Opportunity Title: Design and Testing of Photonic Integrated Circuit (PIC) Interfaces

Opportunity Reference Code: ARL-R-PEQS-300170-F1

Organization	DEVCOM Army Research Laboratory
Reference Code	ARL-R-PEQS-300170-F1
Description	CCDC-ARL-ARD is seeking an electrical and/or optical engineer who has obtained their Masters of Science or Masters of Engineering degree. Candidates are expected to be fluent in electrical circuit design, microcontroller programming, optical design, and Python programming. Introductory (or higher) Photonic Integrated Circuit (PIC) design, testing, and interfacing experience would be preferred. The scholar will work within ARD's Integrated Photonics Sensors team, investigating interfaces to various PIC applications which enable future Army capabilities in assured Networking, assured Position Navigation and Timing, and chemical and biological sensing. Opportunities also include assisting in designing and testing PIC components and systems.

They will perform their work independently under the mentorship of the team leader and will receive on-site training as needed (including cleanroom tools and processes).

Opportunities include authoring presentations, publications, patents, and contributing to DOD reports, as well as attending conferences and government meetings where appropriate.

Advisors:

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About 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 laboratory'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.

About ARL-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 CCDC 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 PHOTONICS, ELECTRONICS, & QUANTUM SCIENCES (PE&QS):

Materials (and related manufacturing methods) and devices intended for achieving photonic, electronic, and quantum-based effects.

A complete application includes:

- **Curriculum Vitae or Resume**

- **Three References Forms**

- An email with a link to the reference form will be available in Zintellect to the applicant upon completion of the on-line application. Please send this email to persons you have selected to complete a reference.

- References should be from persons familiar with your educational and professional qualifications (include your thesis or dissertation advisor, if applicable)

- **Transcripts**

- Transcript verifying receipt of degree must be submitted with the application. Student/unofficial copy is acceptable

If selected by an advisor the participant will also be required to write a **research proposal** to submit to the ARL-RAP review panel for :

- Research topic should relate to a specific opportunity at ARL (see Research Areas)

- The objective of the research topic should be clear and have a defined outcome

- Explain the direction you plan to pursue

- Include expected period for completing the study

- Include a brief background such as preparation and motivation for the research

- References of published efforts may be used to improve the proposal

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A link to upload the proposal will be provided to the applicant once the advisor has made their selection.

Questions about this opportunity? Please email ARLFellowship@orau.org.

Qualifications

Strong familiarity with Photonic Integrated Circuit (PIC) technology. Passion to independently research and develop PIC interfaces for Army use cases. Work well with others (readily accept technical suggestions while providing constructive feedback, actively participate in brainstorming sessions, and offer technical guidance to others). Eager to explore solutions to technically challenging Army needs.

Preferred skills: Python programming proficiency, microcontroller programming experience, surface mount technology soldering experience

Point of Contact ARL

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Master's Degree.
- **Minimum Overall GPA:** 3.80
- **Academic Level(s):** Master's Degree (Journeyman Fellow).
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 👁)
  - **Communications and Graphics Design** (2 👁)
  - **Computer, Information, and Data Sciences** (17 👁)
  - **Earth and Geosciences** (21 👁)
  - **Engineering** (27 👁)
  - **Environmental and Marine Sciences** (14 👁)
  - **Life Health and Medical Sciences** (51 👁)
  - **Mathematics and Statistics** (11 👁)
  - **Physics** (16 👁)
  - **Science & Engineering-related** (2 👁)
  - **Social and Behavioral Sciences** (29 👁)