Opportunity Title: Detection of Obscured Forensic or Biometric Markers at Crime Scenes or from Objects Fellowship
Opportunity Reference Code: ICPD-2024-38

Organization Office of the Director of National Intelligence (ODNI)

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How to Apply **Create and release your Profile on Zintellect** – Postdoctoral applicants must create an account and complete a profile in the on-line application system. **Please note: your resume/CV may not exceed 3 pages.**

Complete your application – Enter the rest of the information required for the IC Postdoc Program Research Opportunity. The application itself contains detailed instructions for each one of these components: availability, citizenship, transcripts, dissertation abstract, publication and presentation plan, and information about your Research Advisor co-applicant.

Additional information about the IC Postdoctoral Research Fellowship Program is available on the program website located at: https://orise.orau.gov/icpostdoc/index.html.

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

Application Deadline 2/28/2024 6:00:00 PM Eastern Time Zone

Description **Research Topic Description, including Problem Statement:**

Deposition of friction ridge detail and/or human DNA through skin barriers including disposable gloves, reusable gloves, and other hand/skin barriers. Can forensic or biometric markers be visualized and/or identified from crime scenes / objects when such barriers are in place?

Deposited friction ridge detail (i.e., finger or palm marks) and human DNA are often recovered from crime scenes and/or objects, in order to assist with forensic investigations. The use of gloves and/or other physical hand/skin barriers may impede the recovery of friction ridge detail and reduce the amount of DNA deposited on a surface. Despite the use of a barrier, modern fingermark visualization techniques may be able to capture glove prints or possible friction ridge detail that could be used for forensic intelligence or evidential purposes. An evaluation of different glove types, textures, materials, and use methodology (e.g., double gloving) will provide important information on whether intelligence or evidential friction ridge detail can be recovered despite hand/skin barriers. There is also an opportunity to evaluate these types of barriers on their effectiveness in reducing touch DNA deposition.

Example Approaches:

An artificial finger pad, previously developed at Dstl for Covid-19 transfer research, could be used to test deposition of glove marks onto a variety of surfaces such as polymers, metals, and porous materials. The finger pad allows for controlled pressure deposition and can be adapted to also be used with artificial and real human fingerprints to test deposition with gloves or other skin barriers. Similar mechanisms could also be used to test for deposition of DNA. This is only one example of an approach, with more in-depth studies using human volunteers being envisaged.

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Relevance to the Intelligence Community:

An evaluation of different glove types, textures, materials, and use methodology (e.g., double gloving) will provide important information on whether intelligence or evidential friction ridge detail can be recovered despite hand/skin barriers.

Key Words: Forensics, DNA profiling, Fingerprint analysis, Human identification, Attribution

Qualifications

Postdoc Eligibility

- U.S. citizens only
- Ph.D. in a relevant field must be completed before beginning the appointment and within five years of the appointment
- Proposal must be associated with an accredited U.S. university, college, or U.S. government laboratory
- Eligible candidates may only receive one award from the IC Postdoctoral Research Fellowship Program

Research Advisor Eligibility

- Must be an employee of an accredited U.S. university, college or U.S. government laboratory
- Are not required to be U.S. citizens

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12)
  - **Communications and Graphics Design** (3)
  - **Computer, Information, and Data Sciences** (17)
  - **Earth and Geosciences** (21)
  - **Engineering** (27)
  - **Environmental and Marine Sciences** (14)
  - **Life Health and Medical Sciences** (45)
  - **Mathematics and Statistics** (11)
  - **Other Non-Science & Engineering** (2)
  - **Physics** (16)
  - **Science & Engineering-related** (1)
  - **Social and Behavioral Sciences** (30)