**Virtual Summer Undergraduate Research Internships**

Dates of internship: June 8 – Aug 14, 2020

Location: Virtual

Number of positions available: 1-2

Faculty Mentor: Dr. Pinki Mondal

**Project Title:** Deciphering Satellite Images for Environmental Research

**Research Description:**

This project will introduce students to visual assessments of satellite images using cloud computing platform. Specific tasks will include working with satellite data on the Google Earth Engine (GEE) platform and collecting data by visual assessments of changing landscapes. Machine learning algorithms, that are often used in creating a representation of the real world, require high volume of training and testing data. In a world where travel to field sites for data collection might no longer be feasible, visual assessment of real-time satellite images can complement such data collection. The interns will also learn how to perform scientific literature review and compile a bibliography using library resources.

**Research Objectives:**

1. Collect location data using a combination of freely available satellite images and cloud computing platform.
2. Conduct a literature review and create a bibliography.

**Student Learning Objectives: Professional and Research Skills**

This internship focuses on the development of the following professional and scientific skills.

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| Broad Professional Skills | Specific Skills |
| Planning and time management | Ability to set and complete specific goals of varying scope |
| Express ideas in writing | Write descriptions of research procedures, create a poster of your research, communicate via email professionally and in a timely and consistent fashion |
| Express ideas verbally | Discuss research activity in lab meetings, present poster at symposium |
| Work independently | Independent work ethic – work independently or with peers to problem solve  |
| Develop professional network | Work with lab team to develop professional network and utilize peer-groups to problem solve. |
| Maintain professional attitude and work principles (i.e. integrity, responsibility, diligence, following ethical standards) | Be on time, learn procedures, ask questions if unsure, respect your colleagues and mentors |

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| Broad Scientific Research Skills | Specific Skills |
| Understand scientific terms  | Environmental, geospatial terms |
| Locate scientific articles and resources | Conduct searches for literature on environmental remote sensing |
| Understand research questions |  |
| Read and understand research articles |  |
| Apply research tools and techniques in research experiments  | Participate in the development of and data collection using satellite images  |
| Understand, apply, and explain scientific concepts and theories | In lab meetings and during research symposium |

**Prerequisites:**

Experience with GIS analysis. Introductory experience with remote sensing or any programming language (e.g., JavaScript, R) is a plus, but NOT REQUIRED. Due to the virtual nature of this internship, a stable internet connection and a functional computer are required.

**Work Environment and Expectations:**

Work will be conducted virtually. Hours are flexibly determined between student and mentor. Students will work full time during the summer from June 8, 2020-August 14, 2020. Students will participate in a weekly meeting with the mentor to discuss and track progress. Students will also participate in a retreat, communications workshop and end of internship symposium.

**Stipend:** $4,000. Direct deposit is required.

**Funding Source:** National Science Foundation, Delaware EPSCoR Track I

**How to apply:** https://ugresearch.udel.edu/PUB\_Program.aspx