901502 - Passive Acoustic Sensing

Week 51

1. Danelle Cline
    a. Working with J.Ryan and W. Oestrich to analyze potential fin 40 Hz labels generated from clustering. Continued work on cluster sweeps to find the best parameters.
    b. Blue A calls are almost completed and ready for AWS batch processing.

Week 49

1. Carlos Rueda
    a. Meeting with Orcasound folks.

Week 48

1. Danelle Cline
    a. Looked at AWS S3 storage lens results for monitoring open data use. Free tier has limitations, however, so may need to upgrade for more detailed reporting. .022 cents per GB.
    b. Running clusterGAN model sweeps on blue D calls to separate training data by pose
    c. Waiting for blue A call detections to finish to run batch classification; AWS Batch queues are setup and ready to go
    d. EMSO participant follow-up discussion on potential CNN model/training data sharing

Week 46

1. Carlos Rueda
    a. Group meeting.

Week 44

1. Danelle Cline
    a. Moved the live stream over to Icecast per changes in the live streaming service we use for improved performance
    b. Responding to licensing and general data inquiries on AWS open data access; we are getting a number of external groups interested in discussing how to facilitate sharing models, training data, etc.
    c. Testing streamable PCEN detection on blue D calls

Week 42

1. Carlos Rueda
    a. With John, we met with NOAA and MLML folks very interested in our use of the Google Humpback whale song detection model.

Week 41

1. Carlos Rueda
    a. Group meeting

Week 40

1. Carlos Rueda
    a. Completed the application of the NOAA/Google humpback whale song presence scoring model on our whole set of recordings (2015–2021). Incorporation of scoring in regular workflow TBD.

Week 39

1. Carlos Rueda
    a. Refined code and currently running batches of NOAA/Google model scoring on our humpback whale audio files. With current gizo resources, it takes about 44 hours to score 2 years of data.

Week 38

1. Carlos Rueda
    a. Resampling audio files (from 16kHz to 10kHz) and applying NOAA/Google detection model on two years of humpback whale recordings. Super productive discussions, thanks John!
    b. Code maintained at https://github.com/mbari-org/humpback-whale-song-detection

Week 37

1. Carlos Rueda
    a. Productive meeting with Matt Harvey of Google, and John R. I'm now adjusting/simplifying the notebook intended as one of the tutorials related with applying the Google model on Pacific Sound data: https://colab.research.google.com/drive/11gxYzDKPgyqncu1ooiTrH-iWtemkFIJJ

Week 36

1. Carlos Rueda
    a. Refining "Google Humpback Whale Model on Pacific Ocean Sound data" notebook

Week 34

1. Brent Jones
    a. Ran the first Sperm whale click matched filter and successfully found known clicks from oct2016
2. Carlos Rueda
    a. Improving notebook that exercises Google Humpback whale song detector on Soundscape recordings. Thanks team for the productive discussions.

Week 33

1. Brent Jones
    a. Designed a match filter based on a known sperm whale click. Going to search the archive for more clicks
2. Carlos Rueda
    a. Put together a notebook that applies NOAA and Google's Humpback Whale song detector model on Soundscape files retrieved from AWS. Good discussion. https://colab.research.google.com/drive/1FgB0fxMnMPczgSjFqyOAiWvsWuYxxZzX

Week 32

1. Brent Jones
    a. Processing massive click archive in search of echosounder clicks using a matched filter. Preliminary results look great

Week 31

1. Brent Jones
    a. Wrote a matched filter for signal processing hydrophone data. Detects DEIMOS echosounder clicks
2. Carlos Rueda
    a. Initial plots to visualize score results obtained by using the Google Model for Humpback Whale song detection.
    b. Group meeting.

Week 29

1. Brent Jones
    a. Meetings
    b. Processing 6 months of odontecete clicks

Week 28

1. Brent Jones
    a. Proposals

Week 27

1. Danelle Cline
    a. 2022 proposal
    b. Worked on AWS batch process testing of both Cloudformation-based ECS + SimpleQueueService (SQS) and AWS Batch + Fargate.

Week 25

1. Carlos Rueda
    a. Started looking into applying the google/humpback_whale/1 CNN model on some of our humpback whale song data: https://github.com/mbari-org/google-humpback-model-tests

Week 22

1. Danelle Cline
    a. COVID paper is available through open access. Reduction of Low-Frequency Vessel Noise in Monterey Bay National Marine Sanctuary During the COVID-19 Pandemic.
    b. Summer intern planning
    c. Porting classifier code to train in SageMaker
    d. John and Danelle gave an outdoor COVID safe presentation to Soquel High School in Santa Cruz. Special thanks to Dave French for rebuilding the mobile sound exhibit which we gave a test drive at this event.
    e. 
2. Kevin Gomes

    a. Uploaded all the images for the visual browsing to AWS S3 to test performance gains with S3 hosting and CloudFront. While CloudFront provided remarkable speed improvements for repeated requests, we don't see that as a normal use case so will continue to host visual browsing for soundscape at MBARI.

Week 21

1. Kevin Gomes
    a. Deployed 'Visual Browsing' website to Amazon S3 with web hosting and created a CloudFront distribution to test performance of the website in many parts of the world. CloudFront increases speed dramatically, but only after an initial read which primes the cache (that is cleared after 24 hours). Does not really fit this use case so will continue to host at MBARI (for now).
2. Carlos Rueda
    a. Met with John.

Week 19

1. Danelle Cline
    a. All 100 TB or so of data has been uploaded to AWS
    b. Upgraded recording computer to Windows 10 (thank you IS) and syncing resumed
    c. Working on tutorials notebooks for AWS data sharing
    d. Presentation planned for Soquel High School next week

Week 17

1. Carlos Rueda
    a. Team meeting. Re HMM based humpback whale song unit analysis paper, will look into elaborating the continuous density version toward a more complete submission later in the year.

Week 15

1. Carlos Rueda
    a. Trying to find time to resume work on paper!

Week 11

1. Danelle Cline
    a. Uploaded 2018-2020 2kHz data set and working on 16kHz data sets
    b. Started on python notebooks for upcoming ESMO time-series workshop.
    c. Intern selections
2. Carlos Rueda
    a. HMM+GMM code starting to work, now looking into scalability for actual training with multiple whale song unit instances.

Week 10

1. Ben Raanan
    a. Designed new passive acoustic monitoring mission for LRAUV.
2. Carlos Rueda
    a. Putting together some HMM+GMM code, mainly using python libraries. This is taking me more time than expected.

Week 9

1. Danelle Cline

    a. AWS open data sharing scripts to upload 2018-2020 data for COVID paper requirements
    b. Debugging 1-second offset decimation scripts for 2020-08 data

Week 8

1. Danelle Cline
    a. Decimation optimization work continues with John and Yanwu for the AWS Open Data Sharing program. It looks like the Matlab code is not handling timekeeping correctly.
    b. Restarted the soundscape live-stream
2. Carlos Rueda
    a. Group meeting.
    b. Working on POMA paper. Met with John.

    c. Continue exploring pomegranate toward applying Gaussian mixture models with HMMs. (Example of a notebook here.)

Week 7

1. Kevin Gomes
    a. Touched base with John to talk about enabling CloudFront on the AWS hosted visual browsing application to see if it improves spectrogram loading performance.
2. Carlos Rueda
    a. Advancing POMA paper.
    b. Toward adding a continuous HMM method, including cepstral coefficient calculation from LPC vectors, and looking into using pomegranate for the Gaussian mixture modeling (GMM).

Week 6

1. Carlos Rueda
    a. Resuming work of paper.

Week 5

1. Danelle Cline
    a. Verified Matlab overlap-add decimation algorithm correctness and converted to python production code. Added metadata for AWS open data sharing.
    b. Downloaded Blue whale D call results and aggregating
    c. Team meeting
2. Brent Jones
    a. Trying to speed up click conversion to images
3. Ben Raanan
    a. Analyzed SoundTrap data acquired on LRAUV

Week 4

1. Brent Jones
    a. Running Deimos echosounder click detector. Works well. However, pre processing waveforms to images is proving too slow.

Week 3

1. Carlos Rueda
    a. Trying to determine how to reorganize code moving forward so it's easier to use by others
    b. Meeting

Week 2

1. Danelle Cline
    a. Testing new decimation with optimized filters (the third iteration) that the team has converged on with the help of Yanwu, Paul McGill, and John Ryan.
    b. Standing on the pillar of the two giants Google and AWS, working with John to test data access in the AWS Data Sharing program with a Colab notebook. Jupyter notebooks will come next.
    c. Updating wav metadata generator in preparation for adding it to soundscape workflow. Computed wav metadata, including time corrections for all 5 years of recordings.
    d. Added compute VM gizo.shore.mbari.org to the HTCondor compute pool.
2. Brent Jones

    a. Begin work on a ML detector for isolating echosounder clicks. Spent some time labeling and extracting training sets
3. Carlos Rueda
    a. Kickoff meeting (1/6)
    b. Put together our ASA poster in markdown format (result available here) mainly because there's no complete PDF or some other good format to be exported from the iposters site.

Week 1

1. Danelle Cline
    a. Project kick-off meeting
    b. Decimated 512 kHz data from the 2020 experiment. This will fill in holes in the time series for October.
    c. Setup replacement HTCondor VM that reached its end of life. The latest version of HTCondor is incompatible with older HTCondor versions in the pool so more work to be done to bring the compute pool back to life.
    d. Reviewing COVID Marine Frontiers paper