

WeeklyReport

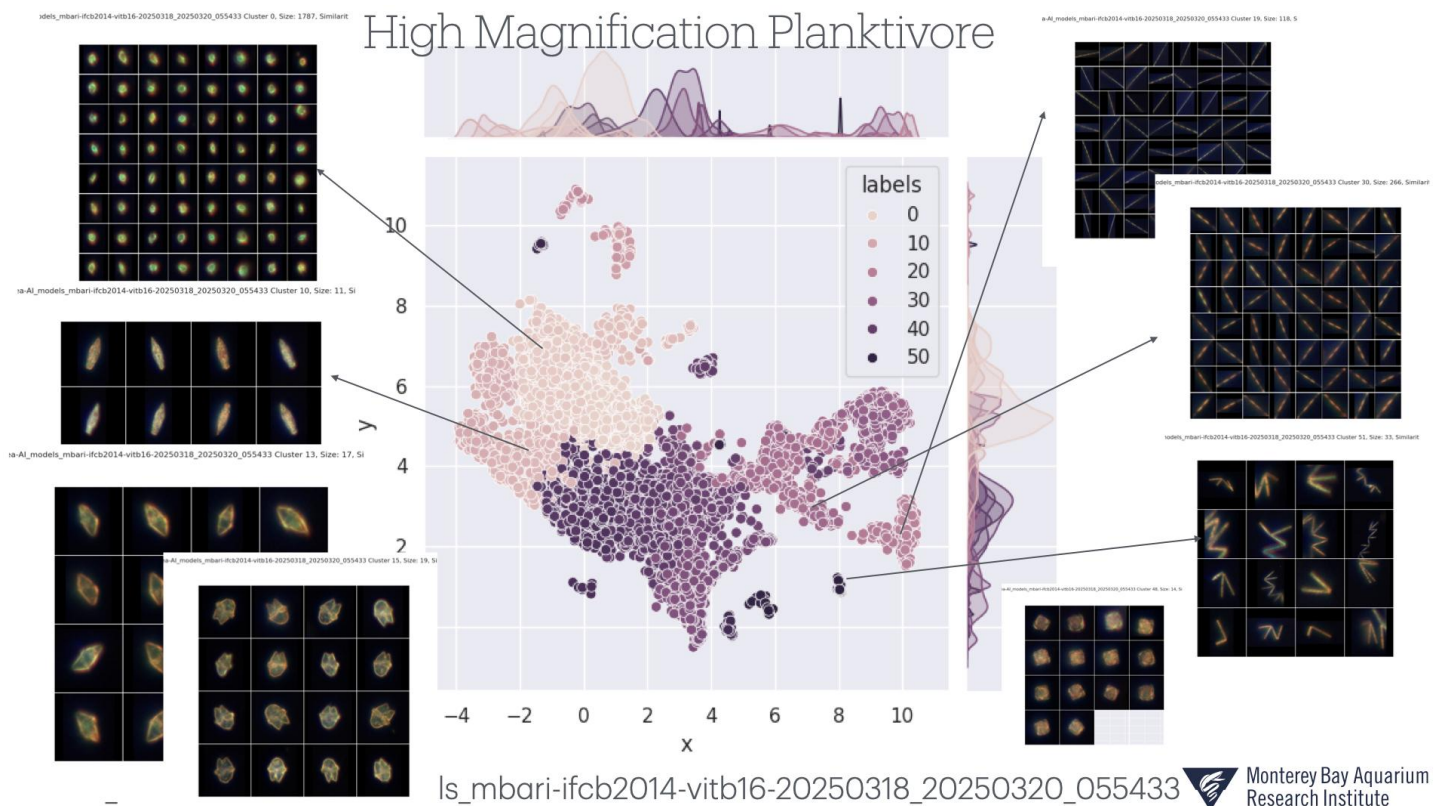
Engineering Weekly Report 4/3/2025 - 4/10/2025

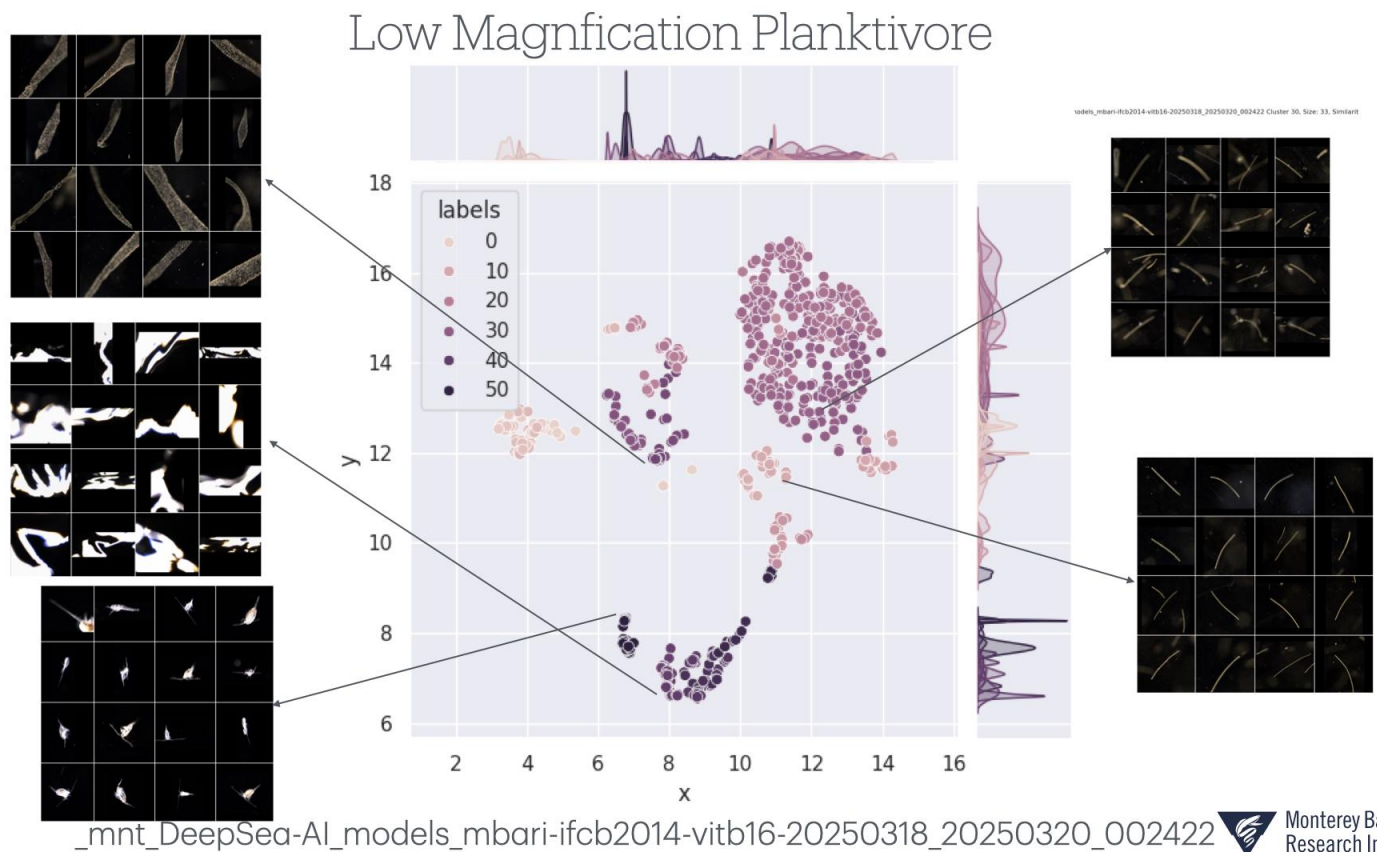
<https://docs.mbari.org/internal/projects/Engineering/Weeklies/2025/>

Executive Council Notes

- Data from the Planktivore high and low magnification cameras was successfully clustered in preparation for training a classification model using MBARI GPUs. The teams are now working on labeling the clusters using the easy to use web annotation tool on mantis.shore.mbari.org. Ciliates, Dinoflagellates, Prorocentrum, Akashiwo, Gyrodinium, Pseudo-nitzschia, Chaetoceros, Thalassionema, Copepods, and more were extracted into meaningful clusters to assist with creating labels to build an accurate classification model. The machine learning methods were similar to those used on other imaging systems, including a SONY camera on our Trinity drone, the ISIIS plankton imager, ROV and i2MAP imaging systems. Classification [balanced accuracy](#) ranges from .81 to .97 using these clusters which is very good! We have made improvements to the machine learning methods through each application and are excited to see the improvements yield good results across imaging platforms.

Interested in learning how this could help with your data? Please contact any of the team members: Fernanda Lecaros Saavedra, Colleen Durkin, Rob Sherlock, Steve Haddock, Tom O'Reilly, Duane Edgington or Danelle Cline.





Individual Activities

- Michael Anderson
- Kevin Barnard
 - 901809 - Deep Sea Bioinspiration
 - Ran MBARI-315k-YOLOv8 model on 2024/2025 Optim video
 - Preparing dataset for siphonophore model
 - 902002 - FathomNet
 - Prepared & ran FathomNet workshop
 - Facilitating submissions to FathomNet Database
 - 902204 - Scalable Robotics
 - Implemented LASS SLAM for upcoming May deployments
 - Out of Office
 - Apr 16, 2025 - Apr 17, 2025 – vacation
 - May 8, 2025 - May 9, 2025 – vacation
 - May 22, 2025 - May 23, 2025 – vacation
 - Jun 3, 2025 - Jun 10, 2025 – vacation
 - Jun 11, 2025 - Jun 15, 2025 – CVPR
 - Aug 7, 2025 – vacation
 - Aug 11, 2025 - Aug 12, 2025 – vacation
- Francois Cazenave
- Danelle Cline
- Duane Edgington
 - 901502 - Ocean Soundscape

- Continued work evaluating performance of google kaggle multi-species whale model against MARS Pacific Ocean Sound Recordings
- 901902 - Unoccupied Aerial Vehicles for Science, Operations and Outreach
 - Team meeting
- Overhead
 - Clean up of AWS [548531997526](#)
- Jon Erickson
- Kevin Gomes
 - 200105 - Core Navigation - MDUC
 - Expanding capabilities of navproc-api by adding NATS messaging which could serve to replace both MQTT and Redis if it proves robust
- Andy Hamilton
- Kent Headley
 - 901101 - Seafloor Mapping
 - looking at issue in mbtr
 - 902204 - Scalable Robotics
 - project meeting
 - 902405 - Precision Control Technologies
 - testing rov TRN updates
 - added feature to TRN plot utility
 - Overhead
 - hiring: committee meeting
 - misc admin, seminars, directors dialog, etc
 - adventures in python: wrote utility to generate real-time multi-channel strip charts from UDP CSV data; works, but a bit slower than I'd hoped.
 - Out of Office
 - July 14-31 (vacation)
- Rich Henthorn
 - 902405 - Precision Control Technologies
 - TRN documentation
 - Out of Office
 - Apr 21 - May 1: WFH and FLA
- Akshay Hinduja
 - 902204 - Scalable Robotics
 - Finish up changes to norbit driver for binary read and write
 - Work on s7k translator
 - Start MBES localization module work. Met with Sebastian to discuss action plan steps on 04/09/25
 - Out of Office
 - Tue 04/08/2025- Sick leave
- Brett Hobson
- Irene Hu
 - 901217 - Chemical Sensors
 - Chasing through problem with MSC3 baseboard powered at 8V with current limit (battery end of life behavior). Current draw from starting up deuterium lamp affects system in a more fatal way than it did for MSC1.
 - 901805 - Coastal Biogeochemical Sensing Program
 - Latest issues with mini ISUS prototype traced to using unprogrammed spec boards in assembly. Fixed this and finally got a scan! (Scan has a blip)

- Worked through process for programming spec digital boards. Worked with Ben a little on MSC3 code he needs for tuning analog boards.
 - Out of Office
 - April 10: dr appt, WFH
- Scott Jensen
 - 808015 - Monitoring McCloud
 - Continued planning for the power stations
 - 901205 - ESP SURF Center
 - Testing of SURF center assets to make sure they are still functional
 - Out of Office
 - Funeral
- Brent Jones
 - 901502 - Ocean Soundscape
 - Prepping Wire Walker for deployment next week
 - 901805 - Coastal Biogeochemical Sensing Program
 - Working on mechanical design for NanoFET2
 - 902004 - Planktivore
 - Prepped Ahi for MBTS run
- Chad Key
 - Out of Office
 - Out of office on Fridays
- Brian Kieft
 - Out of Office
 - 4/9-19 (MDT)
 - 6/16-24 TBD (UTC+2)
 - 9/15-30 (UTC+2)
- Denis Klimov
 - 300083 - DMO Support - LRAUV
 - We have a batch of antennas that have various problems and needed careful inspection and testing, some turned out flooded, and some of new build have faulty cables; revising testing procedure (with Varsha Senthil)
 - 702106 - CeNCOOS
 - We are getting ready to deploy IFCB on Power Buoy. The instrument had been kept on the winter schedule in the lab and operating so far.
 - 901809 - Deep Sea Bioinspiration
 - 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.
 - 902101 - LRAUV Technology Development
 - We had an issue with one of the PAR sensors; it turned out the power capacitor had a problem, it was drawing extra current; once replaced, the board is working now.
 - Updating procedure of polishing PAR housings, and also ordered new metric O-rings for the front of the sensor.
 - 902401 - Geo-Sense
 - Looking into setting up a laser/ optics testing area in A282a; in the meantime, Sintela DAS and all Geo-Sense related items had been moved from Laser Lab A283 into the lab A282.
 - Overhead
 - My office had been moved to building G107; it is nice, but still much to be organized.
- Eric Martin
 - Out of Office

- Traveling 3/30-3/31 to Colorado for lidar FAT
- Thom Maughan
 - 300083 - DMO Support - LRAUV
 - Weekly meeting.
 - Met with Cole and we'll coordinate and share board bringup. ASO group is quite busy and my time is heavily burdened by another project.
 - 901217 - Chemical Sensors
 - Nitrate calc has been quite an ordeal and working with Jacob and Josh with assist from Irene we're very close. Matrices and numerical recipes calcs have all be validated and several issues found and fixed.
 - Working with Jess on test vector output - finding and fixing
 - Identified a problem running at 8.0v, characterized it and Irene is working it.
 - Working on schedule estimate and aiming to provide that to the two PI's on April 10.
 - 902004 - Planktivore
 - Weekly Meeting
 - MBTS was this week, Synchro next week. Brent and Paul are supporting the deployments.
 - Out of Office
 - TBD, Trip to UW after MSC3 passes our test plan
- Mike McCann
 - 901009 - CANON
 - Processed Dorado Gulper mission 2025.098.01
 - 901101 - Seafloor Mapping
 - Further discussions about adding OGC 3DTiles support to X3DOM
 - 902403 - Expedition DB Modern
 - Building continuous integration Docker stack and Django config for EXPD_NEXT
 - Had IS add the everyone read-only account to access EXPD_NEXT on foggy
 - Wrote [detailed comment](#) about trying to sort out all of the different databases we have
 - Out of Office
 - 8-9 May
 - 8-13 September - Web3D & Digital Heritage Conference
- Paul McGill
 - 902401 - Geo-Sense
 - Analyzing earthquakes in DAS data.
 - Overhead
 - Trying to repair GPS receiver for Charlie P's SeismoSands deployment
 - Out of Office
 - Medical appt on Mon morning
- Enoch Nicholson
- Tom O'Reilly
- Mike Risi
 - 200105 - Core Navigation - MDUC
 - Completed setup of navproc-rcsn spare machine
 - 300062 - DMO Support - Doc Ricketts
 - Working on test software for external control interface in preparation for May SMD visit
 - 902312 - Seafloor Processes
 - LASS AUV scoping meetings
 - Continuing work on new LASS control system
 - Starting to implement deployed LASS trigger board firmware
 - 902405 - Precision Control Technologies
 - Completed Ventana interface to midwater tracking control system

- Testing midwater tracking software with Paul Roberts
 - Preparing for midwater tracking cruise next
 - More UI development for stereo KCF tracker
- Out of Office
 - Offsite on Tuesday and Friday
 - March 3 - March 6, 2025 - vacation
 - June 2 - June 6, 2025 - vacation
- Paul Roberts
 - 702108 - Deployable AI
 - Galene 23 and 24 deployments
 - 901221 - Midwater Time Series
 - Testing 4k sdi/fiber converters
 - Testing possible coax 12G-SDI options
 - 902004 - Planktivore
 - MBTS deployment support
 - 902204 - Scalable Robotics
 - Concept design for HSI lighting
 - 902405 - Precision Control Technologies
 - Prep for april 15 deployment
- Brent Roman
- Carlos Rueda
- Karen Salamy
 - 300057 - Mooring Maintenance
 - Weekly maintenance and download checks
 - 902101 - LRAUV Technology Development
 - Large focus this week on Map updates for the Dash5.
 - Overhead
 - Several talks and repo support
 - Out of Office
 - Personal Bereavement April 9-14, 2025 - Family funeral
 - On-campus 3 days/week (**T, W, TH**). New OFFICE - G106.
- Brian Schlining
 - 500055 - VARS, M3/RS, DSG
 - Ongoing work with Neil to [migrate videos from titan to thalassa](#). Mezzanine and project files are all migrated. Working through the master files in batches. This is expected to continue for about 2 months.
 - Disabled video file registrations until the migration has been completed.
 - Misc changes for the videolab's ML import tools.
 - Updated Mini ROV computers before their arctic deployment. Fixed very broken docker installations. (due to a Docker bug)
 - Working on a new database dump of the VARS knowledgebase for the [m3-quickstart](#) project. (Basically, dump the public version of the KB, strip some info, convert from SQL Server to Postgresql)
 - Fixes to oni to support Pauls KB UI development
 - 901221 - Midwater Time Series
 - Investigating anomalies in transect volumes for a handful of 1999 ROV deployments.
 - 902002 - FathomNet
 - Bug fixes: [Fix issues with duplicate names in WoRMS](#), UI fixes to the [web site](#), UI fixes to the admin console
 - Worked with Joost for a [script](#) to load CMS bounding boxes into FathomNet.

- Updated database backups to be saved to Thalassa
 - Change CORS policies on the production server to be more development/testing friendly.
 - Fix some URLs as part of the restructuring of the fathomnet web sites.
 - Participating/presenting in FathomNet workshops.
- 902403 - Expedition DB Modern
 -
- Out of Office
 - Jun 2 - Vacation
 - Jul 21 - 24 - Vacation
 - Aug 18 - 21 - Vacation
- Alana Sherman
 - 902505 - 2025 Arctic Expedition
 - Packing and packing and packing
 - Out of Office
 - On vacation 4/10-4/14
- George Stern
 - 902208 - Mini ROV Operations
 - Began analyzing loads; there should be 60-80V of margin (plenty - alot) in the present design based on both analysis and measurements so perhaps something else is causing the problem?
 - 902304 - Piscivore Cam
 - Oclea portal/documentation review; looks like it is worth buying a kit.
 - 902306 - SINKER
 - Initial build of a battery can firmware build to support closed can charging
 - 902106 - Niobicon-Based AUV Docking Development
 - Reverse engineered PLC modem frontend and modified the development board to improve driver performance (increasing risk of thermal/transient induced failures); testing indicated we might now get performance all the way to end of the pole.
- Justin Tucker
 - Out of Office
 - Expected leave April 1st - 30th
- Johann Voigtlander
 - 902204 - Scalable Robotics
 - Cleaning up Atuncita wiring in miniROV control van
 - Routed SDI cable for additional monitors in control van
 - Investigating 4g/5g router installation on blueboat. Looking into zerotier option with Adriana
 - 902208 - Mini ROV Operations
 - Printed spare ice core holders for swing arm
 - Getting one made from resin for lower friction
 - Cleaned up cabling in control van
 - Debugged issue with 4DNAV opening up com ports used by vehicle
 - Made winch GUI smaller to fit on copilot screen
 - Verified a few cable assemblies' wiring to be potted
 - Tested out new gas funnel
 - Got a new minirov profile made on windows tablet
 - 902402 - CSEM
 - Built up space in control van for topside electronics
 - A large plug was installed in the control van for 208V 3-phase black winch connection
 - Purchased additional GPS loggers and spare parts for deploying 2 additional data loggers
 - Debugged GFCI issue on CSEM power supply - verified equipment safety
 - Built cable for topside voltage and current monitoring

- Helped out with ITAR/EAR classifications on CSEM equipment
- Installed power supply in AUV server rack
- Built up cable to connect 4th datalogger for time sync
- Out of Office
 - Dec 16th - Jan 10th - Vacation