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(54) Title (EN): THREE-DIMENSIONAL FORWARD-LOOKING SONAR TARGET RECOGNITION WITH MACHINE LEARNING

(54) Title (FR): RECONNAISSANCE DE CIBLE DE SONAR ORIENTÉE VERS L'AVANT EN TROIS DIMENSIONS À APPRENTISSAGE AUTOMATIQUE

(57) Abstract:

(EN): Machine learning algorithms can interpret three-dimensional sonar data to provide more precise and accurate determination of seafloor depths and in-water target detection and classification. The models apply architectures for interpreting volumetric data to three-dimensional forward-looking sonar data. A baseline set of training data is generated using traditional image and signal processing techniques, and used to train and evaluate a machine learning model, which is further improved by additional inputs to improve both seafloor and in-water target detection.

(FR): Des algorithmes d'apprentissage automatique peuvent interpréter des données de sonar tridimensionnelles pour fournir une détermination plus précise et exacte de profondeurs de fond marin et de détection et de classification de cible dans l'eau. Les modèles appliquent des architectures pour interpréter des données volumétriques en données de sonar orienté vers l'avant en trois dimensions. Un ensemble de ligne de base de données d'apprentissage est généré à l'aide de techniques classiques de traitement d'image et de signal, et utilisé pour entraîner et évaluer un modèle d'apprentissage automatique, qui est en outre amélioré par des entrées supplémentaires pour améliorer à la fois la détection de fond marin et de cible dans l'eau.

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