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Opportunity Title: Postgraduate Research Opportunity in Software Development and Quality Assurance
Opportunity Reference Code: EPA-OTAQ-2019-0027

Organization U.S. Environmental Protection Agency (EPA)

Reference Code EPA-OTAQ-2019-0027

How to Apply A complete application consists of:

- An application
- Transcripts – Click here for detailed information about acceptable transcripts
- A current resume/CV, including academic history, employment history, relevant experiences, and publication list
- Two educational or professional recommendations

All documents must be in English or include an official English translation.

If you have questions, send an email to EPArpp@orau.org. Please include the reference code for this opportunity in your email.

Application Deadline 8/30/2019 3:00:00 PM Eastern Time Zone

Description ***Applications will be reviewed on a rolling-basis.**

A research opportunity in big data analysis and modeling on aircraft emissions inventory and regulatory impacts is available at the U.S. Environmental Protection Agency's (EPA) Office of Transportation and Air Quality (OTAQ). This appointment will be served with the Assessment and Standards Division (ASD) at the National Vehicle and Fuel Emissions Laboratory (NVFEL) in Ann Arbor, Michigan.

The participant will be involved in research and development of databases and modeling methods to improve EPA's aircraft performance and emissions models. It includes researching data, measurements and models to improve emission inventories, conducting rigorous analysis of aircraft and engine emissions data and flight activities to support modeling or regulations, researching methods to improve post-processing of emissions data for air quality models, and researching methods to improve validation of emission inventories compared to ambient air quality measurements and satellite monitoring data.

Under the guidance of a mentor, the participant may have the opportunity to be involved in the following team activities:

- Developing algorithms, data, and software for new aircraft emissions inventory models by programming in Java, database SQL, Python, R, VBA, or some other code
- Researching and evaluating methods to improve the database (including "big data") and software tools used in emissions inventory development and air quality modeling
- Evaluating the methods used to construct and quality assure the National Emissions Inventory databases by examining trends, scripting code, process flow, and conducting other quality checks

Through this project, the participant will have the opportunity to:

- Observe how science is used in policy decisions within Office of Transportation and Air Quality
- Learn how EPA constructs emissions inventories and conducts air quality modeling of future emission scenarios
- Receive input on projects from EPA experts on emissions modeling and emissions measurement
- Learn about tools used by EPA in emissions modeling

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- Develop skills to analyze large datasets
- Develop skills in scientific writing and public presentations

The participant will engage with engineers and scientists at the NFVEL, aircraft and aircraft engine manufacturers, and other government agencies and research laboratories (such as FAA, DOT/Volpe Center, EASA, NASA, Wright-Patterson AFRL, and SwRI) that collaborate with NVFEL personnel. There may be opportunities to present and publish results at conferences and in professional journals.

The mentor for this opportunity is Dr. David Yen (yen.david@epa.gov).

Anticipated Appointment Start Date: Summer 2019

This program, administered by 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 EPA. The initial appointment is for one year and may be renewed upon recommendation of EPA contingent on the availability of funds. The participant will receive a monthly stipend commensurate with educational level and experience. Funding may be made available to reimburse the participant's travel expenses to present the results of his/her research at scientific conferences. No funding will be made available to cover travel costs for pre-appointment visits, relocation costs, tuition and fees, or participant's health insurance. Proof of health insurance is required for participation in this program. The appointment is full-time at EPA in the Ann Arbor, Michigan, area. Participants do not become employees of EPA, DOE or the program administrator, and there are no employment-related benefits.

Qualifications

The qualified candidate should have received a bachelor's, master's or doctoral degree in computer science, engineering, environmental sciences, natural resources, mathematics, a physical science or a closely related field, or be currently pursuing a master's or doctoral degree and will reach completion by May 31, 2020. Degree must have been received within five years of the appointment start date.

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Bachelor's Degree, Master's Degree, or Doctoral Degree.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 👁)
  - **Computer, Information, and Data Sciences** (16 👁)
  - **Engineering** (27 👁)
  - **Environmental and Marine Sciences** (2 👁)
  - **Mathematics and Statistics** (10 👁)

Affirmation

I have received a bachelor's, master's or doctoral degree, OR am currently pursuing a master's or doctoral degree and will reach completion by May 31, 2020.