

**Opportunity Title:** Enriching point-of-interest (POI) and land use classifications with sound representations

**Opportunity Reference Code:** IC-18-16

**Organization** Office of the Director of National Intelligence (ODNI)

**Reference Code** IC-18-16

**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://orau.org/icpostdoc/>.

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

**Application Deadline** 3/12/2018 11:59:00 PM Eastern Time Zone

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

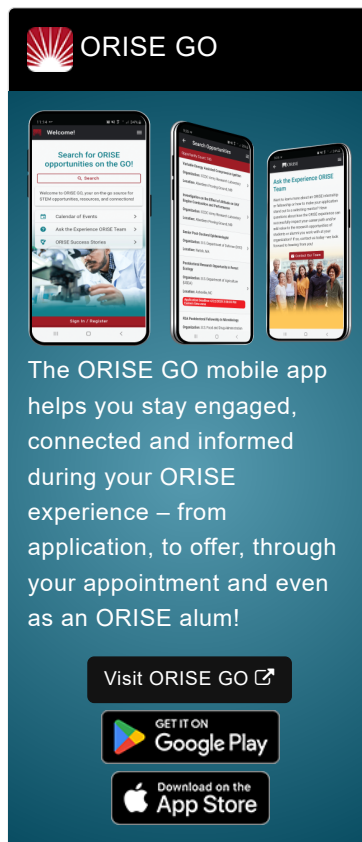
The goal of this research is to develop scalable methods that leverage geotagged, ambient sound data to improve overhead imagery and video classification. Sound scene information can be an important component for cross-modal understanding of anthropogenic and environmental activity. Recent advances in the fields of soundscape ecology and computational analysis of sound scenes have demonstrated new applications for recording and classifying ambient sounds and acoustic features. However, labeled and geolocated sound datasets can be expensive and challenging to obtain without field collection and/or in-situ instruments. The focus of this research is on approaches for scalable data collection and automated techniques that can be combined to develop foundational geospatial sound data, enrich point-of-interest (POI), and land use classifications with place-based sound representations and improve video event detection and summarization.

#### **Example Approaches:**

Research approaches may include one or more relevant areas of interest:


- Methods that leverage existing (e.g., SoundNet, Google AudioSet) and new sources of massive natural sound data.
- Methods for transferring existing knowledge of building and land use, such as OpenStreetMap labels and classifications from overhead imagery, to sound models that can be used to enrich new or sparsely-labeled POIs and image scenes.
- Methods that incorporate or identify relationships between acoustic data and other types of geospatial feature data, such as sounds and


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temporal patterns related to specific points of interest, building usage, or land use.

- Approaches for developing aggregate acoustic signatures and temporal sound patterns of places.
- Methods that identify unique sound features of specific places or that match sound data from unknown locations to potential places of origin.
- Data models and scalable architectures to efficiently collect, store, and geospatially analyze ambient sound data at multiple spatial scales.
- Methods that address challenges associated with data variability and quality, such as differences in temporal length or sensor quality, without discarding information.

**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** ([6](#) 👁)
  - **Computer, Information, and Data Sciences** ([16](#) 👁)
  - **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** ([5](#) 👁)
  - **Physics** ([16](#) 👁)
  - **Science & Engineering-related** ([1](#) 👁)
  - **Social and Behavioral Sciences** ([28](#) 👁)