

Questions & Answers – DIVA IARPA-BAA-16-13

Responses to Questions #7 to #46

Question 7: On page 12, section 1.B.1 Metrics, it states that the person and object detection metrics are (a) average false alarm rate and (b) average probability of missed detection. On Table 4 (BAA page 14), target values are given for the metrics (labeled probability of false alarm and probability of missed detection).

What is the basis for these probabilities/rates (e.g. per unit time, per activity)? Are the metrics for person/object detection constrained to the temporal bounds of the activity?

Answer 7: The probability rates are per unit time or image frame. As stated in the BAA, for detection of persons and objects, results will be measured only during the ground-truth activity segments, or a moderately larger segment containing the ground-truth segment.

Question 8: On page 9, section 1.A.7 Offeror Data, it states “All data collected by offerors under the DIVA program, for algorithm training or any other purpose, will be a deliverable to the USG with the expectation that the data will be shared within the DIVA program, including with other DIVA performers.”

Is any of the video data collected by DIVA performers under the program expected to have export control restrictions?

Answer 8: IARPA anticipates that the video data DIVA performers collect, described in more detail at BAA section 1.A.7, will be subject to the Export Administration Regulations (EAR) and classified as EAR99 items. However, it will be a performer's responsibility as the creator of the data sets to determine the export classification of these data sets and provide that information to IARPA.

Question 9: Is ego-centric activity recognition within the scope of DIVA? For example, would DIVA consider instances where the individual wearing the camera is part of the activity to be inferred?

Answer 9: Yes, but it is not a required capability.

Question 10: For processing hand-held videos and videos captured from a mobile platform, can we assume that the video capture device has sufficient bandwidth for the videos to be processed on the cloud or should we identify mobile platforms that will enable video processing locally?

Answer 10: Sufficient bandwidth to transmit the video to a central processing platform may be assumed. Processing need not be performed on the mobile sensor platform.

Question 11: Will the performers be allowed to compute a Content Description Representation for the Video Dataset used for Forensics evaluations as a one-time processing and then answer many queries using this representation? Or it is expected that each query will be answered by not assuming any pre-computed video representations?

Answer 11: Yes, a content description representation may be computed and used for future queries. The program will research methods for improving extraction of the representation which may depend on activities or the collection of activities to be detected.

Question 12: For events that span minutes and hours, will the span be considered the full time spanning minutes and hours or the long event will be ground-truthed as a collection of many shorter snippets and the evaluation will be done accordingly?

Answer 12: It depends on the nature of the individual event. Specifics for each event will be provided during the program.

Question 13: Will the semantic queries need to be processed using NLP or as keywords / key phrases?

- a. In what form will the semantic queries be provided? Forms interface? Free text? Keywords?

Answer 13: Semantic queries may be provided as free text. Also, queries may include keywords, and may be structured using a lexicon, taxonomy or ontology. Lexicons, taxonomies or ontologies may be developed or adapted for use in DIVA as the program progresses.

Question 14: Are the time metrics given in Table 5 for both the Forensics and RT use cases or only for one? Which one?

Answer 14: The time metrics are for both forensic and RT use cases.

Question 15: Can we assume that the RT use case will always be tested with RT with a fixed latency as specified on page 11?

Answer 15: Yes.

Question 16: For activities that span minutes or hours, how will the semantic specification be given?

- a. E.g. "Meets person one and after around an hour meets another and after about 30 minutes leaves a bag"?
- b. Will time periods be mentioned at all in the query? What are the various query specifications that will be used?

Answer 16: In general, it will not be necessary to mention time periods in queries. Time constraints will be implicit, as an example, due to caps on the total amount of video footage that is processed for self-reported T&E. It is possible that time will be specifically incorporated in a query, such as 16 (a).

Question 17: For activities that span minutes or hours, how will the exemplar queries be specified?

- a. Sequence of videos with time stamps?
- b. What are the other forms of this query?

Answer 17: While there is no single method for specifying such activities, multiple approaches are possible including a sequence of videos with time stamps, semantic description, or alternate descriptions.

Question 18: In Table 4, can you give us an idea of the two operating points that will be used for Subject/Object detection metrics?

Answer 18: No new information on operating points is given at this time. Further information may be provided during the program.

Question 19: In section 1.B.1 Metrics, paragraph 3, the BAA describes examples of possible annotations. Please clarify if these annotations are to be provided by the Government as “ground truth” or are performers to provide these annotations as output of their algorithms?

Answer 19: The possible annotations listed are the Government annotations that will be used when comparing the annotated output of the algorithms.

Question 20: Verify the page limit for Volume 1- Technical and Management proposal. The BAA lists this to be 25 pages but also lists which seems smaller than in other recent IARPA BAAs. We are concerned that with the various administrative items required in the summary section and the detailed section, there may not be much space left for a detailed technical approach.

Answer 20: Volume 1 – Technical & Management Proposal is limited to 25 pages. Section 2 – Summary of Proposal is limited to 10 pages. This change will be reflected in an Amendment to the BAA.

Question 21: Has the T&E support team been determined? If the T&E support team has been chosen, can you tell us who is on that team?

Answer 21: The T&E support team will be identified to performers at program kickoff.

Question 22: Can any information be provided about the character of the evaluation data to be supplied by USG (resolution of the videos, how far away is the camera from the activity zone (e.g. how big are, for example, the people/boxes/weapons/etc. in the frames), etc.

Answer 22: The characteristics of data will vary to represent different collection conditions. No specific parameters beyond what is supplied in the BAA is given.

Question 23: The BAA requires that the work to be performed fit into an API that is to be provided by USG. Since compliance is going to be a cost component can any guidance be provided to at least ballpark the level of complexity that one might see. This would have an impact on the level of effort required.

Answer 23: The Government is not in a position to measure the level of effort that is required by individual offerors. APIs for other IARPA programs have been made public. In particular, an API for the IARPA Janus program is available at the url: <http://libjanus.org/>, this API is similar to the type of API required for person/object detection.

Question 24: Is this award subject to FAR 19.1307, Price evaluation preference for HUBZone small business concerns?

Answer 24: This award is not subject to FAR 19.1307, Price Evaluation Preference for HUBZone Small Business Concerns.

Question 25: How much labeled data will be provided?

Answer 25: Labeled data may come from several sources. The Government is not obligated to provide labeled data for research, development or algorithm training purposes. As much as possible, the Government will provide example videos and other video data that may be labeled. Data provided to the performers for self-reported results will have associated ground-truth labels. However, the Government may decide to sequester all or some of the ground-truth labels for evaluation purposes. Information on the quantity of this data is given in Table 1 of the BAA. The Government will promote sharing of performer labeled data within the DIVA program. The quantity of this data will be driven by the performers' needs to meet program goals.

Question 26: Will the research team be responsible for collecting labeled data?

Answer 26: Limited data will be provided to teams for development. Research teams will receive a semantic or exemplar based description, but should not assume that they will receive any additional data they may require for training their systems.

Question 27: Will the research team be responsible for collecting their own video footage? If so, will IARPA provide the video recording equipment or will the contractor be responsible for procuring their own video recording equipment? If so, what are the specification for the equipment?

Answer 27: Limited footage for limited events will be provided by IARPA. Teams are expected to collect video as necessary to support research and development.

Question 28: Will the team be responsible for creating detection algorithms for both color and black and white video?

Answer 28: The developed system is expected to run on both color and gray scale video. The system will not know a priori which video is being processed.

Question 29: Will the system need to rely strictly on artificial intelligence algorithms, or can algorithms be supplanted by human analysis for the final layer of analysis?

Answer 29: The system is expected to detect activities autonomously, without support from a human analyst.

Question 30: What are the parameters for video quality? What is the resolution?

Answer 30: Quality and resolution will vary depending on sensor and video collection characteristics.

Question 31: What are the limits and constraints, if any, on the offices of contractors?

Answer 31: Other than what is stated in Section 1.E. Place of Performance and Section 3.A. Eligible Applicants, there are no limits or constraints.

Question 32: Is the contractor expected to shoulder their own cloud computing costs?

- a. If not, is the contractor required to submit a budget for expected cloud computing costs?
- b. Is there a budget allotment for cloud computing costs?

Answer 32: No.

- a. Yes, this should be included in 4.B.2.c. Section 3 Supporting Information in the BAA.
- b. No.

Question 33: For cameras with PTZ capability, can we assume that the system that we develop can control the Pan-Tilt-Zoom settings of the camera?

Answer 33: No. The system will be run on sensors that are not necessarily under its control.

Question 34: Are Phase II's 40 primitive activities and 20 complex activities new activities or are these superset/overlap-set of Phase I?

Answer 34: This list may include the set of activities from Phase 1. These are required milestones for DIVA. The program may exceed these goals and demonstrate robust activity detection on a greater number of activities.

Question 35: How do performers demonstrate meeting hardware requirements? In particular, how will hardware costs be factored in if the solution runs on AWS?

Answer 35: Cost equivalence to COTS system with similar characteristics.

Question 36: Both section 3.L and attachment 7 of Volume 1 require a commercialization plan. Could you please explain what should be provided for each of those two sections? Per the BAA, they appear to be the same. Is it OK to make reference in 3.L to attachment 7?

Answer 36: Per page 21 of the BAA, Section 4.B. Proposal Format and Content, Attachment 6 requires a Commercialization Plan. Section 4.B.1.c.L Commercialization Plan on page 28 provides guidance on what to include when completing Attachment 6.

Question 37: 4.B.1 Volume 1, Technical and Management Proposal {Limit of 25 pages} - Can IARPA please clarify the number of pages required for Technical and Management Volume? Since the technical volume is limited to 25 pages, is the "summary of proposal" limited not to exceed 25 pages a typographical error? The page limitations are in conflict?

Answer 37: Volume 1 – Technical & Management Proposal is limited to 25 pages. Section 2 – Summary of Proposal is limited to 10 pages. This change will be reflected in an Amendment to the BAA.

Question 38: 4.B.1.c. Section 3: Detailed Proposal Information - Since the university key contributors typically have a base pay for their research, e.g. 9 or 12 month, their billed efforts often do not directly correspond to their budgeted levels of effort. How should their level of research effort be conveyed if different than the billing effort to comply with the minimum 25% DIVA requirement?

Answer 38: The potential offeror must determine how best to convey their level of research effort. As stated in 4.B.1.c. Section 3: Detailed Proposal Information, if participation does not comply with the 25% minimum, provide an explanation for the variation.

Question 39: 1.A.8 Test and Evaluation (T&E) - Is a variable frame-rate (ranging from 2-60 fps within a video) expected from multiple cameras when the detectors are not provided the relative locations of

overlapping or nearby cameras - and the software has to determine and synchronize the cameras via activity detection and tracking?

Answer 39: That is possible. In some situations, frame rates of multiple sensors may differ and data may not be synchronized between sensors.

Question 40: 3.B and Attachment D - If an offeror is using a Non-US Academic partner, is the Academic letter still required?

Answer 40: No.

Question 41: 4.B.2.b. Section 2: Estimated Cost Breakdown - The solicitation asks for costs by "Major program tasks by fiscal year." Does "fiscal year" mean Government fiscal year, or Contractor fiscal year?

Answer 41: Contractor fiscal year.

Question 42: 4.B.2.b. Section 2: Estimated Cost Breakdown and 4.C.2. Proposal Delivery - Section 4.B.2.b (page 29) states "Offerors shall submit numerical cost and pricing data using Microsoft Excel." Section 4.C.2, para 2 (page 32) states, "...offeror's should upload proposals, including Volume 1, Volume 2, scanned certifications and permitted additional information in 'pdf' format." Please clarify the proper format (PDF or Excel) to submit the "Estimated Cost Breakdown" (Volume 2).

Answer 42: Estimated Cost Breakdown, per Section 4.B.2.b, shall be provided in Excel. The proposal Volumes 1 and 2 should be submitted in PDF format. The Estimated Cost Breakdown should also be submitted in Microsoft Excel format. Both pdf and excel format for the Estimated Cost Breakdown.

Question 43: 4.C.2. Proposal Delivery - Does the IARPA DIVA Submission site allow for multiple uploads in different formats (PDF and Excel) under the same "Task" (ie. Cost Proposal)?

Answer 43: Yes.

Question 44: 6.B.3 Human Use - Can IARPA please clarify to submission requirements for, "the institution must provide evidence of a plan for review by an Institutional Review Board (IRB) with the final proposal submission to IARPA as outlined in the management plan" with regards to Human Use?

Answer 44: DIVA performers must abide by all applicable US laws and regulations in performing human subjects research (HSR). This includes obtaining approval of all HSR by an Institutional Review Board (IRB). The offeror's proposal must include a plan for how the offeror will obtain IRB approval of any HSR it intends to undertake. This plan should include, among other information, the name of the IRB the offeror intends to use and the timeline for obtaining IRB approval of the planned HSR. Please see BAA section 4.B.1.c.i for additional information about what IARPA desires to see in the plan.

Question 45: Please provide clarification with regard to the commercialization plan. Is commercialization limited to the commercial market or does this also encompass avenues to transition DIVA technology to other defense agencies?

Answer 45: Per Section 4.B.1.c Section 3: Detailed Proposal Information, this can include venture capital, other Government funding, internal funding, etc.

Question 46: What would be acceptable documentation of data compliance, considering the fact that the data acquisition system is currently being deployed?

Answer 46: It is understood that offerors may collect new data as the DIVA program progresses. It is expected that proposals describe data that the offeror will use for DIVA, and explain how that data will be used legally. In the case of Human Subjects Research, this must include plans to obtain IRB approval or exemption. It is not expected that IRB approvals or exemptions are in place at the program start, but that the offeror has effectively planned to obtain IRB approvals or exemptions on the offeror's proposed schedule.