Opportunity Title: Post-Graduate Research Scientists in Threat Detection Technology
Opportunity Reference Code: TSL-PostGraduate-Fellowships-2020-0001

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

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How to Apply **This opportunity is still seeking qualified applicants as of September 1, 2020.**

A complete application consists of:

- Zintellect profile
- A completed Application - 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.

The review process may include phone and/or in-person interviews with potential candidates.

If you have questions, send an email to DHSEd@orau.org. Please list the reference code of this opportunity in the subject line of the email.

Description *ORISE* is continuing *normal program operations during the COVID-19 pandemic. This opportunity will be offered as long as Transportation Security Laboratory is able to complete the onboarding process and ensure a meaningful experience to participants. We encourage you to apply and submit your application as soon as possible. Updates to this opportunity will be provided on this page as needed.*

The U.S. Department of Homeland Security (DHS) is offering post-Master's and post-Doctoral fellowships for their Visiting Scientist Program cohort at the Transportation Security Laboratory (TSL).

What will I be doing?

You will join a cohort of post-graduates in a new endeavor in threat detection technology and applied research, specifically related to synthetic

data generation, testing and evaluation. The need to develop synthetic methods to test new Deep Learning algorithms is paramount and the proposed research is new and cutting edge.

The project involves a team of TSL staff and researchers focused on a two-fold approach involving x-ray and millimeter wave regimes. The first component involves creating synthetic signatures of prohibited materials from laboratory computed tomography (CT) data, and inserting these into acquired CT images of passenger baggage. Also, ensuring that the signature and the combined CT image subsequently generated is a high fidelity match to an actual bag and included threat. The second component will use millimeter wave data of actual threats to create synthetic images of personnel with threats for analysis.

Why should I apply?

As a TSL Post-Graduate Research Scientist, you will be given the opportunity to utilize your skills and engage in innovative ideas to move the project forward. Within the proposed project, 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 more than 100 employees that include 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 apart of this team also means having access to a unique 12-acre secure campus specialized for explosive storage and handling areas and a multi-laboratory infrastructure designed for applied research, test and evaluation.

Where will I be located? Atlantic City, NJ

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 $2,000, if you are located more than 50 miles one way from the hosting facility.

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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.

Nature of the appointment

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.

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.

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/transportation-security-laboratory

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

Qualifications

Applicants must meet the following requirements:

- Have received or expect to complete all requirements for a Master's or Doctoral degree by the anticipated start date. Applicants currently pursuing a master's or 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:

- Deep Learning Algorithms
- Imaging, x-ray, and/or microwave scatter
- Computer Science
- Biomedical Engineering
- Computational Physics
- Computational Mathematics
- Mechanical Engineering

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

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Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Master's Degree or Doctoral Degree.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 👁)
  - **Computer, Information, and Data Sciences** (16 👁)
  - **Engineering** (27 👁)
  - **Life Health and Medical Sciences** (8 👁)
  - **Mathematics and Statistics** (10 👁)
  - **Physics** (16 👁)
  - **Science & Engineering-related** (1 👁)