INFORMATICS IN TOXICOLOGY AND ENVIRONMENTAL HEALTH
NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES, RESEARCH TRIANGLE PARK, NC

Overview:
The National Institute of Environmental Health Sciences (NIEHS), which is part of the National Institutes of Health (NIH), seeks a postdoctoral trainee who wants to build their career in toxicological sciences to better understand how factors in our environment may impact our health. This postdoctoral fellowship will provide experience in both the Division of the National Toxicology Program (DNTP) and the Division of Extramural Research and Training (DERT). The DNTP’s mission is to improve public health through data and knowledge development that are translatable, predictive, and timely. DNTP strives to conduct innovative and rigorous toxicology research that aligns with public health needs and to translate scientific findings into knowledge that can inform real-life individual and public health concerns. The DERT plans, directs, and evaluates the institute’s grant program to support research and research training in environmental health. DERT maintains awareness of national research efforts and assesses the need for environmental health research through collaborative relationships with NIH and with public and private institutions and organizations.

Position Description:
A postdoctoral position is available in the Integrative Health Assessment Branch (IHAB) in the DNTP at the National Institute of Environmental Health Sciences (NIEHS), Research Triangle Park, North Carolina. Although the postdoctoral fellowship will be housed in DNTP, this is a cross-divisional NIEHS position that will be mentored by NIEHS staff from both IHAB in DNTP and the Genes, Environment and Health Branch (GEHB) in DERT. GEHB provides scientific leadership through developing workshops and initiatives as well as programmatic support for research conducted by extramural scientists that addresses the fundamental mechanisms by which environmental exposures combine with genetic susceptibility to influence risk of complex human diseases and disorders like autism spectrum disorder (ASD). IHAB develops and applies innovative informatic approaches to produce fit-for-purpose literature assessments, including evidence maps and scoping reviews, that provide timely support for health effects research. The main goal of this fellowship is to develop a web-based tool or interactive evidence map that summarizes, aggregates, and visually represents the scientific research on environmental risks for ASD to inform stakeholders and provide support for evidence-based decisions on autism research and policy. This evidence map will be supported by a comprehensive literature review conducted and regularly updated using systematic review methods. The workflow will employ existing machine-learning software for the literature search, selection and data extraction process. An informatics approach for evidence surveillance that is automated or semi-automated will be developed for updating the evidence map as new studies are published. The development of improved evidence informatics workflows that leverage machine learning and artificial intelligence methods to identify and extract information from published studies is a critical to DNTP’s intent to advance evidence-based approaches to identifying and understanding potential environmental contributors to contemporary and common diseases. We anticipate that additional informatics research projects will be developed as part of the postdoctoral position. The postdoctoral fellow will be co-mentored by Drs. Andrew Rooney (DNTP) and Cindy Lawler (DERT).

Main activities of the candidate:
- Problem formulation and protocol development for autism systematic evidence map
- Refine protocol and approach based on input from subject matter experts and stakeholders
- Search public sources and databases for published human, animal, in vitro studies
- Apply informatic tools to screen references and identify relevant autism spectrum studies
- Perform data extraction / categorization to support key concepts in evidence map
- Identify and adapt or develop informatics tools for evidence surveillance
• Adapt or develop models to identify key concepts or extract data from published studies
• Apply data-mining tools to analyze toxicology data from a biological perspective
• Assist in the development and writing of scientific publications and technical documents

Main scientific skills and knowledge:
• Applicants may have a background in: 1) informatics, 2) public health, 3) or both
• Public health
  o Neuroscience/biology/toxicology/epidemiology/environmental health sciences
  o Systematic review/scoping review/literature review
  o Health assessment
• Informatics
  o Informatics and advanced data mining methods
  o Machine learning / Artificial intelligence algorithms
  o Programming language (python, Matlab, java)
• Both: Oral communication and writing skills

In addition to the appropriate scientific and technical skills, the ideal candidate should also:
• Enjoy working in a team and collaborating with different partners, and be
• Interested in learning new methods and techniques,
• Independent and rigorous with attention to detail, a
• Problem solver, and
• Creative

Stipend/Benefits:
The DNTP postdoctoral training program funds fellowships for typically up to three years. Stipends for NIH fellows are determined by the amount of previous postdoctoral experience. Postdoctoral fellows are considered as professionals-in-training and are not classified as NIH employees. Medical insurance is provided.

Eligibility:
For this position, we are looking for a candidate capable of formulating and leading development of the evidence map, while having broader expertise and interest to bring in informatics-based approaches to increase the use of automation. To be eligible for postdoctoral training at the DNTP, applicants should hold a Ph.D. or equivalent and have no more than five years of postdoctoral experience in area(s) that clearly relate to the listed main activities. All applicants receive consideration without regard to race, religion, color, national origin, gender, sex, sexual orientation, physical or mental disability, political affiliation, age (with statutory exceptions), or any other non-merit factor.

To Apply:
Applications should be submitted as a single pdf including:
• *Curriculum Vitae.*
• A one-page cover letter describing your background, how your doctoral training has prepared you for a fellowship, and what you hope to achieve if accepted into the program.
• Names and contact information for three references.

Please submit your application to Dr. Andrew Rooney via email at andrew.rooney@nih.gov.

*This post will be available until February 11, 2022 or until filled.*

The NIH is dedicated to building a diverse community in its training and employment programs.