Center for Ocean Solutions:

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 in the 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 fishing (IUU) contributes 10-30% of seafood in the market, jeopardizing livelihood of 3 billion people who rely on fisheries while aggravating modern slavery problems. We have started understanding fishing activities through automated identification system (AIS), which provides locations of fishing vessels at high frequencies. However, many fishing vessels are undetectable — they can “go dark” by turning off the AIS device, and small fishing boats are not required to carry the device. Toward painting a comprehensive picture of the IUU landscape, we aim to characterize activities of fishing vessels off the radar using satellite imagery. The project involves analysis of port usage by small vessels and characterization of dark vessel behavior through image analysis in combination with AIS data.

Qualifications:

- Strong interest in a data science approach to ocean solutions
- Proficiency in Python
- Basic knowledge on machine learning and computer vision (familiarity with deep learning and/or OpenCV a plus)
- Basic knowledge on statistics and familiarity with statistical software environments
- Strong communication skills
- Detail-oriented, self-starter working methods
- Attention to detail in organizing research and work products