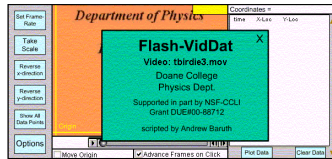


Flash-VidDat:

A Macromedia Flash Application for Physics Video Analysis on the Web


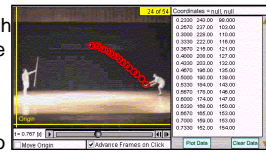

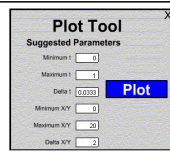
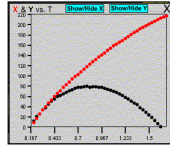
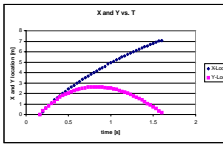
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<http://www.doane.edu/hpp/Flash-VidDat/index.html>
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Overview of Project:

- Use digitized video clips of physics phenomena in homework.
- Allow homework to be done over the web.
- Allow data collection from video using web browser without specialized software, such as VideoPoint.
- A Macromedia Flash application (Flash Vid-Dat) was developed for collecting data from video clips.
- Scripts written in ActionScript allow the user to take position data from the Flash video.
- These Flash video files are easily placed on a web page for use by students at home.
- Quicktime video files can be easily converted for use by the data collection tool.

Quick Overview of Flash-VidDat:

<p>1. The student will be able to play a movie with the basic movie features that you would find in a QuickTime© player. The time code, frame number and current origin location are given within this player setup also.</p> 	<p>2. The student can extract data from the movie through mouse clicks that follow the motion of the object. Live data is posted into a table to the right. This data can be selected and copied into an Excel-type document.</p> 
<p>3. The student can manipulate the environment for four basic elements: frame-rate, origin of the motion, motion direction (+/- in x and y directions) and the conversion scale for the screen. As the student changes these elements the data within the table will adjust to the changes made by the student.</p> 	<p>4. Flash-VidDat also allows the student to plot the data within Flash-VidDat. The student will be able to declare the parameters of the plot. There will be suggested parameters given for the various minima and maxima, based on the data plotted.</p> 
<p>5. Once valid parameters have been chosen, Flash-VidDat will plot the data in an X and Y vs. T plot. If the user moves the mouse over the plot, live data will be posted giving the X/Y position as well as the Time at any given point.</p> 	<p>6. The student can also take the data from the table and place it into an Excel-type tool and get similar results from its plot functions. This can come in very handy for lab-work that needs to be done at home.</p> 

For Examples, Please refer to: <http://www.doane.edu/hpp/Flash-VidDat/examples.html>

Brief Overview of the ActionScript

- For the ActionScript I use a standard two frame set-up:
 - The first frame sets up the animation, declaring all necessary variables and setting up the necessary functions that will be used by the animation.
 - The second frame is the animation itself, containing the following layers:
 - * **pop-up boxes** – contains the pop-up boxes for the **Opening Title Screen, Set Frame Rate, Take Scale, Plot Tool, and Options**
 - * **borders** – contains all of the dark borders around the different sections of the graphical user interface
 - * **slider** – contains the small circle that is used for the slider that advances and rewinds through the video clip
 - * **buttons** – contains all the buttons, including **Set Frame Rate, Take Scale, Reverse x-direction, Reverse y-direction, Show/Hide all Data Points, Plot Data, Clear Data**, as well as **Move Origin, and Advance Frames on Click**. This also includes the playback feature buttons **play, pause, advance, and rewind**.
 - * **table** – contains the text area for the table as well as the two scroll bars to scroll through the table
 - * **origin** – contains two yellow crosshairs to indicate the origin
 - * **maskOrigin** – contains a mask to make sure that the origin crosshairs are only visible on the video clip alone
 - * **movieLayer** – contains the actual video (a separate movie instance that has been placed on this layer)
- The basic operations are as follows:
 - A cursor follows the mouse on the video section, with every mouse click it saves the x-coordinate, y-coordinate and time-coordinate in three separate arrays of values.
 - A function called **draw table** is then called with every mouse click (or change made by the different options such as **Set Frame Rate, Take Scale, Reverse x-direction, and Reverse y-direction**), which redraws the table to the right according to the various options.
- A data marker can be placed at the locations if the user desires:
 - This uses the saved x-coordinate, y-coordinate and time-coordinate (which corresponds to the frame number) to place a data marker at the proper location on the proper frame.
- For playback functions, I have a separate video layer containing the video:
 - It is set to run continuously unless the variable **playIt** is set to 0.
 - The **pause** button or the **advancement** buttons will cause **playIt** to become zero, stopping the video.
- For plotting functions, it uses the saved coordinates and places data markers onto the field corresponding to the various locations:
 - The user can then move their cursor around on the plot area and it will give the scaled values for the X/Y coordinate as well as the time coordinate.

Placing New Videos into Flash-VidDat

One of the wonderful features of Flash-VidDat is the capability of adding your own video to the animations to incorporate it into your curriculum.

- To add your own video is quite straight forward, but it does require the Macromedia Flash MX© environment.
- Once you open the document (available on the web) you will see Flash-VidDat within the environment.
- Because the video is all on a single layer, you simply double click on the video portion to open the video layer. (Figure >)



- The user must then delete the existing video (if there is any) and then they can simply import a new video to that layer.
- While importing the video, the user will have many options that will compress the video and determine the quality and final size of the video. (Figure >)
- This can prove to be important, because the final goal for these animations is to place them on the web.
- For that reason, quick and easy downloads are a must.
- At this time it's also important to make sure the video will actually fit, the screen allows for the web standard of 360 x240 pixels. Anything smaller than this will be acceptable.

- Now that the video is placed in the video layer it is now important to have it centered in the video area (Figure >)
- The X and Y coordinates will be 0,0 if the user wishes to center the video within the video frame
- Once this is completed, the file must be exported as a .swf file and can be placed in an .html document



- The steps to add your own video are relatively straight-forward and can be learned by anyone. The hope is that the tool will be very versatile to ensure that anyone can use it.

For Complete Instructions, Please Go To <http://www.doane.edu/hpp/Flash-VidDat/pop-UpSites/instructionsForUseHTML.htm> (available at <http://www.doane.edu/hpp>)

Or

Please Take a Flyer Detailing The Instructions

Product Availability

- This product is available over the web at <http://www.doane.edu/hpp/Flash-VidDat/downloads.html>
- Copyright © 2002 - The Humanized Physics Project - Supported in part by NSF-CCLI Grant DUE#00-88712 - <http://www.doane.edu/hpp>
- This product is licensed under the GNU General Public License for more details: <http://www.gnu.org/copyleft/gpl.html>
- The product comes available under two current editions, one edition includes the plot functions and the other does not.
- It is our hope that you utilize and share this software as much as possible.