 902012 - Telepresence on MBARI Research Vessels
 - Paper Writing for CSCW
 - 902204 - Scalable Marine Robotics Foundations
 - Working with Boxfish to resolve issues with the pcb assemblies. They are sending a new one out.
 - REE hiring Committee
 - Working on end of year fund commitments.
 - Overhead
 - SEE hiring committee
 - Minirov job description review
- Thom Maughan

- Out of Office
 - Nov. 14 - 16 Colorado
 - Dec 22 - 28 Colorado
- Mike McCann
 - 901221 - Midwater Time Series
 - Added
 - 901910 - Plankton Taxonomic Groups from AUVs
 - Fine-tuned loading of [stogs_mb_diamonds](#) based on title metadata
 - Per Rob's request added seabird25p_beam_transmittance processing to i2map pipeline
 - Took measurements of nose cone sensor offsets from tail cone pressure sensor and will be adding them to the processing to see how that improves quality
 - Overhead
 - Met with Video Lab folks to explore ways to fix problems with Expd's annotations web page
 - Failing to complete my work on new web site M1 data pages
 - Out of Office
 - 11/21-11/23: Vacation
- Rob McEwen
- Paul McGill
 - 901618 - Pelagic-Benthic Coupling and the Carbon Cycle
 - Got Squirty shipment ready to go to New Zealand but plans changed and now we'll reassemble sed trap in high bay
 - Found some errors in Laser Measure calibration but total error is still too large—the search continues
 - Serviced all beacons from last cruise by removing batteries, cleaning, repairing labels, and testing
 - 901904 - Deep-Sea Coral-Sponge Community Observatory
 - Deployed Coral Macro Cam on Sur Ridge from Carson on Thu
 - Working on method to focus lens remotely with servo on Raspberry Pi
 - Out of Office
 - Out on Tue due to possible COVID exposure on Carson
- Tom O'Reilly
 - 300082 - DMO Support - Wave Glider
 - Set up, tested and ran autonomous acoustic tracking of Spray glider by Wave Glider 'hot spot' for Takeshita's PIE coordinated sampling experiment
 - 901101 - Seafloor Mapping
 - Implemented prototype 'grid viewer' C++ application to visualize sonar bathymetry data in any of many sonar formats supported by MB-System. This prototype demonstrates how many existing MB-System 'C' functions can be integrated with a more modern graphical user interface environment.
 - 901513 - Targeted Sampling by Autonomous Underwater Vehicles
 - Worked with Rueda and Wahl to test autonomous front-tracking application on our new SMC-2 Wave Glider computer, integrated with Wave Glider 'Tiny' on the MBARI dock; verified that the application is able to issue navigation commands and alarm messages to Tiny's CCU, and that messages are propagated through the Wave Glider network and displayed on WGMS.
 - 901902 - Unoccupied Aerial Vehicles for Science, Operations, and Outreach
 - Processing multispectral camera data acquired offshore of MBARI with Trinity VTOL drone (piloted by our NOAA collaborator JC Clark). The RedEdge-MX camera acquires images in ten spectral bands ranging from visible to near-infrared, optimized for chlorophyll detection. These same bands are acquired by satellite-borne sensors (VIIRS, MODIS, Sentinel). This flight was

staged from MBARI's beach and also allowed us to determine that the drone can be kept in naked-eye visual sight out to a distance of ~1000 meters.

- Mike Risi
 - Out of Office
 - May 5 - vacation
 - May 9-10 - vacation
 - June 2-8 - OI cruise
 - June 10-14 - vacation
 - June 20-22 - vacation
 - July 19-20 - vacation
 - August 8-9 - out of office
 - Out of office most Fridays
- Paul Roberts
 - Out of Office
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- Brent Roman
- Carlos Rueda
 - 901513 - Targeted Sampling by Autonomous Underwater Vehicles
 - Possibly one more chance for testing on the SMC2 by the end of the month. Thanks Chris W.
 - 902005 - VARS Annotation Assistance
 - More progress with ReID training using our image data. On our "crops256" dataset of 10553 images, obtaining mAP 81.2% (30 epochs) with the 'osnet_x1_0' model. Now trying some other models for comparison.
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Dash is now [4.22.5](#).
 - Overhead
 - IE meeting
 - Tech exploration ([surrealdb](#), [Rust/C](#),)
 - Danna Staaf Seminar
 - Out of Office
 - Nov 11–14, 23–30, Dec 8–9, 21–29: vacation; Early January (tentative): vacation.
- Karen Salamy
- Brian Schlining
 - 500055 - VARS, M3/RS, DSG
 - Usual support tasks
 - Iron Mountain video import
 - [Integrating ML into VARS](#).
 - Removing most disk IO for framecapture to [speed up 4k framegrabs](#).
 - Working on handling bounding box/localization rescaling for proxy videos with different sizes than master/mezzanine.
 - 902005 - VARS Annotation Assistance
 - Continuing to work with Paul Rogers on new video player
 - Overhead
 - Continuing investigations into the University of Hawaii's annotation bug.
- Alana Sherman
 - Out of Office
 - Taking friday the 11th as a vacation day