Marine Signal Classification and Mapping

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Abstract:

We present preliminary work on the use of the YAMNet (Yet Another Mobile Network) ML model to observe and identify potential acoustic signals of interest observed in near-shore environments. This study concentrates on vehicle signatures, with possible extension to other signal types. We processed multimodal sensor data collected by two smartphones running the RedVox app mounted on a Wave Adaptive Modular Vessel (WAM-V) autonomous ocean platform. The audio data is annotated by YAMNet at the edge and, independently, on the cloud. The ML classifications are used in conjunction with the GPS data to generate a map with classification icons. We discuss potential strategies on how to interpret and refine the new ML semantic data streams to design transfer learning and reporting pipelines.