THE JOURNAL OF
OCEAN TECHNOLOGY
www.thejot.net

Machine Learning and AI Applications in Ocean Monitoring and Management

A simplistic response to the question '*what is machine learning*' is one that casts ML as a computer-enabled process receiving inputs and producing outputs but with an important twist compared to traditional (or 'procedural') computer-enabled processes. Traditional/procedural processes receive data, apply explicit and agreed upon relationships, and output answers. ML processes also consume input data (and voraciously so); however, the ML twist is that ML processes crave answers as input not output, and (still with the twist) yield relationships that are often implicit and intractable, and not explicit nor well understood. Perhaps a good illustration of the ML twist is a process that achieved some prominence in the web-viewing world: telling a cat from a dog. Images of dogs and cats are input to an ML-process along with answers: 'Cat' or 'Dog.' Eventually, answers are withheld and the process uses its 'learned neural network' to respond 'cat' when presented with a feline image and 'dog' for a canine one. In a surprisingly short period of time, the ML process that confers a seemly innocent ability to classify domestic pets has evolved to profoundly affect not just commercial and industrial processes but also the competitiveness of nations.

With guest editor Dr. Jim Wyse, the JOT will turn its attention to AI developments in the oceans with an interest that extends from technically advanced marine assets plying ocean spaces to exotic and harvestable creatures living and lurking in ocean depths as well as processes, both natural and artificial, operating in ocean environments. We are inviting submissions of essays, short articles, and technical papers on your AI/ML projects, plans, operations for publication in JOT's fall 2021 issue. While we would be surely impressed by the neural network that lurks in your piece of the 'cloud' to classify your cat and dog photos, we are most eager to hear about ocean-relevant AI/ML developments and applications, perhaps including those that distinguish a catfish from dogfish and reveal new knowledge about monitoring and managing the oceanic environment that is their home.

Further details

Technical papers describe cutting edge research and present the results of new (i.e., not previously published) research in ocean technology, science or engineering, and be no more than 7,500 words in length. **Student papers are welcome.**

Essays present well-informed observations and conclusions, and identify key issues for the oceans community in a concise manner. They are written at a level that would be understandable by a non-specialist. As essays are less formal than a technical paper, they do not include abstracts or a listing of references. Typical essay lengths are up to 3,000 words.

Short articles are between 400 and 800 words and focus on how a technology works, evolution or advancement of a technology as well as viewpoint/commentary pieces.

Important deadlines

Technical paper submissions: May 21. **This should be the full paper.**

Expressions of interest (EOI) for essays and short articles: May 21

After May 21, the JOT team will review all submitted EOIs and prepare a content outline. Should your EOI be accepted, the deadline for submission of materials is July 23.

Expressions of interest for essays and short articles should contain the following information:

- Proposed title of article
- Type of article (essay – up to 3,000 words; or short article – up to 800 words)
- Name(s) and affiliation(s) of author(s)
- Short summary of article (no more than 200 words)

Submit both technical papers and expressions of interest or any questions to Dawn Roche:
dawn.roche@mi.mun.ca