Request for Information (RFI): Biometric Recognition and Identification at Altitude and Range
IARPA-RFI-19-10

The Intelligence Advanced Research Projects Activity (IARPA) is seeking information on research efforts and datasets that may be useful in planning a program focused on advancing the state-of-the-art of biometric recognition and identification at altitude and range. This request for information (RFI) is issued solely for planning purposes and does not constitute a formal solicitation for proposals. The following sections of this announcement contain details of the scope of technical efforts of interest, along with instructions for the submission of responses.

Background & Scope

Over the past five years, there have been notable advances in computer vision and biometric approaches to facilitate unconstrained face recognition in which the pose, illumination, and expression of the subjects is not controlled or limited. The IARPA Janus Program (https://www.iarpa.gov/index.php/research-programs/janus) and its resulting research is an example of such recent advances. However, there remains challenges in diverse face detection, verification, and identification when dealing with low-resolution or noisy imagery (e.g., motion blur, atmospheric turbulence). In addition, limited research has been performed on face recognition using imagery captured at high camera pitch angles, such as those collected from security cameras on building tops or from airborne platforms, such as unmanned aerial vehicles (UAVs). This is primarily due to a lack of authorized and sharable research data that represents this type of imagery. Imagery captured at long-range or altitude may also require that additional biometric signatures be fused with face recognition to provide the necessary accuracy or confidence to be usable for person identification. Examples may include (but not limited to) whole-body identification, gait recognition, and/or anthropomorphic classification (e.g., height, gender). The fusion of multiple biometric signatures to address these limitations remains underserved by the research community. Further research in the area of biometric recognition and identification at altitude and range may support protection of critical infrastructure and transportation facilities, military force protection, and border security.

Responses to this RFI should answer any or all of the following questions:

1. Has your organization collected research data directly relevant to biometric recognition and identification at altitude and range? If so, please provide a summary that includes details on the collected data content, location, subject count, subject demographics, and human subject research (HSR) privacy approvals. Also describe the data security and privacy safeguards utilized as part of the data collection.
2. Are there any biometric research datasets that include imagery captured at long-range (300+ meters) or severe pitch angles (>20 degrees)? Include the name of the dataset, how it can be obtained, who collected the dataset, and a brief summary of the dataset (e.g., content, collection location, HSR approvals).
3. Are there any biometric research datasets that utilized UAVs to capture imagery? Include the name of the dataset, how it can be obtained, who collected the dataset, and a brief summary of the dataset

(e.g., content, collection location, HSR approvals). What models or types of UAVs were used in the collection (e.g., quadcopter, fix-wing platforms)?

4. Are there any biometric research datasets that include whole-body video imagery with identity groundtruth? Include the name of the dataset, how it can be obtained, who collected the dataset, and a brief summary of the dataset (e.g., content, collection location, HSR approvals). Does the whole-body dataset include unconstrained imagery in the wild? Does it include multiple viewing angles? Does it include multiple sightings with changes in clothing?
5. Has your organization conducted any research on biometric identification at long-range or from aerial platforms? The preferred form of a response is a brief 2-3 sentence summary of each research effort followed by the title and link to existing published research in a journal, conference or on arXiv. For unpublished research, a more detailed response is appropriate.
6. Has your organization conducted any research on whole-body biometric identification? **Do not** include research that solely addresses person re-identification without identity groundtruth (such as those using the Market-1501 or Duke MTMC datasets). The preferred form of a response is a brief 2-3 sentence summary of each research effort followed by the title and link to existing published research in a journal, conference or on arXiv. For unpublished research, a more detailed response is appropriate.
7. Has your organization conducted any research on multi-modal fused biometric identification in stand-off scenarios? Stand-off is defined in this context as ranges greater than 20 meters from sensor to subject. An example of such research is face + gait fused recognition. The preferred form of a response is a brief 2-3 sentence summary of each research effort followed by the title and link to existing published research in a journal, conference or on arXiv. For unpublished research, a more detailed response is appropriate.

General organizational capability statements should be limited to one (1) page of the RFI response **at most**. The focus of any response should be on directly relevant specific research activities and/or datasets.

Preparation Instructions to Respondents

IARPA requests that respondents submit information on research and datasets related to this topic for use by the Government in formulating a potential program. A rough order of magnitude (ROM) estimate is **not** requested at this time. This announcement contains all of the information required to submit a response. No additional forms, kits, or other materials are needed.

IARPA appreciates responses from all capable and qualified sources from within and outside of the US.

Responses have the following formatting requirements:

1. A one page cover sheet that identifies the title, organization(s), respondent's technical and administrative points of contact - including names, addresses, phone and fax numbers, and email addresses of all co-authors, and clearly indicating its association with RFI-19-10;
2. A substantive, focused, one-half (0.5) page executive summary;

3. A description (limited to 5 pages in minimum 12 point Times New Roman font, appropriate for single-sided, single-spaced 8.5 by 11 inch paper, with 1-inch margins) addressing the questions above and any other relevant topics;
4. A list of citations (any significant claims or reports of success must be accompanied by citations).

Submission Instructions to Respondents

Responses to this RFI are due no later than 12:00 p.m., Eastern Time, on OCTOBER 21, 2019. All submissions must be electronically submitted to dni-iarpa-rfi-19-10@iarpa.gov as a PDF document. Inquiries to this RFI must be submitted to dni-iarpa-rfi-19-10@iarpa.gov. Do not send questions with proprietary content. No telephone inquiries will be accepted.

Disclaimers and Important Notes

This is an RFI issued solely for planning purposes and does not constitute a solicitation. Respondents are advised that IARPA is under no obligation to acknowledge receipt of the information received, or provide feedback to respondents with respect to any information submitted under this RFI.

Responses to this notice are not offers and cannot be accepted by the Government to form a binding contract. Respondents are solely responsible for all expenses associated with responding to this RFI. IARPA will not provide reimbursement for costs incurred in responding to this RFI. It is the respondent's responsibility to ensure that the submitted material has been approved for public release by the information owner.

The Government does not intend to award a contract on the basis of this RFI or to otherwise pay for the information solicited, nor is the Government obligated to issue a solicitation based on responses received. **Do not submit the actual collected data - only a summarization of the collected data. Additionally, no proprietary and no classified concepts or information should be included in the submittal.** However, should a respondent wish to submit classified concepts or information, prior coordination **must** be made with the IARPA Chief of Security. Email the Primary Point of Contact with a request for coordination with the IARPA Chief of Security. Input on technical aspects of the responses may be solicited by IARPA from non-Government consultants/experts who are bound by appropriate non-disclosure requirements.

The Federal Government shall consider and protect an individual's privacy throughout the information life cycle. All personally identifiable sensitive information received by IARPA pursuant to this RFI will be protected in accordance with applicable federal law and policy.

Contracting Office Address:

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