

Opportunity Title: Development & implementation of Artificial Intelligence (AI) in support of IRIS Chemical Assessments

Opportunity Reference Code: EPA-ORD-NCEA-DC-2018-02

Organization U.S. Environmental Protection Agency (EPA)

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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 references

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.

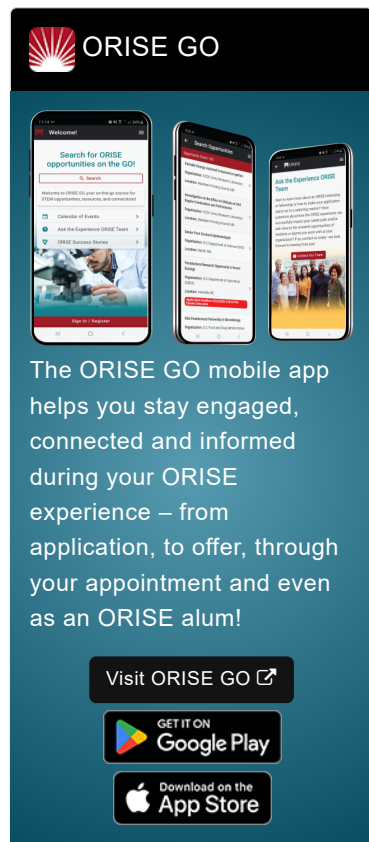
Description EPA's Integrated Risk Information System Program (IRIS, www.epa.gov/iris) is a human health assessment program that evaluates information on health effects that may result from exposure to environmental contaminants. Through the IRIS Program, EPA provides the highest quality science-based human health assessments to support the Agency's policy and regulatory decisions. These assessment activities are very broad and typically have significant implications for national and international environmental policy development and implementation.

The research participant will have the opportunity to collaborate with EPA scientists on the development and implementation of AI, including machine learning (ML) and natural language processing (NLP), to support automation or partial automation of chemical assessments that utilize systematic review methods. Activities will focus on developing ML and NLP approaches to facilitate the extraction and evaluation of structured and unstructured data from scientific studies. The research participant will have opportunities to implement AI approaches to support automation while working with scientific staff in NCEA and potentially scientists from other EPA Labs, Centers or Offices. The research participant will develop the best available science to inform risk assessment of chemical exposures which may lead to adverse outcomes.

Research activities may include:

- Developing applications to extract structured data from PDF or other science documents. Extraction will focus on information important for summarizing the methods, findings, and evaluation of the internal validity of studies.
- Promoting subsequent application integration with existing data content platforms used to summarize chemical, toxicological, and exposure information.

This program, administered by ORAU through its contract with the U.S. Department of Energy (DOE) to manage the Oak Ridge Institute for



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Science and Education (ORISE), was established through an interagency agreement between DOE and EPA. The initial appointment is for one year, but may be renewed upon recommendation of EPA and is contingent on the availability of funds. The participant will receive a monthly stipend commensurate with educational level and experience. Proof of health insurance is required for participation in this program. The appointment is part-time in the Research Triangle Park, North Carolina or the Washington, DC area. Participants do not become employees of EPA, DOE or the program administrator, and there are no employment-related benefits.

The mentor for this project will be James Avery (avery.james@epa.gov). The desired start date for this appointment is October 22, 2018.

Qualifications Applicants will have received a PhD or equivalent in biological sciences with a particular focus on machine learning and natural language processing.

Specific experience and expertise in evaluating machine learning and natural language processing, including the ability to evaluate study design and methods, is required. Knowledge and experience with data science and data management practices is preferred.

- Eligibility Requirements**
- **Degree:** Doctoral Degree.
 - **Academic Level(s):** Postdoctoral.
 - **Discipline(s):**
 - **Computer, Information, and Data Sciences** ([10](#) )
 - **Life Health and Medical Sciences** ([7](#) )