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Orcasound: A citizen science tool for whale research

Researchers are producing a web app to make it easier for citizen scientists to listen for southern resident killer whale signals from hydrophones

ACOUSTICAL SOCIETY OF AMERICA

WASHINGTON, D.C., NOVEMBER 6, 2018 -- A crucial part of studying southern resident killer whales is finding them and quickly alerting experts to send boats out to collect fecal samples or prey fragments to better understand what the whales are eating.

Hydrophones, underwater microphones used to locate whales, are especially useful at night or in poor weather when sighting networks are ineffective. Computer algorithms are playing a growing role in analyzing hydrophone audio data, but human listeners can complement and enhance these algorithms.

A research project known as Orcasound has produced a web application that will enable citizen scientists to listen to livestreaming audio from hydrophones near the San Juan Islands to identify killer whales and other novel sounds.

Scott Veirs, a bioacoustician based in Seattle and lead researcher of the Orcasound project, will describe the new web app and the value of citizen science at the Acoustical Society of America's 176th Meeting, held in conjunction with the Canadian Acoustical Association's 2018 Acoustics Week in Canada, Nov. 5-9 at the Victoria Conference Centre in Victoria, Canada.

Citizen scientists have been useful at detecting whales and noticing unusual activity, such as the presence of other animals or noise from shipping traffic. The aim of Orcasound is to provide an inexpensive and user-friendly way for people interested in the study and conservation of marine life to participate in research, Veirs said. The question at the heart of the project, he added, is how to organize and train people listening to the streaming audio to be better detectors of whales. The Orcasound project also saves audio data to online cloud storage servers for later analysis -- by both humans and algorithms.

Each node in the network uses an inexpensive Raspberry Pi computer with additional audio hardware. The computers run the Linux operating system and open-source software to encode and send audio using standard data formats made popular by online video streaming services like YouTube. This minimizes costs while maximizing browser compatibility and ease of use. "We want to make it really easy for citizen scientists to listen to signals," said Veirs.

Future versions of the app will feature a button that users can click when they hear something interesting, which will help annotate the data for algorithms to analyze later. Although there may be somewhat of a friendly rivalry between machines and humans in this arena, the Orcasound app aims to bring synergy between citizen scientists and sophisticated algorithms.

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Presentation #2pAO1, "Orcasound app: An open-source solution for streaming live ocean sound to citizen scientists and cloud-based algorithms," by Scott Veirs will be take place Tuesday, Nov. 6, 1:00 p.m. in the Esquimalt room of the Victoria Conference Center in Victoria, British Columbia, Canada. More information on the project can be found at <http://www.orcasound.net>.

A press conference on this topic will take place Tuesday, Nov. 6, 9:30 a.m. PT.

Register at: <http://aipwebcasting.com>.

MORE MEETING INFORMATION

USEFUL LINKS

Main meeting website: <https://acousticalsociety.org/asa-meetings/>

Meeting technical program: <https://ep70.eventpilotadmin.com/web/planner.php?id=ASAFALL18>

Hotel information: <https://acousticalsociety.org/asa-meetings/#hr>

WORLD WIDE PRESS ROOM

In the coming weeks, ASA's World Wide Press Room will be updated with additional tips on dozens of newsworthy stories and with lay language papers, which are 300-800 word summaries of presentations written by scientists for a general audience and accompanied by photos, audio, and video. You can visit the site, beginning in late October, at <http://acoustics.org/world-wide-press-room/>.

PRESS REGISTRATION

We will grant free registration to credentialed journalists and professional freelance journalists. If you are a reporter and would like to attend, contact Rhys Leahy or the AIP Media Line (media@aip.org, 301-209-3090). We can also help with setting up interviews and obtaining images, sound clips or background information.

LIVE MEDIA WEBCAST

A press briefing featuring a selection of newsworthy research will be webcast live from the conference Tuesday, Nov. 6, 2018. Times and topics to be announced. Members of the media should register in advance at <http://aipwebcasting.com>.

ABOUT ASA

The Acoustical Society of America (ASA) is the premier international scientific society in acoustics devoted to the science and technology of sound. Its 7,000 members worldwide represent a broad spectrum of the study of acoustics. ASA publications include *The Journal of the Acoustical Society of America* (the world's leading journal on acoustics), *Acoustics Today* magazine, books, and standards on acoustics. The society also holds two major scientific meetings each year. For more information about ASA, visit <https://acousticalsociety.org>.

ABOUT CAA

The Canadian Acoustical Association (CAA) is a professional, interdisciplinary organization that fosters communication among people working in all areas of acoustics in Canada; promotes the growth and practical application of knowledge in acoustics; encourages education, research, protection of the environment, and employment in acoustics; and is an umbrella organization through which general issues in education, employment and research can be addressed at a national and multidisciplinary level. For more information about CAA, visit <http://caa-aca.ca>.

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