

Engineering Weekly Report 9/7/2023 - 9/14/2023

<https://docs.mbari.org/internal/projects/Engineering/Weeklies/2023/>

Executive Council Notes

- Kevin Gomes gave an invited talk to the Monterey Data Conference in Monterey, CA. From the conference website: “The Monterey Data Conference is an annual invitation-only meeting in Monterey which brings together researchers from DOE national laboratories, facilities, universities, and industry to showcase and discuss the latest advances and open challenges in scientific data analysis and computing.” For more information visit the site at: <https://www.montereydataconference.org/>

Individual Activities

- Michael Anderson
- Kevin Barnard
 - 500055 - VARS, M3/RS, DSG
 - Resolved question of off-image bounding boxes in VARS
 - 901809 - Deep Sea Bioinspiration
 - Submitted DeepSTARia to OSM
 - 902204 - Scalable Robotics
 - Solved issue with invalid TF2 transforms and failing initial guess for RTAB-Map SLAM visual odometry
 - DQ2209 - Ocean AI 2
 - Set up CI/CD semantic versioning and release for fathomnet-py
 - Tacked several fathomnet-py issues
 - Met with Open World Object Detection folks
 - Discussed LLM integration for FathomNet querying via natural language
- Francois Cazenave
 - 902106 - Niobicon-Based AUV Docking Development
 - Deployment preparations
 - Out of Office
 - 3 days of vacation
- Danelle Cline
 - Out of Office
 - SoundCoop Workshop, Boulder, CO October 24-25 2023
- Duane Edgington
 - 500055 - VARS, M3/RS, DSG
 - Continued testing of enhancements to deepsea-ai
 - 901902 - Unoccupied Aerial Vehicles for Science, Operations, and Outreach
 - Team is submitting an abstract to OSM 2024.
 - Overhead
 - Preparation for virtual conference on Generative AI
 - Out of Office
 - Oct 11-13 2023. virtual conference on Generative AI. PDT (UTC-7)
 - Oct 16-18 2023. Pytorch conference. SFO (in person). PDT (UTC-7)

- Jon Erickson
- Kevin Gomes
 - Out of Office
 - Aug 22-24: Monterey Data Conference, Monterey, CA
 - Aug 28-Sep 12: Vacation
- Andy Hamilton
- Kent Headley
 - 500055 - VARS, M3/RS, DSG
 - Tested (w/ Brian S) and merged changes for libbmagic Linux build and SDK update
 - 600034 - Precision Control Technologies for ROVs and AUVs
 - support Rob on simulator cleanup
 - 901101 - Seafloor Mapping
 - planning for October cruise (ROV TRN using LASS)
 - 902204 - Scalable Robotics
 - planning for October cruise (sonar data for SLAM, imaging sonar)
 - 902302 - DEI
 - completed Raben survey
 - Overhead
 - hosted Cawthron visitors (Paul Barter, Chris Cornelisen, Shaun Graham)
 - updating SE-EAD job description and writing screening questions
 - AOSE interview
 - Resource balancing (last week)
 - Castroville cleanout (check for CIMT parts)
 - Engineering meeting
- Rich Henthorn
 - 300078 - DMO Divisional Support - AUV
 - More dorado-auv-qnx modules ported to dorado-auv-linux
 - 600034 - Precision Control Technologies for ROVs and AUVs
 - Meet with Rock
 - 902305 - Event Detection using the Sedimentation Event Sensor
 - Met with Paul Devine of Teledyne Marine about our recent modem purchase
 - Offload latest data from SES on MARS, clear logs and restart mission
 - Overhead
 - Engineering Meeting
 - Out of Office
 - Oct 16 - 19: Remote work, PDT
- Brett Hobson
- Irene Hu
 - 901805 - Coastal Biogeochemical Sensing Program
 - Tank dunk test for AEC instrument
 - Visited Stanford to borrow ADV/Rinko; tested ADV
 - Tracking down updated Vector firmware
 - Massive scramble to order new 2-connector endbell for Vector; mapped out new cables, trying to expedite order
 - Helping w/ job description for new tech
 - 901904 - Deep-Sea Coral Community Observatory
 - Played with ImageJ
 - Convo w/ Paul and Steve re: next steps; ordered some Teflon
 - 902305 - Event Detection using the Sedimentation Event Sensor
 - Read Crissy's abstract

- Overhead
 - Engineering meeting
 - Helping George with SINKER cables
 - Completed DEI survey
- Out of Office
 - Sept 4-8: vacation
- Scott Jensen
 - Out of Office
 - Vacation Aug 28- sept 1
- Brent Jones
 - Out of Office
 - Sick leave
- Chad Keczy
 - Out of Office
 - Out of office on Fridays
- Brian Kieft
 - Out of Office
 - 09/18-09/21 (EDT)
 - 09/25 - 09/29 (EDT)
- Denis Klimov
- Eric Martin
 - 901101 - Seafloor Mapping
 - Parosci Driver
 - Kearfott Driver
 - Interface can test & close
 - Tank testing next week
 - 901206 - Coastal Profiling Float
 - On hold for data analysis
 - 901911 - ROVVR
 - HMC clinic meetings
 - Material prep for HMC
 - 902012 - Telepresence
 - Paper writing
 - 902204 - Scalable Robotics
 - MiniROV Sled in build
 -
- Thom Maughan
 - 300083 - DMO Divisional Support - LRAUV
 - Meeting with Erik, discussions on test plan
 - Implementing additional smbus routines
 - 901009 - CANON
 - Meeting with Neil to go over backup and options. After working thru various scenarios, decided best course of action.
 - One on one discussions with oceanomics server users.
 - 901805 - Coastal Biogeochemical Sensing Program
 - Implementing ymodem import of calibration coefficients.
 - 902004 - Planktivore
 - Finalizing battery backup testing, troubleshooting a problem with one of the strobes. Found ROHS soldering problem on one board and a board that failed.
 - Overhead

- Abstract for Ocean Sciences
- Out of Office
 - Vacation Sep 27 - Oct 2 Ohio.
 - Vacation Oct 12 - 18 Nevada Eclipse
 - Jan 9 - 12 CES
 - Feb 18 - 23 OSM24
- Mike McCann
 - Out of Office
 - 12-20 September: Vacation
 - 29 September: Vacation
 - 9-11 October: Web3D 2023 Conference
- Rob McEwen
- Paul McGill
 - 701147 - MARS O&M IV
 - Reviewed all MARS LVPS schematics to look for errors
 - Held electrical design review with UW so they can get boards fabbed
 - 901902 - Unoccupied Aerial Vehicles for Science, Operations, and Outreach
 - Helped Duane E write abstract for OSM 2024
 - 901904 - Deep-Sea Coral Community Observatory
 - Helped Alana write abstract for OSM 2024
 - 902305 - Event Detection using the Sedimentation Event Sensor
 - Helped Crissy write abstract for OSM 2024
 - Overhead
 - Helped retire old equipment in Castroville storage
- Enoch Nicholson
 - 706008 - READI-net
 - Ordered components for a second instrument.
 - 902306 - SINKER
 - Finished Housing B drawing set.
 - Quoted fabrication with Scripps.
- Tom O'Reilly
- Mike Risi
 - 200105 - Core Navigation Data - MDUC
 - Converted more processes to the Navproc Framework.
 - Developed a 4K lap-box simulator for navproc process development and testing of viewing system changes.
 - 300062 - DMO Divisional Support - Doc Ricketts
 - Started libVISCA lite for ROS Accuposition pan and tilts.
 - Looking into control protocol for new down looking camera.
 - 901101 - Seafloor Mapping
 - Worked with Chad on in-system bring up of Trigger Board 2.0 and test.
 - Updated Trigger board GUI to accommodate new relays and trigger pulse output.
 - Misc. debugging for LASS Trigger Board 2.0 firmware and update to calibration for environmental sensors.
 - 902204 - Scalable Robotics
 - Working on synchronizing GigE stereo cameras using IEEE 1588 protocol.
 - Out of Office
 - Out of office on Fridays
 - May 30 - June 6
 - August 21

- September 5 - September 7
- Paul Roberts
 - 901809 - Deep Sea Bioinspiration
 - Minions camera support
 - 901904.99 - Corral Camera System
 - preparing for ROV camera design review
 - 902001 - Ventata 4k camera
 - Laser alignment testing
 - 902004 - Planktivore
 - preparing for LRAUV deployment
 - 902204 - Scalable Robotics
 - HSI AI cam design
 - PoE can assembly
 - FLIR camera driver support
 - 902306 - SINKER
 - finalization production for Ti housings
 - sediment camera optics and mounting
- Brent Roman
 - 901205 - ESP SURF Center
 - Rewrote lowest-level byte oriented Ruby numeric conversions in 'C'
 - Rewrote lowest-level byte oriented serial port input parsing in 'C'
 - Removed Ruby support for extinct Dwarf firmware.
 - Ruby ESP app can (finally!) log servo motor status at their full 64hz sample rate!

Carlos Rueda

- Out of Office
 - Oct 2–4: [QCon](#) (tentative)
 - Nov 20–22: vacation

- Karen Salamy

I continue to work on fine-tuning various functionality of the LRAUV Dash5 UI for the team.

- Out of Office
 - On-campus 3 days/week (**T, W, TH**).
 - On vacation Tuesday of this week.

- Brian Schlining

- 500055 - VARS, M3/RS, DSG
 - Completed audit of existing and new data embargoes. Applied the embargoes to [FathomNet](#) as well as the external [DSG](#) and [KB](#) and cleaned up any [escapees](#).
 - Starting working with Paul Rogers to address issues with [video frame alignment](#) in Sharktopoda. This is needed for the video lab's machine learning/human-in-the-loop workflows.
 - Ran a sanity check with Kent Headley's latest changes to [libbmagic](#) against the 4k camera on the RC.
- DQ2209 - Ocean AI 2
 - Upgraded the fathomnet-rest-api from [Micronaut 3 to 4](#).
 - Deleting some types of data was failing (not cascading properly). This is fixed now.
 - Created a copy of a subset of the FathomNet database, with non-public info removed, for Angus Forbes, a researcher at Purdue. His team is going to look at using LLMs to generate SQL from natural language queries.
 - Working on functional requirements for the FathomNet/MSU/NOAA [image archiving pipeline](#).
 - Modified the [vars-to-fathomnet](#) import pipeline to address a number of [data sync challenges](#). Canvassed the video lab to verify that the current crop of localizations in VARS are ready for export to FathomNet. I'll be running the export today.

- Overhead
 - Sat in for Kevin G for the phase 2 resource leveling.
- Out of Office
 - Sep 20 - Oct 13 - Working remotely
- Alana Sherman
 - 901904 - Deep-Sea Coral Community Observatory
 - Wrote abstract for ASLO on camera tripods
 - 902208 - MiniROV Support
 - Testing out the rewired e-pod have narrowed it down to two issues:
 - Heading sensor not sending data
 - Cwdm fiber needs reterminating
 - Overhead
 - Hiring!! Last week was 5 zooms for DMO director, this week 2 in person interviews for ASOE and MiniROV
 - Out of Office
 -
- George Stern