Postdoc Position in *Satellite-based Kelp Mapping (SKeMa): development of a software framework for First Nations* in British Columbia

Applications are being accepted for a postdoc position in *Satellite-based Kelp Mapping (SKeMa): development of a software framework for First Nations* in British Columbia*,* in the SPECTRAL Remote Sensing Lab, Geography and Computer Science, at the University of Victoria. The postdoc will be based in Victoria, Vancouver Island, Canada, and will work under the supervision of Dr. Maycira Costa and Dr. Neil Ernst from UVic. This project is funded by the Canadian Space Agency and in partnership with First Nations, VERTEX Resource Group, and the Hakai Institute.

Project Context:

This project aims to develop a software-based analysis framework to facilitate the use of Sentinel 2 and SuperDove satellites to retrieve floating kelp extent in BC and support First Nations marine planning. We expect that the outcomes of this research will allow First Nations to more independently and effectively use Space-based Earth Observation (SBEO) for tasks such as tracking kelp changes in relationship to environmental conditions (e.g., ocean temperature, return of sea otters) and overseeing the status of cultural and economically important kelp wild harvesting in their marine Traditional Territories. Kelp forests in British Columbia (BC) provide habitat and shelter to many important species, including juvenile salmon, as they migrate from coastal rivers to the open ocean. However, the effects of a warming climate and coastal development threaten kelp ecosystems, recognized as ecologically significant species of priority in Canada as they provide habitat for many species, including economically and culturally important Pacific salmon and herring, particularly for First Nations.

Postdoctoral Position:

The postdoc will be responsible for two components of this project, in conjunction with the project team: (1) develop software that integrates a neural network approach for defining the aerial extent of floating kelp with a user-friendly interface – Satellite-based Kelp Mapping (SKeMa); (2) develop and provide training courses for First Nations in BC to use SKeMa for monitoring their marine Traditional Territories. Operationally, the candidate will (3) lead at least 2 manuscripts for peer-reviewed publications; and (4) produce project reports and other knowledge mobilization efforts to BC's coastal communities. The postdoc will also contribute to field data collection efforts and analyze data from various sources, including satellite imagery. The postdoc will also have the opportunity to be involved in related collaborative research efforts in BC and the North Pacific.

Qualifications:

- A Ph.D. degree (completed by the time of appointment) in computer science/biology/geography/oceanography/marine ecology, or related discipline.
- Established publication record
- Record of successful project management and collaboration
- Strong programming and data analysis skills in Python and related libraries
- Experience working with machine learning and deep neural networks, an asset
- Demonstrated expertise in remote sensing would be an asset.
- Interpersonal and communication skills, the ability to work both independently and collaboratively with coastal communities.

Start date: As soon as possible

Position Length: two years, pending annual review

Salary: $70,000 (benefits and mandatory related costs are included)

Applicants must submit:

- A CV, including the e-mail and phone number for two references;

- A short cover letter explaining the applicant's motivation for working on the project and how previous experience qualifies them for this position;

- Reprints of 2 published papers, if available.

Submit applications to:

Maycira Costa (maycira@uvic.ca) and Neil Ernst (nernst@uvic.ca)

Equity, Diversity and Inclusion: We value equity and diversity, and strongly encourage applicants from underrepresented groups to apply.