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Opportunity Title: CDC Summer Internship in Forecasting and Outbreak Analytics, Predict Division
Opportunity Reference Code: CDC-OD-2024-0020

Organization Centers for Disease Control and Prevention (CDC)

Reference Code CDC-OD-2024-0020

How to Apply ***Connect with ORISE...on the GO!*** Download the new ORISE GO mobile app in the Apple App Store or Google Play Store to help you stay engaged, connected, and informed during your ORISE experience and beyond!

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
- One educational or professional recommendation. Your application will be considered incomplete, and will not be reviewed until one recommendation is submitted.

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

Application Deadline 3/31/2024 3:00:00 PM Eastern Time Zone

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

CDC Office and Location: A research opportunity is available in the Centers for Disease Control and Prevention (CDC). Selected candidates must either live within a 50 mile radius of an approved CDC duty location or be able to relocate before the start of the appointment.

The Centers for Disease Control and Prevention (CDC) is one of the major operation components of the Department of Health and Human Services. CDC works to protect America from health, safety and security threats, both foreign and in the U.S. Whether diseases start at home or abroad, are chronic or acute, curable or preventable, human error or deliberate attack, CDC fights disease and supports communities and citizens to do the same.

Research Project: For real-time epidemic monitoring, the ideal data would be reported with minimal latency (lag between last reported date and now), and maximum temporal resolution (e.g. daily as opposed to weekly), but this kind of high-resolution data collection can be a burden to facilities. The goal of this project is to analyze how real-time epidemic indicators (e.g. Rt or short-term hospitalization forecasts) degrade as the temporal resolution of the data decreases. The fellow will explore how the temporal resolution of surveillance data affects interpretation of the data in real time, or the accuracy of forecasts.

Learning Objectives: The fellow will be embedded in the Nowcasting and Natural History team at the CDC's Center for Forecasting and Outbreak Analytics. They will gain experience with collaborative programming practices and GitHub workflows. They will learn and practice using or evaluating Bayesian epidemic modeling methods for nowcasting, forecasting, and/or Rt estimation. They will gain experience developing and using epidemic models and data analytics in an applied government setting.

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Mentor(s): The mentor for this opportunity is Katelyn Gostic (uep6@cdc.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: May 20, 2024. Start date is flexible and will depend on a variety of factors.

Appointment Length: The appointment will initially be for 10 weeks, but may be renewed upon recommendation of CDC and is contingent on the availability of funds.

Level of Participation: The appointment is full time.

Participant Stipend: Stipend rates may vary based on numerous factors, including opportunity, location, education, and experience. If you are interviewed, you can inquire about the exact stipend rate at that time and if selected, your appointment offer will include the monthly stipend rate.

Citizenship Requirements: This opportunity is available to U.S. citizens, Lawful Permanent Residents (LPR), and foreign nationals. Non-U.S. citizen applicants should refer to the Guidelines for Non-U.S. Citizens Details page of the program website for information about the valid immigration statuses that are acceptable for program participation.

ORISE Information: 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 CDC. Participants do not become employees of CDC, DOE or the program administrator, and there are no employment-related benefits. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE.

The successful applicant(s) will be required to comply with Environmental, Safety and Health (ES&H) requirements of the hosting facility, including but not limited to, COVID-19 requirements (e.g. facial covering, physical distancing, testing, vaccination).

Questions: Please visit our Program Website. After reading, if you have additional questions about the application process please email ORISE.CDC.IOD@orau.org and include the reference code for this opportunity.

Qualifications The qualified candidate should be currently pursuing a master's or doctoral degree in the one of the relevant fields.

Preferred skills:

- R (fluent) and Python (proficient) programming skills
- Training and experience in epidemic modeling (SEIR-family, branching processes, renewal processes, and/or network/agent-based simulation)
- Strong desire to learn
- Experience using Bayesian inference techniques to fit epidemic models

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- Experience with Rt estimation, nowcasting, or forecasting
- Experience using GitHub as part of a collaborative programming team
- Experience using EpiNowcast or EpiNow2 to estimate Rt

Eligibility Requirements

- **Degree:** Currently pursuing a Master's Degree or Doctoral Degree.
- **Academic Level(s):** Undergraduate Students.
- **Discipline(s):**
  - **Computer, Information, and Data Sciences** (17 👁)
  - **Engineering** (3 👁)
  - **Life Health and Medical Sciences** (12 👁)
  - **Mathematics and Statistics** (11 👁)
  - **Physics** (16 👁)

Affirmation

I certify that I have not previously been employed by CDC or by a contractor working directly for CDC. I understand that CDC does not permit individuals with a prior employment relationship with CDC or its contractors to participate as trainees in the ORISE program. (Exceptions may be granted for individuals who, since the previous CDC employment, have obtained a new STEM degree which necessitates training in a new field.)