

Research Assistant (AI / Image and Data Integration)
Addressing Illegal Fishing and Labor Abuse Initiative

Are you interested in the intersection of ocean science and policy and want to be part of building solutions for current and future ocean issues? If so, the Stanford Center for Ocean Solutions, an initiative of the Stanford Woods Institute for the Environment, invites you to apply as a Research Assistant.

The [Stanford Center for Ocean Solutions](#) (COS) catalyzes research innovation and action to improve the health of the oceans for the people who depend on them the most. COS capitalizes on Stanford's broad expertise in ocean science and many other disciplines crucial to developing ocean solutions, including engineering, computer science, political science, design and business. Our core team of researchers and fellows partner with other research institutions, national and international non-governmental organizations, businesses and governments, as well as established and emerging leaders in the data revolution.

Project Description

Illegal, unreported and unregulated (IUU) fishing is a widespread and pervasive issue, jeopardizing the livelihoods of three billion people who rely on fisheries and disrupting needed revenues to fisheries-dependent countries. At the same time, environmental degradation from IUU and overfishing can exacerbate labor abuses in fisheries. To develop management and policy solutions to mitigate these activities, we use a data-driven approach to understand the risks of IUU fishing and labor abuse associated with fishing activities. As part of this work, we have developed an AI-based algorithm to analyze optical satellite imagery and automatically detect fishing vessels. Supported by a Stanford [HAI](#) grant, we aim to expand on this approach to better inform ocean use management, focusing on coastal fisheries in Peru. We intend to refine and tailor our vessel detection algorithm to specific research questions and explore how results that are generated may be integrated with other data sources such as national Vessel Monitoring System (VMS) data to enhance our understanding of vessel dynamics. This project will develop a novel approach to detecting illegal fishing and an analytical framework that can be applied to different locations and contexts in the hopes of informing better ocean stewardship.

Job Duties

The primary responsibility of the Research Assistant is to support the research team through research, synthesis, writing, referencing, and organizing. Specific tasks include:

- Refine our vessel detection algorithm and tailor it to specific objectives
- Explore an analytical framework for data fusion with other datasets
- Engage in discussions with a multidisciplinary team composed of Fiorenza Micheli (COS), Trevor Hastie (Statistics), Serena Yeung (Computer Science), Shin Nakayama (COS), Colette Wabnitz (COS), Jim Leape (COS), and Elizabeth Selig (COS)
- Engage in discussions with local fishery and governance experts to identify critical challenges and contextualize findings

Qualifications

We seek a detail-oriented, investigative, self-starting undergraduate or master's student at Stanford University with the following interests, skills and experience:

- Strong interest in a data science approach to ocean solutions
- In-depth knowledge of machine learning and object detection algorithms
- Familiarity with Google Cloud Platform
- Fluency in Python or R for data processing, analysis and visualization
- Knowledge of advanced statistics
- Attention to detail in organizing research and work products
- Ability to work independently and within a team environment
- Strong communication skills

Start Date and Working Hours

This position requires a 10 h/week commitment **from November 2021 to March 2022**. The start date and working hours are negotiable. The contract may be extended based on performance as well as project needs and funding. Compensation is competitive compared to similar roles and will follow Stanford's guidelines for student wage rates.

Location

This position will be based at the Center for Ocean Solutions office at Stanford University (Palo Alto). Given current restrictions related to COVID-19, all work could be done remotely.

Application Process

Please email 1) a letter of interest providing background on your experience and applicable skills; and 2) a resume outlining your education and professional experience; to: Shin Nakayama, Stanford Center for Ocean Solutions: shinn1@stanford.edu. Please include "**COS Research Assistant Application (AI IDI)**" in the email subject line. Please feel free to contact this person if you have any questions.

Deadline: The position will remain open until filled.

Stanford is an equal opportunity employer and all qualified applicants will receive consideration without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, disability, veteran status, or any other characteristic protected by law.