

Kevin Barnard Sorted By Project

200105 - Core Navigation - MDUC

- Began scoping rewrite of procman-sheriff GUI (Week 2)

500055 - VARS, M3/RS, DSG

- Set up monitoring for M3 services: <http://rocinante.shore.mbari.org:3001/status/m3-prod> (Week 1)
- Finished implementation of token refresh mechanic (Week 2)
- Refactored VARS/M3 API client calls (Week 2)
- Finished implementation and testing of JWT refresh in VARS GridView (Week 3)
- Addressed issues with VARS GridView (Week 4)
 - Querying and downloading images dialogs → main window progress bar (Week 4)
 - Trashme files opening with “open video” button (Week 4)
- Support for VARS GridView issues (Week 5)
- Reworking m3-download logic to support VL for next training data download (Week 5)
- Investigated interruption in VARS services on (Week 13)
- Suggested potential approaches to rapid non-framegrabbed frame-level annotation → bounding box annotation workflow (Week 13)
- Continued implementing changes for digital frame grab tool to support VL (Week 15)
- Rewrote dfg-tool (Week 17)
- Rewrote dfg-tool extract and upload scripts – now testing (Week 18)
- Tweaked dfg-tool to allow for invalid imaged moments (Week 26)
- Designed and implemented ultralytics inference for local Docker and Amazon SageMaker Processing detection & tracking pipeline for new YOLOv8 models (Week 29)
- Packaged V4426 and V4430 MBARI 452k YOLOv8 tracking runs for ingest to VARS (Week 38)
- Began investigating issue in ultralytics BoTSORT tracker code encountering non-positive-definite covariance matrix in Kalman filter (Week 43)
- Ran detection & tracking with MBARI 452k YOLOv8 model, packaged and loaded tracks from V4423 and V4430 into VARS (Week 43)
- Ran detection & tracking on D1460 with MBARI 452k YOLOv8 (Week 43)
- Fixed issue with erroneous track reactivation in ultralytics causing tracking failures in some videos (Week 44)
- Ran detection & tracking on D1460 with MBARI 452k YOLOv8 model; packaged for VL review (Week 44)

701165 - OVAI Phase II

- Set up monitoring for OVAI services: <http://rocinante.shore.mbari.org:3001/status/ovai> (Week 1)
- Began design of FathomNet → CMS data sync process (Week 4)
- Spun up on Postgres + SQLAlchemy to support CMS development (Week 4)
- Gave Q1 FathomNet OVAI-wide product update (Week 6)
- Implemented CMS ROI generation algorithms for FathomVerse (Week 12)
- Working in CloudFront/S3 hosting for ROI images (Week 12)
- Completed FathomNet-CMS sync process (Week 12)
- Conducted 5 screening interviews for OVAI MLOps Research Engineer position (Week 13)
- Helped implement authentication & authorization in CMS API (Week 13)
- Implemented ROI cropping functions & endpoints in CMS API (Week 13)
- Completed FathomNet-CMS push process (Week 15)
- Implemented training play context generation for FathomVerse CMS (Week 16)
- Implemented training and expedition mode play context generation in cms-client (Week 17)
- Generated first set of play contexts for FathomVerse v1 launch (Week 17)
- Pulled together play contexts for FathomVerse (Week 18)
- Supported Laura Chrobak onboarding (Week 26)
- Began development of FathomVerse: Aquarium Explorer with contractor Imagine Studio (Week 38)
- Prepared content for FathomNet Marine Imaging Workshop interactive session (Week 38)

702108 - Deployable AI

- Began scoping work for Stonefish simulation of MiniROV (Week 2)
- Kickoff meeting (Week 4)
- Started working on MiniROV simulation; scoping body physics and thruster parameterization (Week 4)
- Exported core MiniROV STL from SolidWorks and converted to optimized OBJ mesh for hydrodynamic simulation (Week 5)
- Set up simulation environment for MiniROV (Week 5)
- Modeled MiniROV core body components and thrusters in Stonefish for RL training (Week 6)
- (Week 6)
- Tested RL agent on MiniROV (Week 43)
- Ran successful online RL training at sea (Week 43)
- Cruise : ran PID and new RL vehicle controllers with YOLOv5 DeepStream tracking pipeline; conducted online training of RL controller (Week 44)

702108.99 - 6-eye camera-compute mod

901809 - Deep Sea Bioinspiration

- Working through interactive review comments on DeepSTARia for Frontiers in Marine Science (Week 3)
- Worked on responses to reviewers for DeepSTARia paper (Week 4)
- Prepared DeepSTARia presentation for OSM (Week 6)
- Attended Ocean Sciences Meeting; presented on DeepSTARia work (DO31A-07) (Week 9)
- DeepSTARia paper accepted to Frontiers in Marine Science (Week 13)
- Gave feedback for DeepSTARia paper proofs (Week 13)
- Attended 5th Marine Imaging Workshop – (Week 43)
- Discussed FathomVerse ID backend and mobile object detection inference with Imagine dev team (Week 44)
- Made some tweaks to FathomVerse ID configuration schema (Week 44)

902002 - FathomNet

- Scheduled meetings for planning and kickoff (Week 2)
- Laid out tasks and timelines for 2024 prior to kickoff meeting (Week 3)
- Kickoff meeting (Week 4)
- Fixed minor issues with fathomnet-py docs and CI/CD GitHub actions (Week 4)
- Added support for fast WoRMS names API to fathomnet-py (Week 6)
- Implemented workaround in fathomnet-generate script for micronaut bug in fathomnet-rest-api (Week 6)
- Prioritized issues on community feedback GitHub repo (Week 9)
- Fixed WoRMS API client bug in fathomnet-py (Week 9)
- Planned FathomNet workshop on (Week 10)
- Reworked vars-kb-model-resolve to support FathomNet-WoRMS taxa API to support training of midwater and benthic supercategory object detectors (Week 10)
- Organized and prepared material for FathomNet workshop (Week 11)
- Hosted annual FathomNet workshop on (Week 12)
- Prepared seminar for CSUMB college of sciences (Week 15)
- Presented interactive sessions on FathomNet Database at Marine Imaging Workshop (Week 43)

902204 - Scalable Robotics

- Project kickoff: planning development tasks for 2024 (Week 3)
- Planned individual tasks and timeline for 2024 (Week 4)
- Calibrated stereo cameras for Falkor (too) imaging sled (Week 6)
- Presented MiniROV SLAM poster in place of Sebastián (Week 9)
- Wrote JPEG proxy process within lcm-websocket-server for Dial (Week 9)
- Debugging RTAB-Map visual SLAM on imaging sled for Falkor too cruise (Week 10)

- Started validation of GIM WP2 sonar SLAM (Week 10)
- Calibrated StereoPi cameras in first HSI camera on Falkor too imaging sled (Week 10)
- Supported GIM WP2 validation efforts (Week 11)
- Supported SLAM and camera calibration for Falkor too cruise (Week 11)
- Validating point cloud accumulation/management/matching software from GIM (Week 12)
- Investigated adding GIM collaborators to MBARI Docker Hub and alternative solutions (Week 12)
- Created repositories on mbari-org GitHub to host GIM code (Week 12)
- Validated GIM point cloud accumulator and point cloud manager (Week 13)
- Scoped development for Mola field deployment (Week 15)
 - Estimation/SLAM (Week 15)
 - State machine/mission execution (Week 15)
 - Path planning/mobility management (Week 15)
 - Logging (Week 15)
 - Status monitoring (Week 15)
- Migrated SLAM repositories from GIM GitLab to CoMPASLab GitHub org (Week 15)
- Continued validating GIM WP2 (Week 15)
- Started investigating BehaviorTree state machine library for Mola mission management (Week 16)
- Performed calibration of MOLA stereo cameras using new ChArUco board target (Week 21)
- Designed trajectory following system for MOLA (Week 21)
- Collected SLAM dataset (Week 21)
- Corrected bugs in OAK-D LCM camera driver (Week 21)
- Set up RTAB-Map SLAM for MOLA deployments (Week 21)
- Tested SLAM datasets on MOLA dive (Week 26)
- Tuned SLAM parameters and deployment configuration for MOLA (Week 26)
- Developed ROS2 service and action server semantics for LCM (Week 29)
- Ported lcm_action_server library to Python (Week 38)
- Implemented prototype control/navigation/mission servers as part of Mola Routing System (MolaRS) (Week 38)
- Began implementation of REST API for MolaRS (Week 38)
- Implemented prototype REST API for MolaRS mission submission and management (Week 39)
- Implemented several features in Mola Routing System (MolaRS) (Week 43)
- Cruise : ran SLAM at Sponge Ridge; collected data with Arctic sled configuration (Week 44)
- Ran stereo rectification for OakD cameras on Arctic MiniROV sled (Week 44)
- Implemented nav goal retrieval, nav pausing in MolaRS (Week 44)
- Created Dial deployment configuration for MolaRS testing on compaslabdev (Week 44)

Out of Office

- Vacation Jan 11, 2024 – Jan 15, 2024
- OSM Feb 18, 2024 – Feb 23, 2024
- Out sick Apr 2, 2024 – Apr 5, 2024
- Vacation Jul 5, 2024
- MBARI Open House comp day Jul 19, 2024
- Monday and Wednesday mornings before 9am: physical therapy until Dec 15, 2024
- Out of office Oct 25, 2024
- Maldives Nov 15, 2024 – Nov 29, 2024

Overhead

- Completed performance feedback training (Week 3)
- Attended CVPR 2024 in Seattle (Week 26)
- Led MBARI tours for Marine Imaging Workshop folks (Week 43)