

DCLDE Oahu 2022

Program

All registered attendees can browse the schedule, tune-in live to participate in DCLDE 2022 on the website or workshop app. All sessions will be recorded and posted later for On-Demand viewing via the event website.

Website: <https://cvent.me/VyGmAe> (requires your registration credentials)

App: Search your app store for “CVENT Events” and install on your mobile device. Once downloaded, within the app search for “9th DCLDE Workshop” and login with your registered email address for complete access.

Speaker/Poster Schedule (March 8-11, 2022)

Tuesday	Wednesday	Thursday	Friday
8:30-9:25 Aloha & Welcome to DCLDE	8:30-8:45 Getting together/Discussion	8:30-8:45 Getting together/Discussion	8:30-8:45 Getting together/Discussion
9:25-10:00 Autonomous Detection Systems for Right Whales	8:45-10:00 Range Estimation / Localization & Implications for Density Estimation	8:45-10:00 Detection & Classification of Baleen Whales 1	8:45-10:00 Detection & Classification of Odontocetes 2
10:00-10:30 Break	10:00-10:30 Break	10:00-10:30 Break	10:00-10:30 Break
10:30-11:25 Software to Enable DCLDE	10:30-11:25 Target tracking / Identification	10:30-11:25 Counting Sounds for Counting Critters- Cue rates 1	10:30-11:25 Counting Sounds for Counting Critters- Cue rates 2
11:25-12:00 Poster speed talks	11:25-12:00 Poster speed talks	11:25-12:00 Poster speed talks	11:25-12:00 Distributed Ocean Sensors
12:00-1:30 Lunch & Poster Session	12:00-1:30 Lunch & Poster Session	12:00-1:30 Lunch & Poster Session	12:00-1:30 Lunch & Poster Session
1:30-3:00 DCLDE Applications In Memory of Dr. Whitlow Au- part 1	1:30-3:00 Density Estimation using Passive Acoustic Datasets- A review and applications	1:30-3:00 Deep Learning for Marine Mammal Detection & Classification	1:30-3:00 Machine Learning Applications in 'Noisy' Environments
3:00-3:30 Break	3:00-3:30 Break	3:00-3:30 Break	3:00-3:30 Break
3:30-4:45 DCLDE Applications In Memory of Dr. Whitlow Au- part 2	3:30-4:45 Detection & Classification of Odontocetes 1	3:30-4:45 Detection & Classification of Baleen Whales 2	3:30-5:00 Discussion & Closing the next DCLDE and other pressing topics
4:45-5:00 Discussion	4:45-5:00 Discussion	4:45-5:00 Discussion	

🌸 Presentation uses a DCLDE dataset to develop, test, or validate the presented approach

🌿 Contributions to the Special Session in Memory of Dr. Whitlow Au

⚙️ Virtual poster/presentation

Tuesday March 8

Autonomous Detection Systems for Right Whales

9:25-10:00am. Session chair: Mark Baumgartner, Co-chair: Genevieve Davis

9:25- Kaitlin Palmer- *Evaluation of the Coastal Acoustic Buoy for Offshore Wind for real time mitigation*

9:37-James Theriault- *North American Right Whale Detection and Classification with the AI-based Framework for Acoustic Sensors (AFAS)* 🌸

Discussion (~12 minutes)

Software to Enable DCLDE

10:30-11:25am, Session chair: Doug Gillespie, Co-chair: Jennifer McCullough

10:30- Taiki Sakai- *FOSSA: Simple open-source software to simplify DCLDE workflows*

10:42- Maëlle Torterotot- *APLOSE: a web-based annotation platform to assist collaborative annotation campaigns on passive acoustics datasets* 🌸🌸

10:54- Kunal Mehta (Valentina Staneva)- *Active Listening and Learning for Efficient and Interactive Marine Sound Annotation and Classification* 🌸

Discussion (~20 minutes)

Poster Speed Talks- Applications in Memory of Whit Au, Software to Enable DCLDE, Hardware for DCLDE 1

11:25am-12:00pm, Speed talk order may be adjusted based on live vs. pre-recorded content

Matthias Hoffmann-Kuhnt- *Sing Me a Song! – Trials and tribulations of a first attempt to record humpback whale mother-calf pairs in the DR with a new version of a synchronised video/audio array* 🌸

Ronald Morrissey- *Ambient Noise on US Navy Ranges* 🌸

Madalina Matei- *KillerClick: Automatic detection and classification of the echolocation clicks of the Southern Resident killer whales (Orcinus orca)* 🌸🌸

Shannon Rankin- *Bioacoustics Stack Exchange: Creating a community-led platform for questions & answers will increase both quality and equity in science* 🌸

Mark Baumgartner- *Real-time detection and classification of marine mammals from expendable profiling floats*

Vincent Premus- *Experimental results of an autonomous, real-time, passive acoustic marine mammal monitoring system using a towed hydrophone array deployed from an unmanned surface vehicle* 🌸

Olivier Adam- *CETOSCOPE – Tracking vocal cetaceans based on visual and acoustic observations*

Abel Ho- *A Cloud Enabled Passive Acoustic Monitoring Array with Real-time Detection of Marine Megafauna*

Xavier Mouy- *Comparison of three portable volumetric arrays to localize and identify fish sounds in the wild* 🌸

DCLDE Applications In Memory of Dr. Whitlow Au- part 1

1:30-3:00pm, Session chair: Marc Lammers, Co-chair: Brijonnay Madrigal

1:30- Paul Nachtigall (*invited*)

1:45- Carmen Bazúa-Durán- *Dolphin whistle stereotypy for a measure of dolphin abundance* 🌸🌸

1:57- Rebecca Cohen- *Atlantic Echolocation Click Types Labeled to Odontocete Species Identity Using Machine Learning and Spatiotemporal Correlates* 🌸

2:09- Hannah Myers- *Year-round calling rate of a southern Alaska resident killer whale pod* 🌸

2:21- Benjamin Hendricks- *Sea-to-Screen: Building an autonomous DCL monitoring tool for coastal stewards* 🌸

Discussion (~30 minutes)

DCLDE Applications In Memory of Dr. Whitlow Au- part 2

3:30-4:45pm, Session chair: Aaron Thode, Co-chair: Aude Pacini

3:30- Marc Lammers- *Along for the glide: humpback whale presence in Papahānaumokuākea Marine National Monument revealed by a Wave Glider autonomous surface vehicle* 🌱

3:42- Aaron Thode- *Automatic tracking of multiple singing humpback whales off Hawaii using vector sensors* 🌱

3:56- Anke Kügler- *The singing behavior of humpback whales off Maui, Hawai'i revealed through acoustic localization with vector sensors* 🌱

4:08- Adam Frankel- *Remote measurement of cue rates from free-ranging whales across ocean basin scales* 🌱
Discussion (~25 minutes)

Wednesday, March 9

Range Estimation / Localization & Implications for Density Estimation

8:45-10:00am, Session chair: Katherine Kim, Co-chair: Yvonne Barkley

8:45- Jay Barlow- *Variation in source levels affects density estimation in strange ways: why mean values aren't good enough*

8:57- John Spiesberger- *Extremely-reliable locations and calling abundance of right whales in Cape Cod Bay derived with passive recordings of their calls with un-synchronized clocks*

9:09- Ludovic Tenorio- *Passive acoustic localization of Rice's whales in the Gulf of Mexico* 🌱

9:21- Brendan Rideout- *Long-range single hydrophone passive acoustic ranging of air guns and fin whales at Station ALOHA* 🌱🌱

Discussion (~25 minutes)

Target tracking / Identification

10:30-11:25am, Session chair: Alexander von Benda-Beckmann, Co-chair: Selene Fregosi

10:30- Pina Gruden- *Towards a unified multi-target tracking framework for marine mammals* 🌸

10:42- Kei Manabe- *Counting clickers: Using inter-click-interval maps based on complex autocorrelation to estimate the number of clicking odontocetes* 🌸

10:56- Paul Hursky- *Using Doppler as a cue to identify and track individual animals* 🌸🌱🌱

Discussion (~20 minutes)

Poster Speed Talks- Localization & Tracking, Density Estimation, and Detection & Classification of Odontocetes

11:25am-12:00pm, Speed talk order may be adjusted based on live vs. pre-recorded content

Rose Hilmo- *Ranging to fin whale calls at full ocean depths using single ocean bottom seismometers*

Andreia Pereira- *Assessing the detection range of two types of fin whale calls in the Azores*

David Lechner- *Acoustic Energy Maps for Marine Mammal Localization Using Comprehensive Test Ban Treaty (CTBT) Data* 🌸

Junsu Jang- *Toward automated tracking of marine mammals in 3-D using volumetric hydrophone arrays*

John Spiesberger- *Dimension Reduction in Location Estimation—the Need for Variable Propagation Speed*

Melissa Soldevilla- *LISTEN GoMex: Long-term Investigations into Soundscapes, Trends, Ecosystems, and Noise in the Gulf of Mexico* 🌱

Annamaria DeAngelis- *Combining spatial and temporal acoustic datasets to examine the summer presence of beaked whales off the east coast of the US* 🌱

Paige Hanson- *Acoustic Identification of Feeding Aggregations in the Monterey Bay National Marine Sanctuary*

Kenneth Bremnes- *Hawaiian monk seal vocalization detection and classification using Deep Learning* 🌱

Density Estimation using Passive Acoustic Datasets- A review and applications

1:30-3:00pm, Session chair: Len Thomas, Co-chair: Julia Dombroski

1:30- Len Thomas (*invited*)- *Overview of methods for estimating animal density from passive acoustic data*

1:45- Simone Baumann-Pickering- *Passive acoustic density estimation of Cuvier's beaked whales in Southern California waters*

1:57- Héloïse Frouin-Mouy- *Density estimation of beaked whales in the northern Gulf of Mexico from a decade of acoustic monitoring*

2:09- Annabel Westell- *Acoustic detections of sperm whales in the western North Atlantic: insights into their foraging ecology and abundance*

2:21- Danielle Harris- *Using ocean bottom seismometers (OBSs) for blue and fin whale density estimation: a review*

Discussion (~30 minutes)

Detection & Classification of Odontocetes 1

3:30-4:45pm, Session chair: Elizabeth Henderson, Co-chair: Ellen White

3:30- Kerri Seger- *Revisiting Empirical and Variational Mode Decomposition on detecting and classifying a variety of underwater signals with various sampling rates*

3:42- Dawn Grebner- *Algorithms for detecting highly directional and very high frequency sounds from harbor porpoises*

3:54- Morgan Ziegenhorn- *Discrimination and classification of toothed whale echolocation clicks in the Hawaiian Islands using a machine learning toolkit* 🌸

4:06- Karlina Merkens- *Further Exploration of Click Parameters of Kogia spp.: Insight from and comparison of data between oceans and recording configurations*

Discussion (~25 minutes)

Thursday, March 10

Detection & Classification of Baleen Whales 1

8:45-10:00am, Session chair: Susan Jarvis, Léa Bouffaut

8:45- Fabio Frazao- *Comparing sequence and snapshot artificial neural networks. A study case for the acoustic detection of blue whales* 🌸🌀

8:57- Shyam Madhusudhana- *Temporal context improves automatic recognition of call sequences in soundscape data*

9:09- Nick Kaney- *Assessment and comparison of algorithms for North Atlantic right whale (*Eubalaena glacialis*) upcall detection and classification* 🌸

9:21- Paul Best- *Deep learning for Antarctic Blue and Fin whale vocalization detection* 🌀

Discussion (~25 minutes)

Counting sounds for counting critters- cue rates 1

10:30-11:25am, Session chair: Simone Baumann-Pickering, Co-chair: Miriam Romargosa

10:30- Popi Gkipoulou- *Stability of acoustic cues for density estimation*

10:42- Carolina Marques- *Estimating cue rates from tags without acoustic data* 🌀

10:54- Yvonne Barkley- *How many clicks does it take? Investigating click rate variability for sperm whales in Hawaiian waters*

Discussion (~20 minutes)

Poster speed Talks- Detection & Classification of Low Frequency Sounds, Hardware for DCLDE 2

11:25am-12:00pm , Speed talk order may be adjusted based on live vs. pre-recorded content

Alexander von Benda-Beckmann- *Probing the deep sea and deep space with fiber-optic hydrophones*

Emily Vierling- *Non-song humpback vocalizations from the inland waters of Washington and British Columbia* 🌿

Ashley Cook- *Detection of Rice's whale calls in the Gulf of Mexico using passive acoustic data and deep learning*

Veronica Coppolaro- *Acoustic survey of marine mammals and anthropogenic underwater noise off the Southern coast of Southampton Island, Hudson Bay*

Katherine Indeck- *Spatial variation in baleen whale calls within and near shipping lanes detected by mobile and stationary recorders*

Cory Hom-Weaver- *An automated approach to the detection and classification of fin whales in the California Current Ecosystem using open source software*

Hoàng-Ân Lê- *Performance of off-the-shelf computer vision deep neural networks on spectrogram-based marine mammal detection* 🌸🌿

John Spiesberger- *Bounding the number of calling animals with passive acoustics and reliable locations*

Alexander Muniz- *Spatial and Temporal Distribution of Possible Deep-sea Fish Detections at AUTECH*

Deep Learning for Marine Mammal Detection & Classification

1:30-3:00pm, Session chair: Holger Klinck, Co-chair: Morgan Ziegenhorn

1:30- Oliver Kirsebom (Paul Nguyen Hong Duc)- *Open-source deep learning models for acoustic detection and classification of orcas*

1:42- Marie Roch- *The Deep Context Project* 🌸🍌

1:54- Peter Conant- *Deep Silbido – Whistle extraction with deep neural networks* 🌸

2:06- Ellen White- *Deep Delphinids: A transfer learning approach to efficient classification of marine sound sources in big acoustic data, relevant to marine mammal conservation* 🌸

2:18- Laia Garrobé Fonollosa- *A deep learning acoustic framework to detect sperm whale echolocation clicks: A case study investigating occurrence in the Balearic Sea*

Discussion (~30 minutes)

Detection & Classification of Baleen Whales 2

3:30-4:45pm, Session chair: Dave Mellinger, Co-chair: Katherine Indeck

3:30- Dan Woodrich- *Performance of an Alaska region minke whale 'boing' AI detector on a Hawaiian dataset; out-of-the-box deployment and synthesized model with combined data **

3:42- Ann Allen- *Et twang, Bryde's? Biotwang occurrence in the Mariana Archipelago*

3:54- Tina Yack- *Detection, Classification, and Localization of North Atlantic Right Whale Upcalls in Cape Cod Bay using PAMGuard Software and Co-Locating with Aerial Observations*

4:06- Susan Jarvis- *Automated Acoustic Monitoring and Classification of North Atlantic Right Whales on the Jacksonville Shallow Water Training Range* 🌸

Discussion (~25 minutes)

Friday, March 11

Detection & Classification of Odontocetes 2

8:45-10:00am, Session chair: Marie Roch, Co-chair: Pina Gruden

8:45- Alexandra Constaratas- *Automated detection and classification of Cuvier's beaked whale, sperm whale, and delphinid clicks from the Adriatic and comparison of algorithm performance on DCLDE Oahu dataset* 🌸

8:57- Jennifer McCullough- *Acoustic Classification of False Killer Whales in the Hawaiian Islands Based on Comprehensive Vocal Repertoire* 🌸

9:09- Elizabeth Ferguson- *Evaluation of a Deep Learning Neural Network for Use in Real-Time Passive Acoustic Monitoring* 🌸🔧

9:29- Alexandre Paro- *Towards using whistles as a dolphin species identification tool in cetacean surveys in the Southwest Atlantic Ocean* 🔧

Discussion (~25 minutes)

Counting Sounds for Counting Critters- Cue rates 2

10:30-11:25am, Session chair: Danielle Harris, Co-chair: Andreia Pereira

10:30- Cameron Martin- *Minke Whale Call Rate Increases When Calling Conspecifics Are Nearby*

10:42- Miriam Romagosa- *Changes in fin whale song inter-note intervals: implications for density estimation using PAM*

10:54- Julia Dombroski- *Can we rely on accelerometer data to assign calls to tagged baleen whales?*

Discussion (~20 minutes)

Distributed Ocean Sensors

11:25am-12:00pm, Session chair: Olivier Adam, Co-chair: Veronica Coppolaro

11:25- Léa Bouffaut- *Listening at the speed of light: baleen whale monitoring using distributed acoustic sensing*

11:37- William Wilcock- *A Community Test of Distributed Acoustic Sensing on the Ocean Observatories Initiative Regional Cabled Array Offshore Central Oregon*

Discussion (~12 minutes)

Machine Learning Applications in 'Noisy' Environments

1:30-3:00pm, Session chair: Ana Širović, Co-chair: Angela Szesciorka

1:30- Pu Li- *Training whistle extraction algorithms with multi-stage generative adversarial networks* 🌸🔧

1:42- David Mellinger- *A deep-learning system for detection, classification, and reporting of harbor porpoise sounds*

1:54- Hari Vishnu- *Acoustic detection of marine mammal vocalizations in snapping-shrimp infested noisy waters*

2:06- Tyler Helble- *Improving Methods for Automated Detection of Navy Sonar*

2:18- Taylor LeBlond- *Automatic Detection and Identification of Various Cetacean Calls Using Music Information Retrieval Techniques* 🔧

Discussion (~30 minutes)