Advancements in AI for Hydrospatial Applications

Foster, Burns[1], Marks, Paul[2], Cove, Karen[3]

[1] Teledyne Geospatial, Canada
[2] UK Hydrographic Office, United Kingdom
[3] Teledyne Geospatial, Canada
Burns.Foster@Teledyne.com

The application of Artificial Intelligence (AI) technology in Hydrospatial applications has seen slow but steady growth in 2021. The main ongoing challenge in this area remains dealing with increasing volumes of data, which presents a significant bottleneck when companies and organizations need to move this data through complex workflows into useful data products. Teledyne CARIS and the UK Hydrographic Office (UKHO) have jointly explored addressing this bottleneck using AI tools, primarily by automatically identifying and removing noise in full-scale datasets. Teledyne CARIS has also seen success applying AI to the classification of land vs water shots from their airborne bathymetric lidar, the CZMIL Supernova. In recent years the UKHO have seen how data science can transform the way we handle, process, and assimilate data. With the help of AI technology, teams across the UKHO are finding new ways to automate the creation of datasets that help further our understanding of the marine environment, such as the generation of a global dataset that identifies the locations of mangroves, or new methods for automating the creation of coastline datasets.

In 2021, CARIS and the UKHO entered into a joint partnership with the Nippon Foundation GEBCO Seabed 2030 project based on a desire to bring this advanced technology to directly benefit the foundation's goals.

In this presentation we will review the technology areas, applications and success rates for AI technology, and highlight and discuss the direct feedback of these tools provided to CARIS and UKHO by the Seabed 2030 evaluators and other early adopters.