901502 - Soundscape Research and Education

Week 50

1. Carlos Rueda
    a. Continued pyPAM code revision and some development; PR merged, including new CI workflow; some additional feedback regarding unit tests that are failing.

Week 49

1. Carlos Rueda
    a. Continued trying to set up and test pyPAM with online notebooks: On Colab, still having weird issues (for now, not insisting any more on that target). On AWS, looks more promising, but now having a different issue, this time related with plotting.
    b. Reviewing pyPAM internals from development perspective

Week 48

1. Duane Edgington
    a. Biweekly meeting
2. Carlos Rueda
    a. Manta/PyPAM discussion with John and Daneel. PyPAM testing of recent changes/fixes. Expecting an official new release to retry a few things, including use in Colab notebooks.

Week 46

1. Duane Edgington
    a. Updated new MBARI webpage for Soundscape Listening Room project with more details on Alexa Skill.

Week 45

1. Carlos Rueda
    a. Continued exploring xarray and pypam. Though no news yet about this issue, I've tried the mentioned "test" branch but the issue still arises with it.
    b. Getting in touch with Samara Haver (NOAA) re pypam assistance.
    c. Quick touch bases with Josh M. (UBC) and Duane E. in our biweekly mtg today.

Week 44

1. Danelle Cline
    a. Participated in SoundCOOP - Python Sniffers telecon, focused on PyPAM module which is a potential community module for creating standard sound measurements similar to the Manta Matlab system. Signed up for new slack channel OceanObservationData for further discussions.
    b. Weekly meeting. Thanks Carlos and Duane for improvements to procedures to monitor the live stream with an external service. Our stream fan club will be so pleased.
    c. Working on debugging an issue with blue whale spectrogram color map inversion RGB to BGR which is causing poor model performance.
    d. Assisted student Karl Watkins with some feedback on how to evaluate his humpback model designed to work on tiny devices (e.g. Jetson Nano).
2. Duane Edgington
    a. Weekly telecon

    b. Discussed procedure to report when live stream is down
    c. Alexa Ocean Soundscape skill working fine!
3. Carlos Rueda
    a. Upon exchanges with the team, I added https://shoutcast.mbari.org/pacific-soundscape to my list of monitored sites by StatusCake (with John, Duane, Danelle and myself as contact group for notification purposes).
    b. Participated in SoundCOOP - Python Sniffers telecon, focused on PyPAM and Manta.
    c. Thanks John for stopping by and the productive discussion.
    d. Looking into xarray as part of ongoing collaboration with the PyPAM team. Thanks Mike M. for sharing his insights with us.

Week 43

1. Danelle Cline
    a. Investigated live stream interruption and submitted a help ticket with details. IS has resolved this issue by updating a web certificate on the streaming server shoutcast.mbari.org.
    b. Assisting collaborator, Karl Watkins on potential export of Google Humpback model to his embedded platform
    c. Assisting collaborator, Kanoe Makalii on blue whale D call exploration; installed and test drove the MorphoCluster tool on some sound spectrograms. We are looking for ways to help organize calls faster for her training experiments.

Week 42

1. Danelle Cline
    a. Updates to the open data documentation
    b. Team meeting and meeting with Stanford student Kanoe on continued ML work with blue whale calls.
2. Brent Jones
    a. Recovered hydrophone deployed on Wire Walker for about a month. Returned to J Ryan and am hoping for the data soon so I can analyze.
3. Carlos Rueda
    a. PyPAM exploration (with John). We reported this issue.

Week 39

1. Danelle Cline
    a. Finished demo Colab jupyter notebook on running blue D ResNet classifier to kick-start efforts with with Stanford student, Kanoe Makalii Aiu, who will be working with Will Oestrich and Danelle on improvements to the blue D call ML workflow.
    b. Meeting with Kanoe to do walk through
    c. Potential upcoming opportunty to present work https://www.frontiersin.org/research-topics/45485/deep-learning-for-marine-science
2. Carlos Rueda
    a. Fixed a potential issue (for less technical visitors) of incorrect data access URL construction in the Humpback Whale Pacific Sound notebook. Also reviewed the other notebooks, which look fine. Thanks John for the heads-up.
    b. Thanks Danelle for making the workflow for capturing notebooks for the Pacific Sound site more streamlined.

Week 37

1. Carlos Rueda
    a. Reviewing some click detection literature. Group mtg. Paper draft review/discussion.

Week 35

1. Carlos Rueda
    a. Group meeting. Still need to catch up with various possible tasks here.

Week 34

1. Duane Edgington
    a. Continue monitoring the Alexa Skill MBARI Ocean Soundscape.
    b. Todo: update code with Alexa Presentation Language (Display Interface is now deprecated; images are no longer rendering on Alexa Show devices i.e. devices with a screen).

Week 33

1. Duane Edgington
    a. Daily monitoring of live streams via Alexa Skill Ocean Soundscape. Some really cool live sounds from MARS hydrophone Aug 17!
2. Carlos Rueda
    a. Group meeting.

Week 32

1. Duane Edgington
    a. Team meeting
    b. Alexa Skill user support
    c. Daily spot monitoring of Alexa Skill Ocean Soundscape live stream

Week 31

1. Danelle Cline
    a. Setup shoutcast Windows streaming service for restart on reboot on shoutcast.mbari.org
    b. Team meeting
    c. AthenaDB monthly query running as expected, but daily bump in S3 cost remains a mystery
2. Duane Edgington
    a. Completed test and release to production (public) Amazon Alexa Skill MBARI Ocean Soundscape update with current live stream link and updated DynamoDB user log.
    b. New Alexa skill developer console development environment implemented including Alexa-hosted code and test.
    c. Tested against Alexa Echo Dot device; production test and monitoring via second Alexa Echo Dot device.
    d. John Ryan tested the production release via Alexa Echo Show device.
3. Carlos Rueda
    a. Reviewing some pointers re ML models for orcas and software for click detection.
    b. Group meeting.

Week 30

1. Duane Edgington
    a. Continued work on Alexa Skill
2. Carlos Rueda
    a. More data preprocessing toward applying BLED for sperm whale click detection.

Week 29

1. Duane Edgington
    a. Working on upgrading Alexa Skill

Week 28

1. Duane Edgington
    a. Continued reading and training on Alexa Skill

Week 27

1. Danelle Cline
    a. Maintenance on shoutcast port 8000
    b. Project proposal input
2. Duane Edgington
    a. Digging into Alex Skill and DevOps best practices

Week 26

1. Duane Edgington
    a. Spinning up on Alexa Skill devops

Week 25

1. Duane Edgington
    a. Spinning up on Alexa Skill task
2. Carlos Rueda
    a. Group meeting

Week 24

1. Danelle Cline
    a. Finished deployment of shoutcast stream. Peak listeners at 88 simultaneous; average listening time of 5 hours, 15 minutes and 14 seconds thus far. Zen listening to help calm the mind.

Week 22

1. Carlos Rueda
    a. Running transformation of additional months of 2016 data toward application of BLED based sperm whale click detection.

Week 21

1. Danelle Cline
    a. Shoutcast stream DNAS software installed and tested; more work to open network ports and bring some old python code up to date
    b. World oceans day blog writing in coordination with ITD/AWS

Week 20

1. Danelle Cline
    a. Working on blog materials for upcoming World Ocean Day with John, AWS partners and ITD group.
    b. Switching audio streaming to a new production Windows server shoutcast.shore.mbari.org in response to changes in our streaming provider.

c. Finished ansible deployment of Aurora data use workflow

Week 19

1. Danelle Cline
    a. Completed setup and deployment of AWS Athena queries for our Pacific Sound opendata use. Queries revealed in April, 2022, our sound data is being used in 5 countries, with our raw 256kHz recordings from 2020 being the most accessed with 1 Petabyte of downloads in April.
    b. Discussions with the team about the upcoming blog for World Oceans Day on June 8th.
2. Carlos Rueda
    a. Very promising experimentation applying the BLED technique for sperm whale click detections, resulting in the determination of a good set of parameter values that we now plan on applying on complete days of data. Presented the results in our group meeting and updated the notes.

Week 18

1. Carlos Rueda
    a. Some literature review regarding sperm whale click detection

Week 17

1. Danelle Cline
    a. S3 bucket sync management for logs access
    b. Setup Amazon Athena database and working on queries to assess OpenData program data usage
    c. Group meeting discussion on click train detection
2. Carlos Rueda
    a. Explored detection of sperm whale clicks using the BLED technique (via Raven) and shared the exercise with the team. Promising results. Plan is to continue tuning the process.

Week 16

1. Carlos Rueda
    a. Some input to the “mysticete symphony” paper under preparation.

Week 14

1. Brent Jones
    a. Ported click detection code to Julia in VScode

Week 13

1. Carlos Rueda
    a. Various meetings, good paper prospects, etc.

Week 12

1. Brent Jones
    a. Porting click detection code to MS Visual Code studio. Seems to be working better

Week 11

1. Carlos Rueda
    a. Some notebook revisions

Week 10

1. Carlos Rueda
    a. Helping John put together a new “Listening to Pacific Ocean Sound recordings” notebook targeted to “sound artists, naturalists, and educators whose primary goal is to listen rather than analyze.”

Week 9

1. Carlos Rueda
    a. Group meeting. Watched some videos from a person in Australia that approached us recently.

Week 7

1. Brent Jones
    a. Rewriting Teager click detector in Matlab
2. Carlos Rueda
    a. Group meeting, again also with U. Denver participants.

Week 6

1. Carlos Rueda
    a. Group meeting.
    b. Met with Karl Watkins (U. Denver) to discuss collaboration opportunities.

Week 5

1. Danelle Cline
    a. AWS OpenData 2022 updates
    b. Discussion with grad student at University of Denver about potential collaboration on miniML sound detection
    c. Debugging an issue with blue A inference workflow

Week 4

1. Brent Jones
    a. Extracting click features during known Sperm Whale clicking bouts and attempting a few digital code breaking techniques

Week 3

1. Danelle Cline
    a. Testing machine learning workflow on a subset from 2017 on 53K images for final approval from team, then final 6 year/2 million blue whale A detection proposals. This workflow uses AWSBatch to generate spectrograms and SageMaker BatchTransform Jobs to quickly run inference.
    b. Project pitch to Cal Poly ML class
    c. Our livestream audience is growing; the service has almost exceeded its 2500 THL limit in Shoutcast and may bump to the next tier automagically.
2. Carlos Rueda
    a. Group meeting. Planning to explore some sperm whale click datasets.

Week 2

1. Brent Jones
    a. Quarterly processing of click data
    b. Writing conversion utilities for working with click data in python

2. Carlos Rueda
    a. Ran the NOAA/Google Humpback Whale Song Detector on our Sept–Dec, 2021 data.
    b. mbari-org/humpback-whale-song-detection repo now public (thanks, John).

Week 1

1. Carlos Rueda
    a. Group meeting to kickoff the year