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Opportunity Title: Development of Microfluidic Devices as High-Throughput Screening (HTS) Tools for Synthetic Biology Applications
Opportunity Reference Code: ARL-R-BBS-400011-F1

Organization DEVCOM Army Research Laboratory

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Description We are looking for a microfluidics engineer (cartridge engineer) to perform research in microfluidics, lab-on-a-chip, and/or systems engineering. This role will require being highly collaborative and cross functional; partnering with collaborating subject matter experts (SMEs) in synthetic biology, environmental microbiology , and bioinformatics. Main responsibilities will be the fabrication of microfluidic chips and conducting experiments as defined by the Principal Investigator. The candidate is expected to work together with other engineers and scientists in the laboratory, write project reports, and publish results in journals.

Responsibilities: • Conduct research and development work in the assigned project. • Conduct proof of concept studies on ideas that can form the basis of new proposals. • Manage the assigned projects independently and help other lab personnel. • When appropriate, prepare scientific manuscripts for journal publications and present research results in scientific conferences and seminars. Required Education/Conditions: • B.S or M.S. In Engineering, Physics, Biology, Chemistry, Biophysics, or related disciplines. Focus and demonstrable interest in consumables, microfluidics, bioinstrumentation, or product development. • Ability to hold U.S. Citizenship and obtain Secret-level security clearance Preferred Experience: • Extensive experience in microfluidic, lab-on-a-chip, organ-on-a-chip system development, and their applications • Support sustaining and continuous improvements for microfluidic chip (consumables) part drawings using CAD and Multiphysics simulation (COMSOL) software as necessary • Assists in preparation of documentation, BoM, drawings, specification documentation to enable to launch of new projects or improve existing sustaining projects • Experience in handling cells (mammalian cells, microorganisms) in microsystems • Technically skillful in disciplines including optics, microfluidics, heat transfer, precision motion, electronics, & basic principles of electromagnetism . • Experience with specification and requirement management systems (such as JAMA), design traceability, design verification and validation. • Experience in process engineering methodologies such as FMEA (Failure Mode and Effects Analysis), Fishbone Diagrams, Critical Parameter Management, and Design for Manufacturability to measure and improve process capability and robustness • Experience in performing original research and publishing high-quality research papers Knowledge, Skills and Abilities: • Knowledge of current research, issue, and innovations in microsystems • Extensive experiences in micro/nano fabrication in cleanroom environment • Engineering aptitude to participate in design reviews and assist during device optimization • Excellent communication skills – both writing and verbal • Ability to manage complex projects • Working knowledge design CAD systems like SolidWorks, AutoDesk, EagleCAD, etc

Advisor Name: Jose Wippold

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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 BIOLOGICAL AND BIOTECHNOLOGY SCIENCES (BBS)

Biological related disciplines, including synthetic biology, biological materials, biological/abiological interfaces, and biological effect.

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)

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- 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

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.

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Bachelor's Degree, Master's Degree, or Doctoral Degree.
- **Academic Level(s):** Any academic level.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 👁)
  - **Engineering** (27 👁)
  - **Life Health and Medical Sciences** (48 👁)