Opportunity Title: NGA: Research in Inverse Problems
Opportunity Reference Code: NGA-RIP-19-20

Organization U.S. Department of Defense (DOD)

Reference Code NGA-RIP-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).

The National Geospatial-Intelligence Agency is conducting research in advanced inverse problems techniques. Many interesting spatial problems involve translating measurements into a model of physical state and can be viewed as inverse problems. Due to the ill-conditioned nature of these problems, domain knowledge or assumptions such as smoothness or sparsity are incorporated to constrain the solution through regularization. Areas of interest include stochastic inverse systems, sparse solutions, and efficient (approximate) algorithms.

This is an educational research fellowship were the 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.

Qualifications Applicant must have a B.S., M.S., or PhD. in mathematics or a related field. NGA and the selected candidate will cooperatively define mutual research projects and goals in support of the NGA mission and the candidate's educational pursuits.

- Current college or university faculty members on sabbatical are also eligible.

- Applicants must demonstrate experience applying the scientific method and modern research techniques in a field directly applicable or highly related to the Research Pod.

- Applicants must demonstrate experience in algorithm development and programming to test and validate the proposed methods.

- Applicants should have experience conducting research within a research environment and show

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an ability to conceptualize a broad research agenda, to plan and execute specific research projects, and to meet research expectations. Applicants should have excellent verbal and written communication skills.

- U.S. citizenship is required for the applicant. Please see further eligibility under Security Requirements.

- If the research project is classified, a background check will be conducted for a Sensitive Compartmented Information (SCI) security clearance and completion of a Questionnaire for National Security Positions will be required. Visiting scientists are also subject to Counterintelligence Polygraph examinations and drug testing in order to maintain access to Top Secret information. Please refer to section on Security Requirements.

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Bachelor's Degree, Master's Degree, or Doctoral Degree received within the last 60 months or currently pursuing.
- **Academic Level(s):** Graduate Students, Postdoctoral, or Post-Master's.
- **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 👁)