

# Novel software for deep-learning based acoustic data analysis

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## 1 INTRODUCTION

The use of machine learning, and especially deep learning for detection and classification of acoustic signals often requires collaboration between developers and acousticians. However, open-source tools that enable these workflows are not readily available.

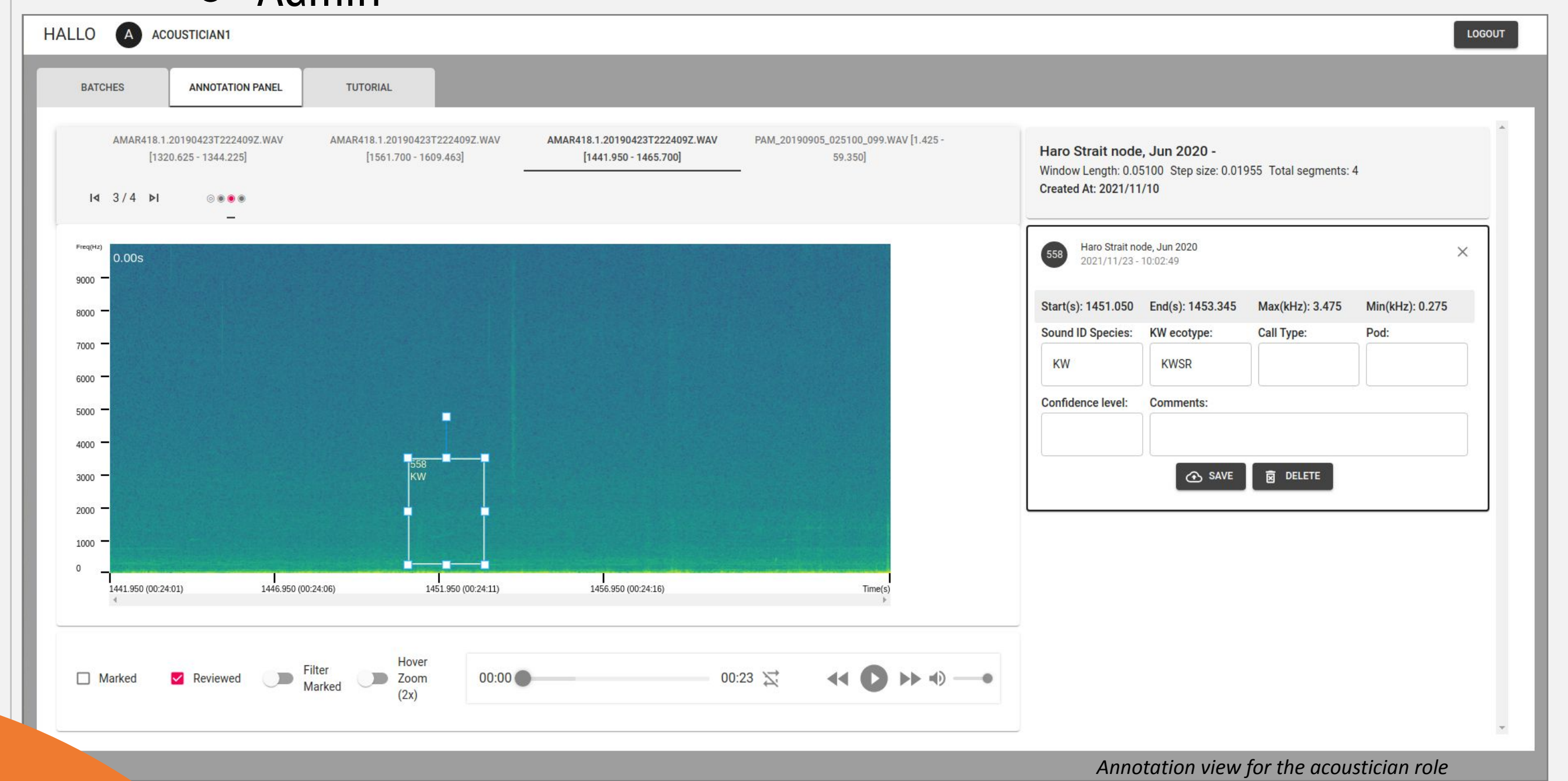
HALLO (Humans and Algorithms Listening for Orcas) has developed a web-based application that allows machine learning developers to more easily collaborate with acoustics experts. It can be used to validate model outputs and produce annotated datasets for training and testing detectors and classifiers.

We are also developing a data portal to share our resources and promote advances in orca monitoring technologies.

## 2-b ANNOTATION TOOL

The tool has three roles with their specific views:

- Developer
- Acoustician
- Admin



## 2-a ANNOTATION TOOL

An open source (GPLv3) web application providing:

- Knowledge transfer from subject experts to developers
- Familiar interface to acousticians
- Machine learning-friendly formats
- Annotation effort management

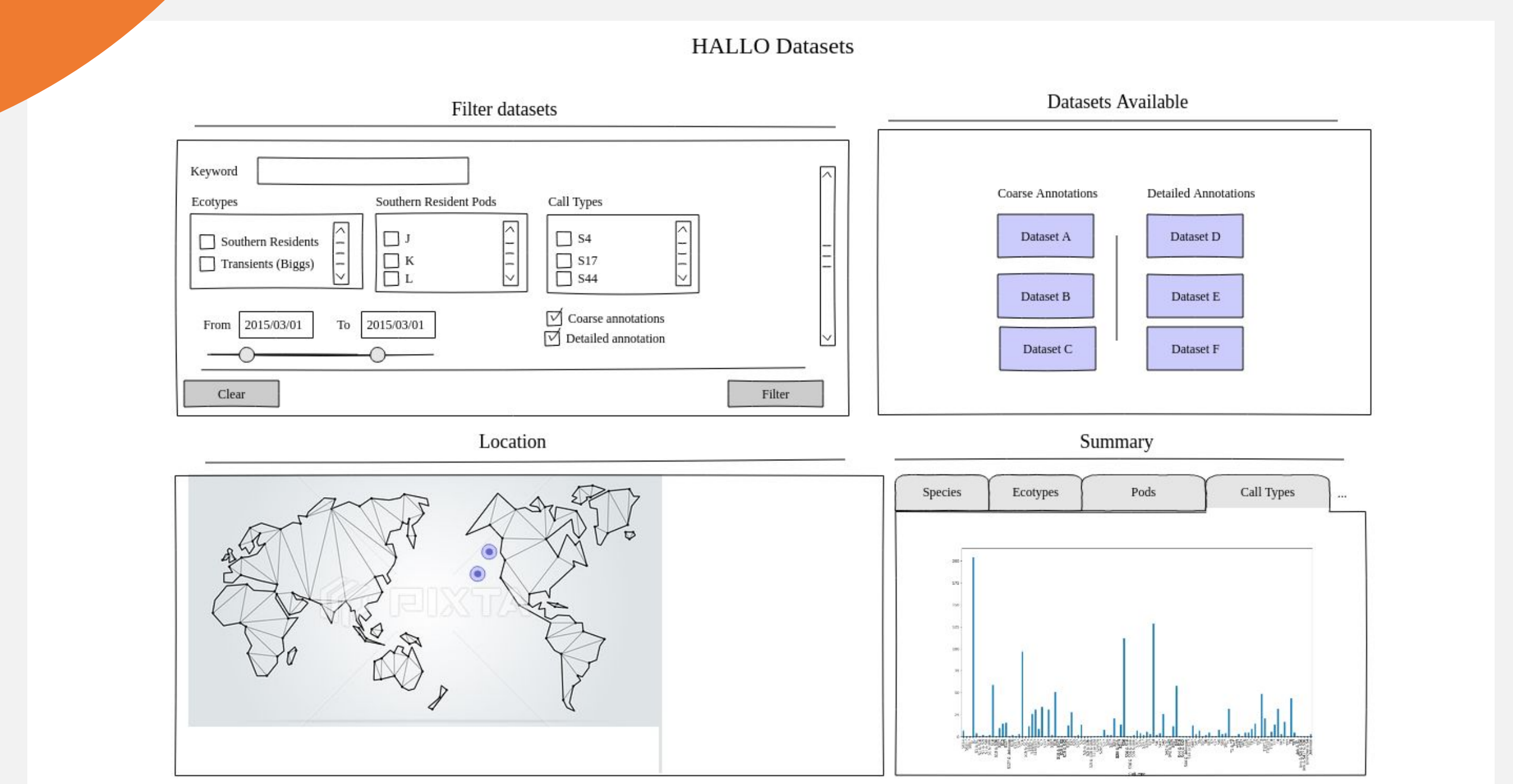


Facilitating collaboration between machine learning developers and acousticians

## 3 DATA PORTAL

A data portal to share:

- Data
- Annotations
- Trained models, detectors and classifiers



## 4 CONCLUSION

We are developing software to support the development and distribution of acoustic detectors and classifiers based on deep learning. The software is developed to be reused in other projects and can be self-hosted or deployed in a variety of web-hosting platforms.

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