Opportunity Title: Improving Recorded Audio Intelligibility for Varying Environments
Opportunity Reference Code: ICPD-2021-34

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 2 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 2/26/2021 6:00:00 PM Eastern Time Zone

Description

Research Topic Description, including Problem Statement:

Recording devices including smart assistants, such as Google Home and Amazon Echo, are often installed in places that are not ideal for capturing intelligible audio. This can be due to a variety of factors including room design, device design, other noise sources, and obstructions. Understanding the factors internal and external to recording devices that affect audio intelligibility could help optimize these devices' performance. Research could focus on the physical design principles of these devices, methods to better assess and utilize the microphone's environment, or methods for quantifying their performance in untested locations.

Example Approaches:

A range of solutions to quantify and identify limiting factors in the audio intelligibility of a microphone include, but are not limited to:

- Development of a methodology to assess an environment for audio quality and identify areas well suited to microphone placement.
- A methodology could be developed to assess microphones for minimally or undefined environments and identify performance weaknesses.
- Establishment of design principles for devices that are generally less likely to reduce the quality of audio recording when the environment cannot be anticipated.
- Using an audio test chamber to develop methods to replicate real world environments with a degree of control, e.g., simulate a living room or cafeteria by introducing structures into the chamber.

Relevance to the Intelligence Community:

Ease of identification, comprehension, and transliteration/translation of audio files

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would enable many intelligence and diplomatic activities. In the modern age, the quantity of recorded speech is continuously increasing, requiring more technology and labor to assess the speech. Improving the nature of these recordings will speed the process and improve accuracy.

Key Words: Audio Intelligibility, Acoustics, Acoustic Characterization, Audio Chamber, Audio Test Equipment, Language Intelligibility, Microphones, Digital Recording, Audio Recording Software, Smart Devices, Digital Assistant

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 application deadline
- 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** (2 👁)
  - **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** (10 👁)
  - **Other Non-Science & Engineering** (2 👁)
  - **Physics** (16 👁)
  - **Science & Engineering-related** (1 👁)
  - **Social and Behavioral Sciences** (27 👁)