Opportunity Title: 2025 DEVCOM ARL Summer Student Experience: Brain Inspired Artificial Intelligence Algorithms
Opportunity Reference Code: ARL-SSE-2025-HCxS-0002

Organization	DEVCOM Army Research Laboratory
Reference Code	ARL-SSE-2025-HCxS-0002
How to Apply	**Application Deadline: January 12, 2025**

Applications must be submitted in Zintellect.

A complete application includes:

1. **Resume** listing your relevant coursework and lab experience as well as all papers, presentations, or publications you may have authored or co-authored. Include any reprints or abstracts if they are available.
2. **Transcripts** verifying current enrollment in an undergraduate or graduate program at an accredited university or technical institute. Original student copies are acceptable.
3. **Statement of Interest** describing your scientific research experience including lab experience and relevant academic coursework. State how this experience intersects with your personal and professional goals.
4. **Three References** formal reference forms are not required for the Summer Student Experience, but names and contact information for references must be provided. During the review process, ARL Selecting Officials may contact references.

Application Deadline	1/12/2025 11:55:55 PM Eastern Time Zone
Description	**Research Project**

The human brain has always been a source of inspiration for building computer systems, especially in how we create artificial intelligence (AI). This project is focused on understanding how the brain processes information—essentially how it thinks—and using that knowledge to enhance AI algorithms. We'll look at how the brain's neural pathways work. These pathways are networks of neurons (brain cells) that communicate and process information. By studying these pathways, we can create mathematical models that simulate how the brain operates. One specific tool we'll use is called a graph neural network. This type of network helps us model complex relationships, similar to how neurons in the brain interact. By using these networks, we hope to develop better methods for AI to navigate and understand information. The goal is to create smarter AI that can navigate its environment or tasks more effectively, much like how humans use their cognitive skills to solve problems. We'll also investigate the patterns and connections between neurons in the brain. Understanding these connections can help us figure out how to make AI systems that can perform various cognitive tasks, like reasoning or decision-making, more efficiently. This project is a fantastic chance to dive into neuroscience—how the brain works—and see how it can be applied to create the next generation of AI systems. Overall, the aim is to bridge the gap between how humans think and how we can make machines think better!
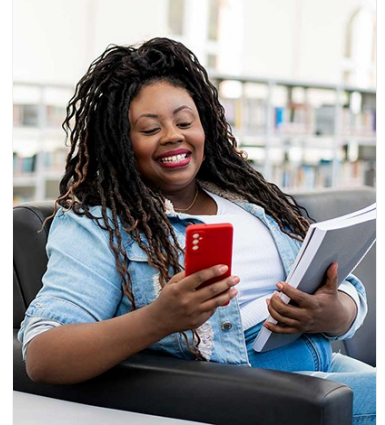
Advisor Name: Ioannis Schizas
Advisor Email: ioannis.d.schizas.civ@army.mil

About Humans in Complex Systems (HCxS)
Multi-disciplinary non-medical approaches to understand and modify the potential of humans situated in and interacting within complex social, technological, and socio-technical systems.

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About the ARL-RAP Summer Student Experience (SSE)

The DEVCOM Army Research Laboratory (ARL) Research Associateship
Program (RAP) Summer Student Experience (SSE) is an educational
program that allows undergraduate through PhD students and recent
bachelor's and master's degree graduates to participate in a paid research
experience at a Department of Defense laboratory over the summer break.
Participants are paired with scientists and engineers at ARL who are
helping to shape and execute the Army's program for meeting the challenge
of developing technologies that will support Army forces future operational
needs. As a participant in the ARL-RAP SSE, you will be part of high
priority research efforts that are broadly supported by 11 research
competencies. While ARL has identified several specific research topics,
the opportunity for general research may also exist under each
competency.

About DEVCOM Army Research Laboratory (ARL) Research Associateship Program (RAP)

The Army Research Laboratory Research Associateship Program (ARL-
RAP) is designed to significantly increase the involvement of creative and
highly trained scientists and engineers from academia and industry in
scientific and technical areas of interest and relevance to the Army.
Scientists and Engineers at the DEVCOM Army Research Laboratory (ARL)
help shape and execute the Army's program for meeting the challenge of
developing technologies that will support Army forces in meeting future
operational needs by pursuing scientific research and technological
developments in diverse fields such as: applied mathematics, atmospheric
characterization, simulation and human modeling, digital/optical signal
processing, nanotechnology, material science and technology,
multifunctional technology, combustion processes, propulsion and flight
physics, communication and networking, and computational and information
sciences.

About Army Research Directorate (ARD)

ARL's Army Research Directorate (ARD) focuses on exploiting concept
development, discovery, technology development, and transition of the
most promising disruptive science and technology to deliver to the Army
fundamentally advantageous science-based capabilities through ARL's 11
research competencies. This intramural research directorate also manages
the laboratory's essential research programs, which are flagship research
efforts focused on delivering defined outcomes.

Location(s) of Appointment

- Aberdeen Proving Ground, Maryland (APG)
- Remote / Hybrid appointments considered on a case-by-case basis.

*Tentative Summer Program Dates: May 12, 2025 - August 29, 2025. If
selected, you will coordinate your exact participation dates with your
Research Advisor.*
For questions about the Summer Student Experience Program, please
email ARLFellowship@orau.org.

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Qualifications	**Preferred Technical Skills**
	Calculus, statistics, programming (Python preferred)

Eligibility Requirements	

- **Citizenship:** LPR or U.S. Citizen
- **Degree:** High School Diploma/GED, Associate's Degree, Bachelor's Degree, Master's Degree, or Doctoral Degree received within the last 12 months or currently pursuing.
- **Overall GPA:** 2.50
- **Academic Level(s):** Associate's Degree (Journeyman Fellow), Bachelor's Degree (Journeyman Fellow), Master's Degree (Journeyman Fellow), or Doctoral Degree (Postdoctoral Fellow).
- **Discipline(s):**
  - **Computer, Information, and Data Sciences** (17 👁)
  - **Engineering** (2 👁)
  - **Mathematics and Statistics** (11 👁)
- **Age:** Must be 18 years old by 5/1/2025