Opportunity Title: Computer Vision, Satellite Image Processing and Geospatial Data Visualization

Opportunity Reference Code: NGA-VSP-2020-0012

Organization	U.S. Department of Defense (DOD)
Reference Code	NGA-VSP-2020-0012
How to Apply	Components of the online application are as follows:

- Profile Information

- Educational and Employment History

- Essay Questions (goals, experiences, and skills relevant to the opportunity)

- Resume (PDF)

- Transcripts/Academic Records - For this opportunity, an unofficial transcript or copy of the student academic records printed by the applicant or by academic advisors from internal institution systems may be submitted. Click here for detailed information about acceptable transcripts.

- 2 Recommendation(s)

Submitted documents must have all social security numbers, student identification numbers, and/or dates of birth removed (blanked out, blackened out, made illegible, etc.) prior to uploading into the application system.

If you have questions, send an email to **orisedod@orise.orau.gov**. Please list the reference code of this opportunity in the subject line of the email.
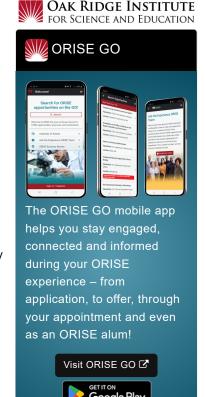
All documents must be in English or include an official English translation.

References should be from persons familiar with your educational and professional qualifications (include your thesis or dissertation advisor, if applicable). Personal references are NOT acceptable.

Description	The National Geospatial-Intelligence Agency (NGA) delivers world-class geospatial intelligence that provides a decisive advantage to policymakers, warfighters, intelligence professionals and first responders. Anyone who sails a U.S. ship, flies a U.S. aircraft, makes national policy decisions, fights wars, locates, targets, responds to natural disasters, or even navigates with a cellphone relies on NGA. NGA enables all of these critical actions and shapes decisions that impact our world through the indispensable discipline of geospatial intelligence (GEOINT).

NGA's Research directorate – Predictive Analysis Pod – Encompasses techniques from data mining, predictive modeling, and machine learning that analyze current and historical facts to make predictions about future or other unknown events. Sometimes the event is in the future, but predictive analytics can be applied to any type of unknown – past, present or future.

The predictive Analytics Pod seeks PhDs in a variety of disciplines:

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This research opportunity is with the Research Directorate at the National Geospatial-Intelligence Agency in Springfield, Virginia. NGA Research is looking for a scientist to conduct applied research in the area of computer vision, satellite image processing and analysis, and geospatial data visualization. Under the guidance of a mentor, the overall objectives for this research are to develop new software scripts and tools that provide rapid analysis of agriculture and land use, apply machine learning and deep learning to identify agricultural fields, and analyze times series of vegetation indices. Emphasis will be placed on cloud computing infrastructure, machine learning algorithms, deep learning frameworks, and testing and validation procedures. The prospective candidate will be a member of an experienced team responsible for developing new methods and carrying out research on small-holder agriculture as it relates to human and environmental security.

Appointment Length

This appointment is a twelve month research appointment, with the possibility to be renewed for additional research periods. Appointments may be extended depending on funding availability, project assignment, program rules, and availability of the participant.

Participant Benefits

Participants will receive a stipend to be determined by **NGA**. Stipends are typically based on the participant's academic standing, discipline, experience, and research facility location. Other benefits may include the following:

- Health Insurance Supplement. *Participants are eligible to purchase health insurance through ORISE.*

- Relocation Allowance

- Training and Travel Allowance

Nature of Appointment

The participant will not enter into an employee/employer relationship with ORISE, ORAU, DOD, or any other office or agency. Instead, the participant will be affiliated with ORISE for the administration of the appointment through the ORISE appointment letter and Terms of Appointment.

Qualifications
- PhD by start of appointment in the one of the following fields: computer science, geography, natural resource management, mathematics, statistics, data science, environmental science, remote sensing, physics, biology, ecology, or a related field.
- Experience with one or more of the following: Google Earth Engine, deep learning, convolutional neural networks, data science and engineering, land use and land cover classification, time series analysis, and/or best practices in geo-visualization.
- Research experience as evidenced by original, published work in one or

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- more of the following areas: data science, image processing, image analysis, computer vision, land systems science, geographic information systems, remote sensing, and cloud computing.
- While some of the research can be carried out UNCLASSIFIED, additional consideration will be given to those who can acquire and hold a TS/SCI clearance.
- A background check will be conducted for an SCI security clearance. Completion of Questionnaire for National Security Positions is required.
- NGA is a drug-free workplace. Initial and random drug tests will be conducted.

Eligibility Requirements
- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree received within the last 60 months or currently pursuing.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 👁)
  - **Communications and Graphics Design** (2 👁)
  - **Computer, Information, and Data Sciences** (17 👁)
  - **Earth and Geosciences** (21 👁)
  - **Engineering** (27 👁)
  - **Environmental and Marine Sciences** (14 👁)
  - **Life Health and Medical Sciences** (46 👁)
  - **Mathematics and Statistics** (10 👁)
  - **Physics** (16 👁)
  - **Science & Engineering-related** (1 👁)
  - **Social and Behavioral Sciences** (28 👁)