Opportunity Title: NGA: Mobile Mapping Research in Geophysics
Opportunity Reference Code: NGA-MMR-RGP-19-20

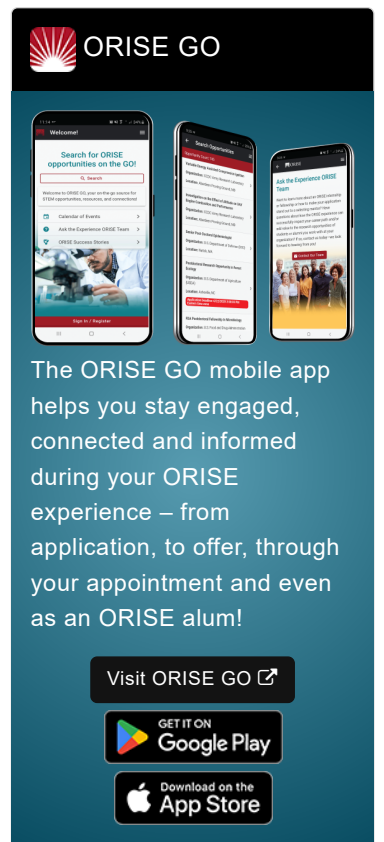|	
Organization	U.S. Department of Defense (DOD)
Reference Code	NGA-MMR-RGP-19-20
How to Apply	To be considered for an ORISE fellowship with NGA, please submit the following:

- **Resume or CV**
- **Transcripts** - Transcript verifying receipt of Degree/or identifying current enrollment.
- **2 References**
  - An email with a link to the reference form will be emailed to the applicant upon completion of the on-line application. Please send this email to persons you have selected to complete a reference.
  - 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).

With the growing interest in autonomous cars and trucks, the remote sensing and environment mapping technologies must sufficiently mature to create an accurate yet real-time 3D map from a moving vehicle. Many of these technologies and algorithms can be adapted for use on smaller robotic platforms such as quadcopters or ground rovers. The same mobile mapping technology can be applied for indoor scenes to enrich Building Information Management (BIM) systems for construction purposes. To this end, the visiting scientist will identify opportunities to leverage unclassified data to design and integrate algorithms for mapping of outdoor and indoor scenes.

The National Geospatial-Intelligence Agency Research Geophysics Pod is interested in recruiting an ORISE participant with a demonstrated educational background and potential R&D experience in mobile mapping. The ideal candidate will have a background in either sensor integration, sensor fusion, computer vision, robotics and/or autonomous systems as it pertains to mobile 3D mapping. Selected participant will have the opportunity to engage with state-of-the-art experimental equipment and software as well as researching and learning along side established scientists in their field.

Headquartered in Springfield, VA, with facilities in St. Louis, MO, NGA is a member of the U.S. Intelligence Community (IC) and a Department of Defense (DoD) Combat Support Agency.

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Qualifications	- Student applicants must be completing a Master, Ph.D. or post-doctoral appointment with backgrounds in Computer Science, Computer Vision, Robotics, Mathematics, Statistics, Remote Sensing, Aerospace or Mechanical Engineering, or a related field.
	- Current college or university faculty members on sabbatical are also eligible. Other applicants will be considered on a case-by-case basis.
	- Knowledge in the following areas would look at favorably: computer vision, Simultaneous Localization and Mapping (SLAM), sensor calibration, sensor fusion, robot navigation, autonomous systems, machine learning, Extended Kalman Filter (EKF) stability or state and parameter estimation.
	- Knowledge in the following areas would look at favorably: computing/scripting languages such as Robotic Operating System (ROS), C++, Python, Rust, MATLAB, Bash and version control tools such as Git.
	- Ability to operate in an agile software development environment is a plus.
	- Applicants must demonstrate experience applying the scientific method and modern research techniques and reproducible research best practices in the mobile mapping field.
	- Applicants should have experience working within a research environment and show an ability to conceptualize a broad research agenda, to plan and execute specific research projects, and to meet task deadlines and goals. Applicants should have excellent verbal and written communication skills.
	- U.S. citizenship is required for the applicant. Please see further eligibility under Security Requirements.

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Master's Degree or Doctoral Degree received within the last 60 months or currently pursuing.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 👁)
  - **Communications and Graphics Design** (1 👁)
  - **Computer, Information, and Data Sciences** (16 👁)
  - **Earth and Geosciences** (21 👁)
  - **Engineering** (27 👁)
  - **Environmental and Marine Sciences** (14 👁)
  - **Life Health and Medical Sciences** (45 👁)
  - **Mathematics and Statistics** (10 👁)
  - **Other Non-Science & Engineering** (2 👁)
  - **Physics** (16 👁)
  - **Science & Engineering-related** (1 👁)
  - **Social and Behavioral Sciences** (27 👁)