Opportunity Title: Postdoctoral Fellowship in Applied Physics
Opportunity Reference Code: DHS-TSL-PostDoc-Fellowships-2022

Organization U.S. Department of Homeland Security (DHS)

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How to Apply Click on *Apply* now to start your application.

Description The U.S. Department of Homeland Security (DHS) is offering postdoctoral fellowships for their *Visiting Scientist Program* cohort at the Transportation Security Laboratory (TSL). The program is seeking recent postdocs that have experience in mathematical modeling and large data sets and have a foundational knowledge of the physics or engineering applicable in learning to create high-fidelity synthetic data.

What will I be doing?

This postdoc fellowship is an opportunity for you to engage in high energy physics research, specifically in applied physics. You will join a cohort of postdocs in applied physics research, specifically related to synthetic data generation, testing and evaluation in threat detection technology.

The project involves a team of TSL staff and researchers focused on a two-fold approach involving x-ray and millimeter wave regimes looking at threat components. The need to develop synthetic methods to test new Deep Learning algorithms is paramount and the proposed research is new and cutting edge. The goal of the research is the generation and validation of synthetic data based on the operational characteristics of x-ray computed tomography and active millimeter wave imaging of personnel. This research will directly influence the infrastructure for aviation and national security.

Why should I apply?

This postdoc fellowship provides the opportunity to **independently utilize your skills and engage with experts in innovative ideas** to move your proposed research forward. There are multiple opportunities available to engage in your applied research and evaluation interests.

These include, but are not limited to,

- Deep learning algorithm testing
- Synthetic signature and/or image generation
- Data manipulation and quality assurance
- Threat analysis testing and evaluation

You will join a team of physicists, chemists, engineers and mathematicians who are leaders in explosives detection and mitigation. These talented technical experts have more than 1,000 years of experience collectively. Being a part of this team also means having access to a unique 12-acre secure campus specialized for explosive storage and handling areas, as well as a multi-laboratory infrastructure designed for applied research, test and evaluation.

Where will I be located? Atlantic City, NJ

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What is the anticipated start date?

TSL is ready to make appointments immediately. Exact start dates will be determined at the time of selection and in coordination with the selected candidates. Applications are reviewed on an ongoing basis and fellowships will be filled as qualified candidates are identified.

What are the benefits?

As a participant with TSL, you will receive:

- Stipend starting at $80,000 based on your academic level and experience
- Health Insurance Allowance
- Relocation Allowance up to $5,000, if you are located more than 50 miles one way from the hosting facility.

Appointments are for a year with the option to extend the appointment for additional years. Extensions are contingent upon project needs and funding availability. The maximum time a participant can remain in the ORISE program is five years from his/her initial start date.

Security Clearance

Although you will not enter into an employee/employer relationship with ORISE, ORAU, DHS or any other office or agency, you must have or be eligible to obtain and maintain a security clearance for the duration of your appointment. It is expected that after completing the necessary application for clearance a fitness determination will allow participation to begin with unclassified material, while awaiting a clearance.

About Transportation Security Laboratory

TSL helps protect our nation's civilian air transportation systems. By virtue of its accomplished experts, cutting edge facilities and partnerships, TSL offers the homeland security community and transportation security partners the ability to advance detection technology from conception to deployment through applied research, test and evaluation, assessment, certification and qualification testing.

For additional information about TSL, visit: https://www.dhs.gov/science-and-technology/transportationsecurity-laboratory.

For additional information about DHS, visit: https://www.dhs.gov/about-dhs.

Administrative Notes

- You will not enter into an employee/employer relationship with ORISE, ORAU, DHS or any other office or agency. Instead, you will be affiliated with ORISE for the administration of the appointment through the ORISE appointment letter and Terms of Appointment.
- The successful applicant(s) will be required to comply with Environmental, Safety and Health (ES&H) requirements of the hosting facility, including but not limited to, COVID-19 requirements (e.g. facial

covering, physical distancing, testing, vaccination).

Qualifications Applicants must meet the following requirements:

- Have received or expect to complete all requirements for a Doctoral degree by the anticipated start date. Applicants currently pursuing a doctoral degree must provide proof of completion of all degree requirements before the fellowship start date.
- Be a U.S. Citizen

Highly competitive applicants will have education and/or experience in one or more of the following:

- Applied Physics
- Computational Physics
- High Energy Physics
- X-ray Physics
- Computational Mathematics
- Mathematical Modeling

Applicants with education and experience in similar or related fields in physics, mathematics and statistics, engineering, or similar, are also encouraged to apply.

A complete application consists of:

- Complete Zintellect Profile
- Essay Questions - The application includes questions specific to the opportunity.
- 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.
- Current Resume/CV
- One (1) Recommendation - Applicants are required to provide contact information for at least one recommendation in order to submit the application. You are encouraged to request a recommendation from a professional who can speak to your abilities and potential for success as well as your scientific capabilities and personal characteristics. Recommendation requests must be sent through the Zintellect application system. Recommenders will be asked to complete a recommendation in Zintellect. Letters of recommendation submitted via email will not be accepted.

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. All documents must be in English or include an official English translation.

If you have questions, send an email to DHSEd@orau.org. Please list the reference code of this opportunity [DHS-TSL-PostDoc-Fellowships-2022] in

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the subject line of the email.

Connect with ORISE...on the GO! Download the new ORISE GO mobile app in the Apple App Store or Google Play Store to help you stay engaged, connected, and informed during your ORISE experience and beyond!

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (4 👁)
  - **Computer, Information, and Data Sciences** (1 👁)
  - **Engineering** (2 👁)
  - **Mathematics and Statistics** (1 👁)
  - **Physics** (4 👁)
- **Age:** Must be 18 years of age