

# Duane Edgington Sorted By Project

## 901103 - Biodiversity and Biooptics of Zooplankton

- Project discussion with Danelle. (Week 2)
- Project discussion with Danelle. (Week 4)

## 901502 - Ocean Soundscape

- Analyzing output of OrcAI model for MARS soundscape archive month of April 2018. Trying to resolve confusion of Orca sounds with sounds from Dolphins and Baleen whales. (Week 2)
- Team meeting Jan 14. (Week 3)
- Team meeting (Week 5)
- Explored confidence threshold on OrcAI model. A low setting (0.1) lets in a lot of false positives. The default setting of 0.5 seems about right. (Week 5)
- Met with Yanwu. Dolphin vs Orca confusion. (Week 6)
- Team meeting (Week 7)
- Team meeting (Week 9)
- Reading “Perch 2.0 transfers ‘whale’ to underwater tasks” Dec 2025 – supervised bioacoustics foundation model applied to marine mammal (orca) audio after few-shot transfer learning. Plan to test against MBARI MARS audio data (Week 10)
- Team meeting (Week 11)
- Exploring Perch 2.0-hoplite bioacoustics foundation model (Week 11)
- Orcas in the bay reported March 17. Did we hear them in the MARS pacific soundscape recordings? And if we did, can we tell which population of orcas are they, and can we guess why they are in the bay? (Week 12)
- Meeting with Yanwu on his efforts to separate orca and dolphin calls. (Week 12)
- Continued evaluation/exploration of perch 2.0 - hoplite applied to MBARI soundscape recordings. I am posed to do transfer learning using some of our orca and dolphin recordings harvested from earlier model investigation. (Week 13)
- Team meeting (Week 13)
- Team meeting (Week 14)
- Continuing investigation of perch2 - hoplite for agile modeling of orca / dolphin calls. (Week 14)
- Team meeting (Week 15)
- Reviewing update to OrcAI repository. Plan to update my clone and run tests. (Week 15)
- Running test of Amrit’s whalu Pacific Sound data fetch and run inference<< tool. Looking to integrate with Perch2.0 foundation model. (Week 15)

- Continuing evaluation of Perch-hoplite Perch2.0 model embeddings for few-shot transfer learning. (Week 16)
- Resampling 2018 April month of Pacific Sound data to 32kHz for Perch2.0 . Stored in [smb://thalassa.shore.mbari.org/PAM\\_Analysis/GoogleMultiSpeciesWhaleModel2/resampled\\_32kHz/2018/04/](smb://thalassa.shore.mbari.org/PAM_Analysis/GoogleMultiSpeciesWhaleModel2/resampled_32kHz/2018/04/) (Week 16)
- Completing abstract on orca call detection with ML for IEEE Oceans conference 2026 (Week 18)
- Identifying and collecting annotations / clips of orca and dolphin calls recorded in pacific ocean sound recordings. (Week 18)
- Ran job resampling 256 kHz audio recordings 2020 October to 24kHz, 32kHz, 48kHz as required by different models (Google multi-species whale, orcaI, Perch2.0) (Week 18)
- Plan to resample March 2026, March 2019, late December 2024 when pods of orcas were reported by California Killer Whale Project to see if models can detect their vocalizations. (Week 18)
- Processing November 2021 through Google whale-multispecies model, and through OrcAI model, mining for orca calls. (Week 19)
- Submitted abstract to IEEE Oceans 2026 conference (Week 19)
- Processed one month of PAM data through OrcAI model mining for orca and dolphin vocalizations. To correlate with sightings posted on California Killer Whale Project (Week 20)
- Continued work reviewing 10 minute sound segments flagged by OrcAI with many “orca” detects. (Week 21)
- Meet with John R. to review some of those sound segments – what are they? Orca? Humpback? Other?? (Week 21)
- Team meeting May 20. (Week 21)
- Working on porting perch2.0 hoplite to dgx spark system (Week 22)
- Team meeting (Week 22)
- Good progress on adapting google perch-hoplite to MARS PAM dataset. First trial running One selected day of data containing known Orca calls near completion. (Week 23)
- Ported google perch-hoplite to dgx spark system. (Week 23)
- Presented status at project team meeting. (Week 23)
- Plan team meeting on 2027 proposal June 4. (Week 23)
- Great progress and success doing agile modeling on Google perch2 model using perch-hoplite vector database system. Labeled ~200 examples of orca/not orca (roughly 50/50), trained 2 linear classifier models against embeddings from one day of data, and inference one day, with some 220 detects. Will screen detects in RavenPro to assess accuracy. (Week 24)
- Next steps – get embeddings from a month of data, expand the training set, and inference over multiple days. (Week 24)
- Proposal work (Week 25)
- Great progress in perch2 model and perch-hoplite framework project. Over the 4th holiday I ported perch2 from tensorflow to pure pytorch so I could run native

(and fast) on my NVIDIA DGX Spark systems. Great joy. Hard tedious work, but very successful. I hope to present at the Pytorch conference as a poster in October. (Week 28)

- Using “my” perch2 model and perch-hoplite agile modeling system (also ported to pure pytorch and python, no tensorflow), harvesting 5 second annotations of different sound sources, hunting for orcas. Getting great separation of different sounds within the perch2 embeddings (Week 28)
- Enhanced Gradio audio custom annotation tool to show a 30 second context window for each 5 second audio clip to be annotated, which is critical in annotating humpback calls (which go on and on) where a 5 second clip is easily confused with other species. Motivated by John’s comments while using my Gradio tool to annotate humpbacks (which I did not recognize, then). (Week 28)
- Submitted poster proposal to Pytorch 2026 conference (October, San Jose). "Perch 2.0 and Perch-Hoplite in Pure PyTorch: An End-to-End TensorFlow-Free Bioacoustics Pipeline" (Week 29)
- Present progress, status, and next steps to the Soundscape team July 15. (Week 29)
- Good progress on analyzing results and ideas to address linear model’s classification confusion. (Week 29)
- Great progress on Perch2.0 model & perch-hoplite agile modeling. Current model has detected orcas high confidence, now verified in custom Gradio annotation tool, on 5 different days in 2 different months. Cross correlated with sightings reported by whale watching cruises in the bay (Californian CA140s “Emma’s” Bigg’s pod preying on gray whale pups). Next step is to work on humpback/gray whale verification/annotation, then train a next generation model. Current model orca F1 score ~0.95 at threshold  $\geq 1.16$  (logit) (Week 30)

## 901902 - Unoccupied Aerial Vehicles for Science, Operations and Outreach

- Team meeting (Week 2)
- Starting work on Poster for OSM March 2026. (Week 2)
- Team meeting Jan 13. (Week 3)
- Preparing to download and analyze benchmark testset through our best RF-detr object detector, to gather metrics. It will be useful to have the metrics and workflow in place to compare data and model performance with our new higher-resolution camera and lens setup. (Week 3)
- Team meeting. (Week 4)
- Plan to work on running our benchmark dataset through the RF-DETR detector to establish benchmark performance metrics. (Week 4)
- Debugging output of benchmark test set from tator database, in preparation for making coco format version for inference through RF-DETR detector. (Week 5)
- Working on poster for OSM meeting with Tim Sananikone. (Week 5)
- Team meeting. (Week 5)
- Team meeting (Week 6)

- Continued evaluation of testset with RF-Detr detector. (Week 6)
- Plan to integrate SAHI with RF-Detr inference flow. (Week 6)
- Poster work for OSM meeting. (Week 6)
- Working on completion of Poster for Ocean Sciences Meeting. Super job Melissa! (Week 7)
- Incorporating team input to poster text and figures. Thanks Tom O'Reilly for adding scale bar to poster UAVs image. (Week 7)
- Tim and Duane to present the poster Thursday at the in-house OSM poster session. (Week 7)
- Enoch to carry physical poster to Edinburgh and present poster live Feb 26. (Week 7)
- Tim and Duane to present the poster virtually Feb 26. (Week 7)
- Adding supervision sliced inference to RF-detr detector pipeline. Should be ready for testing at the end of this week. (Week 8)
- Implemented roboflow subversion sliced inferencing for UAV images in RF-DETR detection pipeline. Analyzing the results. (Week 9)
- Next step, sweep detection threshold to find optimal true positives vs false detections. (Week 9)
- Present kelp segmentation poster virtually at OSM conference. Teleconference set up for 8AM PDT 2/26/2026. (Tim is presenting 9PM PDT 2/25/2026) (Week 9)
- Finishing "threshold" parameter sweep of UAVS RF-DETR detection model with benchmark dataset (Week 10)
- New RF-DETR release; will need to retrain model to pick up new weights and configuration (Week 10)
- Team meeting (Week 11)
- Intern application processing due (Week 12)
- Team meeting (Week 12)
- Meeting with Tim. (Week 12)
- Team meeting (Week 13)
- Team meeting (Week 14)
- Team meeting (Week 16)
- Weekly check-in meeting with Tim Sananikone. Plan to submit abstract to IEEE Oceans Conference 2026 Monterey (Week 16)
- Team meetings (Week 18)
- Released github repo with UAVS RF-DETR inference CoLab notebook and sample data files to UCSC project intern Sage (Week 20)
- Team meeting. (Week 21)
- Team meeting (Week 22)
- Welcome summer intern Sarah Williams, graduate of Harvey Mudd College, soon to matriculate as Masters CS student University of Chicago. (Week 24)
- Sarah is working on training a new version of RF-DETR detector (updated by Roboflow team) and training/comparing with Yolo26. Great progress already. She is working in CoLab and on her MacBookPro M1 from IS. (Week 24)
- Team meeting (Week 25)

- Team discussion on yolo26 and RF-DETR trading and inference strategy. Discussed testset. Discussed ONNX (Week 25)
- Discussed SAHI and image slicing (Week 25)
- Posted sample inference notebook to github (Week 25)
- Ran inference test on testset to confirm notebook working as desired (Week 25)
- Discussed short paper/poster opportunity due July 19 (Week 25)
- Sara Williams continues to make great strides in training models and running inference. Meetings and sharing of code. Set up so she can run on NVIDIA DGX Spark if she needs to for long training runs. (Week 28)
- Team meeting with Intern Sarah Williams. Some work on infrastructure to support her model training. (Week 29)
- Touched base with Tim Sananikone. He is working on a paper for the IEEE Oceans Conference. Danelle and I will review in a week or two. (Week 29)
- Sarah Williams is making great progress, now working in Colab and on DGX Spark-0626 training models and validating performance. Pushing on a July 31 deadline for paper to be presented at ECCV workshop (as a poster). (Week 30)
- Tim is working on paper for presentation at IEEE Oceans Conference 2026. (Week 30)
- Working on debugging problems with RFDETR inference pipeline involving SAHI and ONNX model. Lots of moving parts to get pytorch -> ONNX -> SAHI all working together properly. (Week 30)

## Out of Office

- January 8, 2026. Thursday. Personal Day
- Appts AM January 28, January 29.
- Medical Weds Feb 18 2026
- Medical AM Thurs March 5 2026
- Medical Thurs March 19 2026
- Dr. Appointments AM April 2, 6, 7
- Working from home April 7 - 10
- May 6, 2026 Medical appt.
- 21-24 September: IEEE Oceans Conference
- May 12 Medical appt.
- May 13 Medical appt. AM
- May 18 Medical appt. AM
- May 21 Dental appt. AM
- September 21-24 IEEE Oceans Conference Monterey
- June 1 Medical appt.
- June 1 Medical appt
- June 10 Medical appointment
- June 15, 17. 19 Medical Appointment
- September 8-13 ECCV conference. Present UAVIS Yolo26/RFDETR model comparison.

- September 21-24 IEEE Oceans Conference, Monterey. Present Perch-hoplite poster.
- October 19-24 Pytorch Conference, San Jose. Present Perch2.0 port to pytorch poster.
- September 8-13 ECCV conference. Present UAVS Yolo26/RFDETR model performance. Have reservations.
- October 19-24 Pytorch Conference, San Jose. Present Perch2.0 port to pytorch poster. Registered.

## Overhead

- Annual performance appraisal work. (Week 4)
- Performance review work (Week 5)
- 2/17/2026 Compensation presentation (Week 8)
- Performance review (Week 8)
- Group meeting (Week 9)
- Virtual presentation poster and reading posters and presentations from Ocean Sciences Meeting 2026. (Week 10)
- Agentic AI on-line course work (Week 11)
- Completing deeplearning.ai Agentic AI course. Next up, Anthropic AI Fluency foundational course. (Week 12)
- Group meeting. (Week 13)
- Intern 2026 evaluation and selection. Scheduling teleconference interviews with top 3 candidates. (Week 13)
- Summer intern application screening and finalist zoom interviews. (Week 14)
- Teleconference, with Danelle, with intern candidate / collaborator candidate Nichols (Spain) AM April 10. (Week 15)
- Project proposal workshop (Week 16)
- Preparing for summer intern Sarah Williams (Week 19)
- Watching selected abstract presentations (Week 19)
- Discuss project ideas for summer intern Sarah Williams with Danelle. Plan for a video call with Sarah Williams to present some of the ideas. (Week 21)
- Project conference call with summer intern Sarah Williams (Week 22)
- May 26. AI/ML Sack Lunch, Voxel51 presentation, Laura Chrobak (Week 22)
- Intern prep (Week 23)
- Budget and proposal work (Week 24)