PhD position: remote sensing and valuation of lake water quality in the United States (Boston University, US-EPA, NASA)

The Department of Earth and Environment at Boston University (BU) is offering a funded PhD position for a student interested in the **remote sensing and valuation of lake water quality** in the United States under the joint supervision of Christoph Nolte and Cédric Fichot.

The PhD student will join a research project projected to be funded under NASA's Water Resources Applications program in collaboration with the U.S. Environmental Protection Agency (US-EPA)'s National Center for Environmental Economics, the Blackwood Program in Real Estate at Virginia Tech, and BU's Center for Remote Sensing. The project develops the prototype of "LakeSense": a system to track lake water quality from space using aquatic remote sensing techniques. The goal of LakeSense is to improve the representation of lake water quality benefits in US-EPA's decision support tools for national and state-level regulatory analyses.

This position will be particularly rewarding for a student with research interests in aquatic remote sensing, environmental valuation, or both, and strong quantitative skills. The student will join a vibrant, interdisciplinary PhD program at BU's Department of Earth and Environment with strengths in remote sensing, biogeosciences, and social sciences, among others. The department offers a five-year funding guarantee for all accepted PhD students.

Research tasks will be determined jointly by the student and the supervisors and include:
- The development of a data pipeline for the recovery of lake water quality indicators from Sentinel 2A/B and Landsat 8/9 data using aquatic atmospheric correction.
- The calibration and validation of remotely sensed lake water quality indicators against in-situ data for a national sample and two pilot regions (Midwest and Southeast).
- An assessment of the extent to which remotely sensed lake water quality indicators permit the estimation of lake water benefits, using the example of hedonic valuation (i.e., estimating causal effects of lake water quality on property prices).

Required qualifications:
- BSc or MSc degree in remote sensing, geo-informatics, environmental economics, computer science, statistics, spatial data science, or a closely related field.
- Strong statistical, computing, and geo-processing skills in at least one open-source language – ideally R, Python, or both.
- Strong analytical writing skills.

Desired qualifications:
- Prior experience in any of the following will be an asset: aquatic remote sensing, hedonic valuation, parallelized computing, geo-processing in Python.

To apply for this position, please send an email to Christoph Nolte (chrnolte@bu.edu) by March 18, 2022, with the words "NASA-WRA PhD position" in the title. Please include:

- A brief statement (1 page) that outlines (a) how you see your own research interests and career objectives align with the objectives of the project, and (b) how your training and work experiences have equipped you with the skills to support the envisaged work
- A short CV (1 page) summarizing education, quantitative skills, and research experience
- Unofficial transcripts
- Contact information for three reference letter writers
- Optional: any supplementary evidence of prior expertise in remote sensing, environmental valuation, geo-informatics, and/or parallelized data processing (e.g., publications, projects, GitHub).

The position will remain open until filled.

Boston University is an equal opportunity employer, and all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, disability status, protected veteran status, or any other characteristic protected by law.

We look forward to hearing from you,

Christoph Nolte and Cédric Fichot