

## Defense Threat Reduction Agency Post Doc Program Announcement

Currently Department of Defense's DTRA is interested in applicants for five Post PhD Fellows positions in DTRA [Basic Research](#) Thrust Areas & Technical Writer/Graphic Designer):

**(1) Science of WMD Sensing and Recognition:** The basic science of WMD sensing and recognition is the fundamental understanding of materials that demonstrate measurable changes when stimulated by radiation or particles from WMD in the environment. This research thrust involves exploration and exploitation of interactions between materials and various photons, molecules, nuclear radiation and/or particles. These interactions and the specific form of recognition they provide are used for subsequent generation of information that provides knowledge of the presence, identity, and/or quantity of material or energy in the environment that may be significant.

**(2) Cognitive and Information Science:** The basic science of cognitive and information science results from the convergence of computer, information, mathematical, network, cognitive, and social science. This research thrust expands our understanding of physical and social networks and advances knowledge of adversarial intent with respect to the acquisition, proliferation, and potential use of WMD. The methods may include analytical, computational or numerical, or experimental means to integrate knowledge across disciplines and improve rapid processing of intelligence and dissemination of information.

**(4) Science to Defeat WMD:** Basic science to defeat WMD involves furthering the understanding of explosives, their detonation and problems associated with accessing the target WMDs. This research thrust includes the creation of new energetic molecules/materials that enhance the defeat of WMDs, the improvement of modeling, and simulation of these materials and various phenomena that affect success and estimate the impact of defeat actions, and investigation of novel methods that may yield order-of-magnitude improvements in energy and energy release rate.

**(5) Science to Secure WMD:** Basic science to support securing WMD includes: (a) environmentally responsible innovative processes to neutralize chemical, biological, radiological, nuclear, or explosive (CBRNE) materials and components; (b) discovery of revolutionary means to secure components and weapons; and (c) studies of scientific principles that lead to novel physical or other tags and methods to monitor compliance and disrupt proliferation pathways. The identification of basic phenomena that provide verifiable controls on materials and systems also helps arms control.

**(\*Technical writer/graphic designer** to plan, analyze, and create solutions to communications problems in collaboration with team members representing a number of disciplines. The technical writer/designer will work with subject matter experts (SMEs) to determine specific content and identify goals for successful communication product development. Strategic communication tools are expected to present complex information in both print and electronic formats such that technical and non-technical end users are considered. Communications products will include, but are not limited to, technical newsletters, specialized brochures, annual reports, and web pages.

### **Further Detail**

For qualified candidate, this opportunity would provide the following to a US citizen, capable of obtaining a security clearance at the Secret level, to spend one year working at DTRA (Fort Belvoir):

- \$71,663 annual salary
- \$1,000 monthly living allowance
- Domestic Travel allowance
- Potential funding for additional academic degrees

### **Background of Post-Doctoral Research Fellowship Program**

The objective of this fellowship program is to establish and sustain a long-term process through which the University Strategic Partners (USP) will develop and execute a Post- Doctoral Research Fellowship Program to address critical scientific, technology and engineering needs for reducing the threat from Weapons of Mass Destruction (WMD). This project will enable DTRA to utilize mission-critical expertise possessed by highly qualified faculty and graduate students (nearing completion of their degree) who hold doctoral or terminal professional degrees in relevant scientific, technical and engineering disciplines. Post-Doctoral / Masters Fellows will be selected based upon their responsive ability to enhance the joint DTRA-Strategic Partnership mission requirements. Key science and technology skills include: nuclear and radiation physics; weapons engineering; structural, electrical and mechanical engineering; broad-based nano-technological engineering and applications; weapons effects and system response technologies; physics, chemistry and biological sciences related to detection, characterization and destruction of WMD materials; medical and pharmaceutical sciences; information technology, modeling, data visualization and advanced computational sciences; social, adversarial and behavioral modeling, science and analysis. Post-Doctoral / Masters Research Fellows will be assigned to DTRA's Research and Development and subsequently detailed to perform such duties as may be required among the various agency Enterprises, Directorates and Offices which are typically reviewing research proposals and white papers.

**\*Contact Jan Mahar Sturdevant** (jbm18@psu.edu) for more details such as the Recruitment Letter and the Application.