

## Introduction

- Proof-of-concept to explore classification  $\bullet$ and mapping of signatures of interest with smartphones deployed on ocean platforms
- Observed and classified low-frequency audio signals with edge and cloud machine learning models





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# Marine Signal Classification and Mapping

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## **Preliminary Results**

Outside, rural or natural

Boat, Water vehicle (369)

Sounds are classified using YAMnet and labeled on a map Heart sounds, Water Vehicle Boat, Water vehicle Outside.outrawaterateraterate Boastat/Vataterevechicle Boat, Water vehicle Boat, Water vehicle Boat, Water vehicle







### Conclusions

• The Google YAMNet model identified signals as boats and vehicles Acoustic signatures from aircraft flying overhead are apparent on spectral analysis

#### **Next Steps**

Approximate locations of sources using multiple sensors Implement transfer learning Deploy persistent smartphone monitoring station arrays on littoral and ocean environments



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