Opportunity Title: Research Internship: Machine Learning for Multimodal Image Segmentation

Opportunity Reference Code: AFIT-2025-0003

Organization	U.S. Department of Defense (DOD)
Reference Code	AFIT-2025-0003
How to Apply	Click on *Apply* at the bottom of the opportunity to start your application.
Application Deadline	5/23/2025 3:00:00 PM Eastern Time Zone
Description	The Air Force Institute of Technology is offering an undergraduate research internship at Wright Patterson Air Force Base, Ohio.

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What will I be doing?

As an Oak Ridge Institute for Science and Education (ORISE) participant, you will join a community of scientists and researchers in an effort to develop automated multimodal segmentation methods that leverage both Scanning Acoustic Microscopy (SAM) and Eddy Current Testing (ECT) data.

Why should I apply?

Under the guidance of a mentor, you will gain hands-on experience to complement your education and support your academic and professional goals. Along the way, you will engage in activities and research in several areas. Research activities will focus on the exploration of advanced deep learning (DL) architectures, including the following:

- - Fuse information from SAM and ECT modalities for precise Microtexture Regions (MTR) detection
  - Address challenges such as disparate image resolutions and data imbalance
  - Develop innovative approaches to exploit inter-modality correlations and improve segmentation accuracy.

This research builds upon previously established methods for registration and fusion of SAM-ECT data, providing the foundation for novel machine learning models.

What is the anticipated start date?

Exact start dates will be determined at the time of selection and in coordination with the selected candidate. Applications are reviewed on an ongoing basis and internships will be filled as qualified candidates are identified.
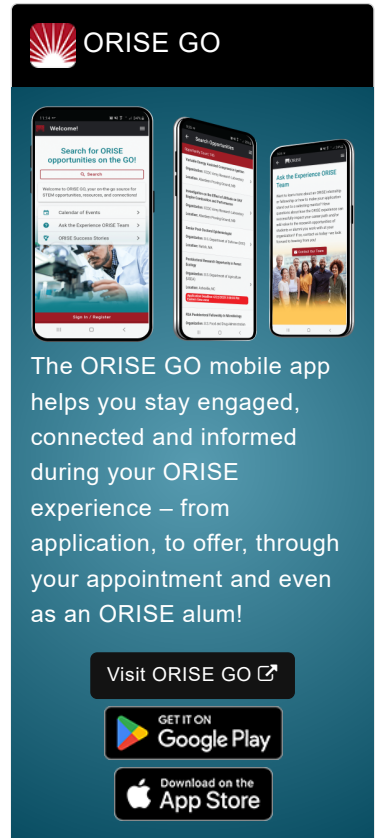
What is the appointment length?

This appointment is an eleven-week research appointment, with the possibility to be renewed for additional research periods. Appointments may be extended depending on funding availability, project assignment, program rules, and availability of the participant.

What are the appointment provisions?

You will receive a stipend to be determined by AFIT. Stipends are typically based on a participant's academic standing, discipline, experience, and research facility location. Other benefits may include the following:

- Health Insurance Supplement (*Participants are eligible to purchase health insurance through ORISE*)
- Relocation Allowance

- Training and Travel Allowance

About AFIT

The Air Force Institute of Technology, or AFIT, located at Wright-Patterson Air Force Base, Ohio, is the Air Force's graduate school of engineering and management as well as its institution for technical professional continuing education. A component of Air University and Air Education and Training Command, AFIT is committed to providing defense-focused graduate and professional continuing education and research to sustain the technological supremacy of America's air, space and cyber forces.

About ORISE

This program, administered by Oak Ridge Associated Universities (ORAU) through its contract with the U.S. Department of Energy (DOE) to manage the Oak Ridge Institute for Science and Education (ORISE), was established through an interagency agreement between DOE and DoD. Participants do not enter into an employee/employer relationship with ORISE, ORAU, DoD 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. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE. For more information, visit the ORISE Research Participation Program at the U.S. Department of Defense.

Qualifications The qualified candidate will hold or be currently pursuing a Bachelor's degree in Computer Science, Engineering, Physics, or related fields. If postgraduate, degree must have been earned within the last two years of the appointment start date.

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

- Familiarity with machine learning frameworks (e.g., TensorFlow, PyTorch) and programming (e.g., Python).
- Interest in applying theoretical concepts to practical challenges in image analysis and segmentation

Application Requirements

A complete application consists of:

- Zintellect Profile
- Educational and Employment History
- Essay Questions (goals, experiences, and skills relevant to the opportunity)
- Resume (PDF)
- Transcripts/Academic Records - Please upload a copy of a transcript for your current or most recent degree program that meets the disciplinary qualifications of the opportunity. Click here for detailed information about acceptable transcripts.
- One Recommendation. We encourage you to contact your recommender(s) as soon as you start your application to ensure they are able to complete the recommendation form and to let them know to expect a message from Zintellect. Recommenders will be asked to rate your scientific capabilities, personal characteristics, and describe how they know you. You can

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always log back in to your Zintellect account and check the status of your application.

If you have questions, send an email to AIRFORCE@orise.orau.gov. Please list the reference code of this opportunity [AFIT-2025-0003] in the subject line of the email. Please understand that ORISE does not review applications or select applicants; selections are made by the sponsoring agency identified on this opportunity. All application materials should be submitted via the "Apply" button at the bottom of this opportunity listing. Please do not send application materials to the email address above.

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Point of Contact	[Leslie](#)

Eligibility Requirements	• **Citizenship:** U.S. Citizen Only
	• **Degree:** Bachelor's Degree received within the last 24 months or anticipated to be received by 5/31/2026 12:00:00 AM.
	• **Discipline(s):**
	  ○ **Computer, Information, and Data Sciences** ([6 👁](#))
	  ○ **Engineering** ([3 👁](#))
	  ○ **Physics** ([2 👁](#))