

Engineering Weekly Report 10/17/2024 - 10/24/2024

<https://docs.mbari.org/internal/projects/Engineering/Weeklies/2024/>

Executive Council Notes

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Individual Activities

- Michael Anderson
- Kevin Barnard
 - 500055 - VARS, M3/RS, DSG
 - Began investigating issue in ultralytics BoTSORT tracker code encountering non-positive-definite covariance matrix in Kalman filter
 - Ran detection & tracking with MBARI 452k YOLOv8 model, packaged and loaded tracks from V4423 and V4430 into VARS
 - Ran detection & tracking on D1460 with MBARI 452k YOLOv8
 - 702108 - Deployable AI
 - Tested RL agent on MiniROV Oct 22, 2024
 - Ran successful online RL training at sea
 - 901809 - Deep Sea Bioinspiration
 - Attended 5th Marine Imaging Workshop Oct 7, 2024 – Oct 11, 2024
 - 902002 - FathomNet
 - Presented interactive sessions on FathomNet Database at Marine Imaging Workshop
 - 902204 - Scalable Robotics
 - Implemented several features in Mola Routing System (MolaRS)
 - Overhead
 - Led MBARI tours for Marine Imaging Workshop folks
 - Out of Office
 - Monday and Wednesday mornings before 9am: physical therapy until Dec 15, 2024
 - Out of office Oct 25, 2024
- Francois Cazenave
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - PTO repair
 - Heave cone galvanizing
 - Tether order
 - 902106 - Niobicon-Based AUV Docking Development
 - Photosensor housing assembly and test
 - Shock proof elevators
- Danelle Cline
 - Out of Office
 - Oct 8-11 - 5th Marine Imaging Workshop in Monterey
- Duane Edgington
 - Out of Office
 - Oct 21 - Nov 8, 2024. Vacation UTC+1
 - Dec 8 - Dec 17, 2024. [Neurips](#) Conference. Vancouver, BC.

- Jon Erickson
- Kevin Gomes
 - 200105 - Core Navigation - MDUC
 - Shifting to planning for roll out of new system on Carson since Packard delayed
 - Built repo for Carson code and planning refactor of simulators/new machines
 - 300079 - DMO Support - RV Rachel Carson
 - ArcMapNav development - has to be completely rewritten as too much has changed since the ArcObject days.
 - 706008 - READI-Net
 - Able to get SD card images building again and set up new RockPi with updated commands for ESP Sampler.
 - Documentation site built and updated with detailed instructions on all this.
 - Overhead
 - Management stuff
 - Budget stuff
 - Out of Office
 - Nov 18-22: Vacation/Remote Work
- Andy Hamilton
- Kent Headley
 - 901101 - Seafloor Mapping
 - fixed several issues with TRN code to support coordinate transformation via different libraries in MB-System. The change was motivated by the need to use local transverse mercator (LTM) projections for Axial surveys, rather than UTM. Dave determined that UTM introduces errors that are proportional to the distance from the UTM origin. Using LTM reduces these errors significantly by establishing the origin near the survey site.
 - 902204 - Scalable Robotics
 - Added support for Oculus Simple Fire Message ver 2 (OSFMv2), and use of extended sonar configuration settings that may provide better range resolution, making the images perform better for SLAM.
 - Tank testing Oculus sonar using Mola ROV
 - Prepping for Rachel Carson/MiniROV cruise (will collect sonar data set for SLAM),
 - Overhead
 - hiring process planning
 - misc admin
- Rich Henthorn
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Shore-side processing to collada_u
 - nav440
 - 902305 - Event Detection Using the Sedimentation Event Sensor
 - Post mission analysis of energy usage
 - 902405 - Precision Control Technologies
 - TRN testing and install on pontus and tethys
 - Overhead
 - Rover export
 - Out of Office
 - Oct 21 - 25: This week WFH, phone, email, zoom, slack, vpn, the whole shebang.
- Akshay Hinduja
 - 902204 - Scalable Robotics
 - Finish up lcm messages for metadata for Norbit python driver
 - Prepare for cruise 10/28

- Update Blue boat driver to latest version
 - 902101 - LRAUV Technology Development
 - Finished setup of Irauv sim on Omega-omen, dive deeper into ros message playback
- Brett Hobson
- Irene Hu
 - 901217 - Chemical Sensors
 - Tiva1290 module: finished schematic, working with Jose on layout
 - Mini ISUS baseboard: mostly done with schematic
 - MSC3 baseboard: Troubleshooting 12V regulator continues with help of E2E
 - MSC3 baseboard: current measurements for testing ideal diodes for hib power were influenced by noise of nearby PSU... need to redo
 - 901904 - Deep-Sea Coral-Sponge Community Observatory
 - White balance analysis
 - Starting to try correcting images for white balance
 - 902305 - Event Detection Using the Sedimentation Event Sensor
 - Weekly meeting
 - Overhead
 - Rec com BBQ 10/9/24
- Scott Jensen
 - 706008 - READI-Net
 - Completed checkout of new fido control pcb.
 - Working on integrating control pcb into instrument
 - Clamp problems and finding a solution
 - Puck counter troubles measuring top of stack
 - 901205 - ESP SURF Center
 - MCloud instrument and installation retrieved
 - Out of Office
 - October 7-9
- Brent Jones
 - Out of Office
 - 2 sick days
- Chad Keycy
 - Out of Office
 - Out of office on Fridays
- Brian Kieft
 - Out of Office
 - 10/23-29 (MST)
 - 11/06-12 (CST)
 - 11/15-12/2 (PST)
- Denis Klimov
- Eric Martin
 - 901101 - Seafloor Mapping
 - Presented energy findings to Gene, feature done.
 - 902204 - Scalable Robotics
 - Blueboat final planning
 - MiniROV Prep
 - New Boxfish Checkout
 - Board slides
 - Maldives planning

- Overhead
 - At NOAA Exploration Forum last week in Boston
- Out of Office
 - Sick leave for child doc appts tuesday and wednesday.
- Thom Maughan
 - 300083 - DMO Support - LRAUV
 - Backplane hardware review with Duane, Varsha and Erik.
 - Working on port expander i2c driver for exercising charge current control
 - Various meetings
 - 901217 - Chemical Sensors
 - Major milestone achieved. Both Nitrate and pH drivers are working and an MSC3 is available that can run tests and calibrations. We still have a ways to go on many small details and are changing to the Tiva 1290 processor.
 - Working with the contractor who is improving the robustness of the i2c driver on Tiva 1290 and working on the NAND flash driver. Shipped a 123g module and baseboard.
 - 902004 - Planktivore
 - Ahi was deployed on Monday Oct 21 for the Synchro Windfarm study. So far so good on the mission though we are seeing battery stick errors that shouldn't be happening with the way we have Ahi's switches set.
 - Weekly meeting
 - Out of Office
 - Oct 24 two weeks vacation Colorado.
- Mike McCann
 - 901009 - CANON
 - Helping Chris P. with the Parquet data export from STOQS
 - 902403 - Expedition DB Modern
 - Submitted project update slides for board meeting
 - Implemented most of the Postcruise functionality outlined in [Issue 12](#)
 - Added email capability to be used for Postcruise and Precruise entry in EXPD
 - Overhead
 - Submitted IS request for elvis replacement with an Ubuntu VM – this is a big job
 - At Matt's request cleaned up internal calendar of rescheduled R/V *David Packard* days
 - Out of Office
 - 14-19 November 2024: Vacation
- Rob McEwen
- Paul McGill
 - 901902 - Unoccupied Aerial Vehicles for Science, Operations and Outreach
 - Ordered new cables for UAV telemetry receiver
 - 902305 - Event Detection Using the Sedimentation Event Sensor
 - Presented results of latest fluorometry analysis to group
 - Working on new analysis resulting from discussion
 - 902401 - Geo-Sense
 - Made changes to system interconnect diagram and am fleshing out the details
 - Overhead
 - Have been analyzing seismic data from 1998 to establish background noise levels in Monterey Bay so we can set the gains of the OBSs for the upcoming deployment (actually charged to Charlie's project which is not listed here)
 - Out of Office
 - Medical appointment on Monday

- Enoch Nicholson
 - 706008 - READI-Net
 - Selected new lead for linear actuator
 - Troubleshooting valve issue
 - Selecting new valves
 - 901007 - Benthic Biology & Ecology
 - Building up isolated chambers
 - 901902 - Unoccupied Aerial Vehicles for Science, Operations and Outreach
 - Checkout flights for striver & trinity
 - Davenport survey
 - 902306 - SINKER
 - Battery Chassis mini-design review
 - Battery chassis test build
 - Out of Office
 - April 5-10 Vacation (Available via Slack & Email)
 - April 14-18 IEEE Oceans (Available via Slack & Email)
 - April 19-23 Vacation (Unavailable)
 - September 4-5 Vacation
 - September 19-24 Vacation (Unavailable)
- Tom O'Reilly
- Mike Risi
 - 200105 - Core Navigation - MDUC
 - Planning navproc upgrade for Rachel Carson with Kevin
 - Working on Rachel Carson processes for navproc upgrade
 - Meeting with Kevin and Drew to work out installation details of new Digi terminal servers for David Packard
 - 300062 - DMO Support - Doc Ricketts
 - Helped Karen M. troubleshoot some Accupositioner pan and tilt problems
 - 901101 - Seafloor Mapping
 - Continuing work on new LASS control system
 - Developed trigger board prototype firmware for the RP2350
 - Continuing to iterate on new trigger board design with Chad
 - Out of Office
 - Offsite on Tuesday and Friday
 - January 16 - January 19, 2024
 - February 22, 2024
 - March 4 - March 8, 2024 - vacation
 - April 24, 2024 - vacation
 - May 20 - May 24, 2024 - vacation
 - June 17 - June 18, 2024 - vacation
 - September 3 - September 9, 2024 - vacation
 - November 6- November 7, 2024 - vacation
 - November 26 - November 27, 2024 - vacation
 - December 30 - January 3, 2025 - vacation
- Paul Roberts
 - 702108 - Deployable AI
 - Field testing RL agent
 - Revisions to boxview software
 - 901809 - Deep Sea Bioinspiration
 - Prep for field work Oct 22,23

- 902204 - Scalable Robotics
 - Prep for field work Oct 28
- 902306 - SINKER
 - Test tank sinking column flow imaging
- Out of Office
 - Nov 25-29 Vacation
- Brent Roman
 - 706008 - READI-Net
 - Updated RockPi-S to use current version of u-boot
 - 901913 - Wet Wifi
 - Purchased and configured Linux based Wago controller
 - Fixed a Wago bug preventing hostname from being sent to DHCP servers
 - Arranged modem swap with Rachel Carson crew
 - Negotiated miniROV dive sharing with Giancarlo
 - DQ2320 - McCloud River Salmon
 - Terminated BGAN satellite service
- Carlos Rueda
- Karen Salamy
 - 200103 - Core CTD Data - MDUC
 - Quick updates to the ROV CTD spreadsheet this week.
 - 300057 - Mooring Maintenance
 - Weekly data download maintenance. Watching several of the intermittent OA1 and OA2 download failures. I am not sure of the actual source of the problem but they do catch up again when finally connected.
 - 901101 - Seafloor Mapping
 - Began looking into various update requests from Jenny.
 - 902101 - LRAUV Technology Development
 - Continue hashing out Modals in Dash5
 - Overhead
 - Watching some tutorials for React.
 - Helped with some pre-cruise support requests.
 - Out of Office
 - US React Summit Conference: November 19-24, 2024, NYC.
 - Vacation: Friday, Oct 25, 2024 - Having another shoulder procedure and will be out the whole day.
 - On-campus 3 days/week (T, W, TH).
- Brian Schlining
 - 500055 - VARS, M3/RS, DSG
 - [Added an endpoint to annosaurus to support ad-hoc queries](#). This should remove the need for applications, like vars-query or vars-gridview, to have direct access to the database.
 - Met with Paul Rogers to discuss the [new knowledgebase web app](#). We were still running into CORS issues. [I've fixed them](#) and added [a test page to verify CORS is working](#) in the future. I'll be setting up a server to run the latest snapshots of the kb app for the video lab to test later today.
 - Trying out prototypes for new VARS Query. Testing projects include: vanilla JS/HTML (no build tool), vanilla JS/HTML with Vite, and Vue 3.
 - [ML loads into VARS](#)
 - 902002 - FathomNet
 - The [worms-server now supports the species profile info](#) provided by [WoRMs](#)
 - [Test pull request for changes to FathomNet](#). Still some outstanding issues with it.

- 902404 - 5th Marine Imaging Workshop
 - Following with various attendees emails
- Out of Office
 - Oct 7-11 - 5th Marine Imaging Workshop in Monterey
 - Oct 14-15 - Out sick
- Alana Sherman
 - Out of Office
 - Took vacation day Friday
- George Stern
 - 902204 - Scalable Robotics
 - Began designing a 2nd laser fixture which would connect to the back end of mola
 - 902304 - Piscivore Cam
 - Incorporated first round of feedback into MOU
 - 902306 - SINKER
 - Identified ways to make the battery interface board modular but a group meeting uncovered additional mechanical risks which might impact the design
 - 706008 - (READI-net)
 - Tested the re-tuned antenna PWB - it works
 - Discovered china is very competitive on cost but lead time to get ICs is prohibitive. Identified a few additional low cost fabs but Indtec remains competitive.
- Justin Tucker
 - 300078 - DMO Support - AUV
 - Completed a successful 6000m pressure test on the INS housing at DSPL.
 - 902010 - Mesopelagic LRAUV
 - Preliminary DVL housing drawings being reviewed
- Johann Voigtlander
 - Out of Office
 - April 16th - May 7th Germany CSEM
 - May 8th - May 12th Vacation