**Request for additional information to guide script writing for your JoVE submission**

In order to facilitate the proper filming of your video, a script writer will prepare both a script and a story board from your protocol prior to filming. For many protocols, steps are straight forward and intuitive, describing actions like mixing solutions, turning on equipment, and so forth. In some instances, however, it is not immediately clear from the protocol itself exactly what the best way would be to represent the action / step in the video. This is especially true for steps describing less common equipment, theoretical processes, image processing or data analysis, and the use of computer programs or software.

When the script writer begins planning your video the protocol will act as a rough guide for the video voiceover. Please consider your protocol in this context and ensure that there are no long sections of text that would be awkward or not-feasible to be incorporated into a voiceover. Please note at this time, if you have not already done so, that text highlighting can be used to indicate to the JoVE staff what you would like to include in the video. Highlighting is used for longer protocols due to length constraints, but can also be useful for protocols of any length if there are sections of introductory or explanatory information that you would like to include in the written protocol but may not need to be included in the video (may be too bulky / time consuming). If you are using highlighting in this way, please use yellow text background and highlight a maximum of 2.75 pages total (including spaces between steps). Please contact your editor with any questions regarding protocol highlighting.

**Generally, there are three types of visuals that can represent a protocol step in your video:** **(1) Videographer footage** (for instance, a lab member performing the action, footage of a process occurring as recorded from videographer’s microscope attachments) ; **(2) screen shots** that display the action or the result of the action (for instance, if you describe setting parameters in software, screenshots can demonstrate the interface; if you describe utilizing a program to perform a step a screen shot of the code can accompany the step); **(3) a schematic or figure** can be displayed to represent the step.

As the goal of JoVE is to visualize methods that cannot be represented optimally in written protocols, we try to avoid having videos with too many screen shots or schematic representations of steps. It is best if actions are filmed live when possible. We understand that many aspects of your work may involve software / programing and the best way to present the protocol may be a combination of both live demonstration and static / animated images. Also please note that an action describing computer / software use should be demonstrated via screen shots, not via videographer footage of a lab member at a computer.

In most cases the determination of the shot list for your video happens later in the JoVE process. However, since there are some steps in your protocol that we are a bit unsure of, we ask that you provide some guidance for us at this time as described below. This way if any changes need to be made to the way the protocol is written or presented, to ensure the best version of your video is made, this can be done prior to peer review. We appreciate you taking the time to provide this information for us and please do not hesitate to contact your editor with any clarifications or questions.

**Please note: this request only applies to certain steps in your protocol as listed in the editorial comments.**

Please fill in the work sheet below, replacing the examples. For each of the steps requested, please designate which of the options would be the optimal representation for visualizing the step (videographer footage, screen shot or figure). If a single step requires two options (for instance part will be filmed in the lab, part will be shown via a screen shot) please separate the step accordingly in the table (not in the protocol). If a figure from the manuscript will be used please refer to it by number and panel letter. If a screen shot will be used, please add the screen shot after the table along with an identifying title. If the screen shot is not currently available a low resolution version or a brief description of it can be used instead. (Screen shots will not be sent to peer review.)

*If edits are made to the protocol later in the review process this guide will not need to be updated unless major changes to the protocol are made.* ***Edits to text segments in this guide will not be reflected in the manuscript.***

**\* Please upload this completed work sheet under the file designation “Supplemental files (as requested by JoVE).\***

**Supplemental information for JoVE scriptwriter**

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| **Step #** | **Text** | **Visual representation** |
| Note | Use the naïve Bayesian classifier to classify insects. A Bayesian classifier is a probabilistic classifier that classify an object to its most probable class. | Screenshot of the animation slides of Page 1 |
| 4.1 | Classification using just the flying sound | Screenshot of the animation slides of Page 2 |
| 4.1.1 | Sound Feature Computation | Screenshot of the animation slides of Page 3 |
| 4.1.1.1 | For each insect sound | Screenshot of the animation slides of Page 4 |
| 4.1.1.2 | compute the frequency spectrum of the sound using the Discrete Fourier Transform (DFT) | Screenshot of the animation slides of Page 5 |
| 4.1.1.3 | Truncate the frequency spectrum to include only those corresponding to the frequency range of 100 Hz to 2,000 Hz. | Screenshot of the animation slides of Page 6 |
| 4.1.1.4 | The truncated frequency spectrum is used in the classification as the representative of the insect sound. | Screenshot of the animation slides of Page 7 |
| 4.1.2 | Train the Bayesian classifier that uses just the flying sound  Note: Since the sound feature is high-dimensional, use the kNN density estimation approach to learn the posterior probability distribution. With the kNN approach, the training phase is to build a training dataset. | Screenshot of the animation slides of Page 8 |
| 4.1.2.1 | Randomly sample a number of insect sounds for each species of insects. | Screenshot of the animation slides of Page 9 |
| 4.1.2.2 | Follow the steps in Section 4.1.1 to compute the truncated frequency spectrum for each sampled sound. The truncated spectrums together with the samples’ class labels (insect species name) composed the training dataset. | Screenshot of the animation slides of Page 10 |
| 4.1.3 | Use the Bayesian classifier to classify an unknown insect | Screenshot of the animation slides of Page 11 |
| 4.1.3.1 | Given an unknown insect sound U:  Compute the truncated frequency spectrum of the unknown insect sound. | Screenshot of the animation slides of Page 12 |
| 4.1.3.2 | Find the top k (k = 8 in this paper) nearest neighbors of the unknown object in the training dataset. | Screenshot of the animation slides of Page 13 |
| 4.1.3.3 | Compute the posterior probability of the unknown insect sound belonging to a class as the fraction of the top k nearest neighbors which are labeled as class . | Screenshot of the animation slides of Page 14 |
| 4.1.3.4 | Classify the unknown object to the class that has the highest posterior probability. | Screenshot of the animation slides of Page 15 |
| 4.2 | Add a Feature to the Classifier: time-of-intercept | Screenshot of the animation slides of Page 16,17 |
| 4.2.1.1 | To add time-of-intercept: in the training phase, learn the class-conditioned distributions of the occurrence time of insect sound for each species of insects, that is, the flight activity circadian rhythm. | Screenshot of the animation slides of Page 18 |
| 4.2.1.2 | Below are the flight activity circadian rhythms for three species of insects. | Screenshot of the animation slides of Page 19 |
| 4.2.2 | Classify an unknown insect sound using both the flying sound and the time-of-intercept | Screenshot of the animation slides of Page 20 |
| 4.2.2.1 | Given the occurrence time of the unknown sound, obtain the probability of observing an insect of class at the time based on the flight activity circadian rhythm of class . | Screenshot of the animation slides of Page 21 |
| 4.2.2.2 | Compute the posterior probability that the unknown sound belongs to class using the sound feature. | Screenshot of the animation slides of Page 22 |
| 4.2.2.3 | Multiply the two probabilities obtained above to get the new posterior probability | Screenshot of the animation slides of Page 23 |
| 4.2.2.4 | Classify the unknown sound to the class that has the highest new posterior probability | Screenshot of the animation slides of Page 24 |
| 4.3 | Add One More Feature to the Classifier: Insect Geographic | Screenshot of the animation slides of Page 25,26 |
| 4.3.1.1 | In the training phase, learn the geographic distribution of insects, either from data collected in the past, relevant documents, or simply the experience from field technicians. | Screenshot of the animation slides of Page 27 |
| 4.3.1.2 | Below is a simulation of the insects’ graphic distribution | Screenshot of the animation slides of Page 28 |
| 4.3.2 | Classify an unknown insect sound using flying sound and the two additional features | Screenshot of the animation slides of Page 29 |
| 4.3.2.1 | Given the location where the insect sound was intercepted, compute the probability of observing an insect from class at the location using the graphic distribution of species . | Screenshot of the animation slides of Page 30 |
| 4.3.2.2 | Compute the probabilities that the unknown sound belongs to class using the sound features and using the flight activity circadian rhythms | Screenshot of the animation slides of Page 31 |
| 4.3.2.3 | Multiply the three probabilities obtained above to get the new posterior probability | Screenshot of the animation slides of Page 32 |
| 4.3.2.4 | Classify the unknown sound to the class that has the highest new posterior probability | Screenshot of the animation slides of Page 33 |