

901103 - Biodiversity and Biooptics of Zooplankton

Week 51

1. Duane Edgington
 - a. Training updated yolov5x6 model for Ctenophora sp. A detections in ROV video based upon confusion input from S. Haddock.
 - b. Running test inference on V4318 video

Week 50

1. Danelle Cline
 - a. Waiting for Haddock to verify before retraining.

Week 47

1. Duane Edgington
 - a. Evaluating Yolov5x6 model, 1280 image size, trained with Ctenophora images.

Week 46

1. Duane Edgington
 - a. Trained a Yolov5x6 1280 model on selected images for targeted detection/classification, using deepsea-ai and bio-ai workflows. Validation statistics are very promising.
 - b. Running model against selected dive video collection (24 videos) to evaluate performance and usefulness. Using VM DORIS and deepsea-ai PROCESS pipeline.
 - c. Requested quota increase of AWS g4dn EC2 instances, to support running model on ECS elastic compute stack via deepsea-ai ECSPROCESS pipeline

Week 45

1. Danelle Cline
 - a. Loaded training data for visualizing and clearing into mantis. This included Ctenophora sp. A examples augmented with [alumentations](#) and other examples that may be confused to create an effective model. Removed blurry and small examples. Haddock to verify before training.

Week 42

1. Danelle Cline
 - a. Outlined workflow to backannotate Ctenophora sp. A

Week 36

1. Duane Edgington
 - a. Preparation for training a model
 - b. Testing scripts after code refactor

Week 34

1. Duane Edgington
 - a. Discussions with Steve Haddock and Danelle on MT proposal feedback

Week 33

1. Duane Edgington
 - a. Prepared collaborator agreement with Tarun Sharma (Caltech Ph.D. Student, who just finished summer 2023 MBARI internship).
 - b. Code walkthrough with Tarun
 - c. Reviewing work plan and next steps

Week 32

1. Danelle Cline
 - a. Deployed database to VM mantis and moved image data to nginx server
2. Duane Edgington
 - a. Wrapping up summer internship Tarun Sharma

Week 31

1. Duane Edgington
 - a. Trained YOLOv5/StrongSORT i2MAP model with 70 classes, 11,201 images, and 80,156 localizations as curated by Danelle. Evaluating now. Ran inference on several videos (i2MAP dives and a Ventana dive) to review performance. Also trained "ROI" model where the 70 classes were collapsed to one class (region of interest) to compare with intern Tarun's Megadetector, and to compare with the 70 class model.

Week 30

1. Danelle Cline
 - a. Discussion with the team on the next steps
 - b. Tested loading label taxonomy into our database
2. Duane Edgington
 - a. Building tracking model against i2MAP localizations
 - b. Intern Tarun Sharma wrapping up a very productive summer of exploration of semi-supervised / self-supervised model exploration against midwater image datasets

Week 29

1. Danelle Cline
 - a. Finalized baseline i2MAP data: 80K localizations and 70 classes in CIFAR, COCO, VOC, and YOLO formats for various experiments
2. Duane Edgington
 - a. Continuing work on detectors/trackers. Starting to train models for several detectors to compare/contrast including yolov8 and Vit

Week 28

1. Duane Edgington
 - a. Proposal work.

Week 27

1. Duane Edgington
 - a. Proposal work. Reading up on SOTA trackers and detectors.

Week 26

1. Duane Edgington
 - a. Work continues. Proposal process.

Week 24

1. Duane Edgington
 - a. Continued work with Danelle on clustering and active learning tools for midwater images and concepts
 - b. Sessions with intern Tarun Sharma, who will be working on semi-supervised learning applied to midwater video (learning classes using few labels).
 - c. Running Vision Transformer for Small-Size Datasets for training against midwater images. Debugging with Danelle midwater image dataset conversion to CIFAR100 format.
 - d. Running colab and AWS sagemaker studio for 901103 work.
 - e. Tests on gpu box OLIVIA to Ubuntu 22.04 LTS with cuda drivers from Lambda Stack. Working fine for accelerated pytorch; debugging accelerated tensorflow.

Week 23

1. Danelle Cline
 - a. Prepared verified and unverified data sets for summer intern
 - b. Export data to CIFAR format for Duane Vision Transformer training
2. Duane Edgington
 - a. Continued work with Danelle on clustering and active learning tools for midwater images and concepts
 - b. Welcome intern Tarun Sharma June 5 - Aug 11, who will be working on semi-supervised learning applied to midwater video (learning classes using few labels).
 - c. Running Vision Transformer for Small-Size Datasets for training against midwater images. Successfully trained against CIFAR-100 as a test run on AWS SageMaker Studio. Uploaded trained model to [huggingface](#)
 - d. Running colab and AWS sagemaker studio for 901103 work.
 - e. IS upgraded gpu box OLIVIA to Ubuntu 22.04 LTS with cuda drivers from [Lambda Stack](#).

Week 22

1. Duane Edgington
 - a. Continued work with Danelle on clustering and active learning tools for midwater images and concepts
 - b. Arranged office space & Ubuntu workstation for incoming intern Tarun Sharma June 5 - Aug 11.
 - c. Setting up Vision Transformer for Small-Size Datasets for training against midwater images. Successfully trained against CIFAR-100 as a test run on AWS SageMaker Studio.
 - d. Set up AWS sagemaker studio for 901103 work.

Week 21

1. Duane Edgington
 - a. Continued work with Danelle on clustering and active learning tools for midwater images and concepts
 - b. Arranged office space for incoming intern Tarun Sharma June 5 to Aug 11.
 - c. Setting up Vision Transformer for Small-Size Datasets for training against midwater images. Successfully trained against CIFAR-100 as a test run.
 - d. Setting up AWS sagemaker studio for 901103 work.

Week 20

1. Duane Edgington
 - a. Continued work with Danelle on clustering and active learning tools for midwater images and concepts

Week 19

1. Duane Edgington
 - a. Continued work with Danelle on active learning tools for midwater images and concepts

Week 18

1. Duane Edgington
 - a. Continued work with Danelle on active learning tools for midwater images and concepts

Week 17

1. Duane Edgington
 - a. Continued work with Danelle on active learning tools for midwater images and concepts

Week 16

1. Danelle Cline
 - a. Refinement to midwater clustering and setup database and workflow for active learning. Seeing some very interpretable clusters.
2. Duane Edgington
 - a. Continued work with Danelle on Active Learning tool and framework

Week 15

1. Duane Edgington
 - a. Working session with Danelle April 11.
 - b. Exploring human in the loop active learning tools
 - c. Experiments in progress on “top 20” midwater concepts

Week 11

1. Danelle Cline
 - a. vars-labelbot in progress; an experimental robot to add localized midwater annotations
 - b. Training data loader tests
2. Duane Edgington
 - a. Continued exploration of tools to facilitate active learning for creation of midwater image training library.

Week 10

1. Duane Edgington
 - a. Summer intern candidates selected. Offer extended to one candidate.
 - b. Exploring candidate tools/methods for active learning support

Week 8

1. Duane Edgington
 - a. Project meeting with Danelle to discuss workflow
 - b. Continuing exploration of Active Learning for Object Detection
 - c. FathomNet workshop Feb 22-23

Week 7

1. Duane Edgington

- a. Working session with Danelle. Installed VARS system on my M1 workstation. Brian/Lonny tells me I need to be updated to MacOS Ventura (13.2.1) for recent VARS video viewers/localization viewers to work. IS has set up my system at MacOS Monterey (12.6.3). I will check with IS if that upgrade will cause issues.
- b. Brian has a patch, for me to try: VARS Annotation-1.4.8.zip
- c. Continuing research on Active Learning for object detection/classification.

Week 6

1. Duane Edgington
 - a. Reading papers on active learning strategies.

Week 4

1. Duane Edgington
 - a. Looking into yolov8 documentation, multi-gpu training, etc.

Week 3

1. Danelle Cline
 - a. Added login to deepsea-ai dashboard and an approval flag to support some bulk editing of track training data through boxjelly
 - b. SecretsManager testing
2. Duane Edgington
 - a. We are researching and implementing [AWS Secrets Manager solution](#) for passing keys to deepsea-ai database

Week 2

1. Duane Edgington
 - a. Project planning work with Danelle and Kevin B.