

AniCAM: Developing stream based teaching resources

(Software review)

Reviewer:

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Product details:

Product Name & Version	AniCam Lite (Version 1.0, build 0821)
Product Category:	School/university multimedia, intranet and internet software
Producer Name:	Nian-Shing Chen, Shin-Yi Huang, National Sun Yet-sen University
Product link	http://anicam.elearn.com.tw/
System Requirement	Windows ME, 2000, XP Pentium class 500MHz+ For capture: Using Microsoft Video 1, at 2FPS and 1024*768, 10GB disk space is required to store 30hrs of film. This is then compressed to a WMV file. A version that captures direct to WMV file is being developed.

Snapshot review:

Ease of use	****
Ease of navigation	****
Documentation	NA
Price/value ratio	NA
Pedagogical foundation	***
Instructional values	****+
Interactivity	****

Background and features

1. Introduction

In their paper "Applying Evolutionary Prototyping Model in Developing Stream-based Lecturing systems, Nian-Shing Chen and Shun-Yi Huang describe three models of course delivery. Synchronization mode, Brower capture mode and full screen capture mode.

In Synchronization mode four separate files are created by the lecturer (video stream, audio stream, teacher's annotation and the associated html pages). Inconsistency in presentation on the student's browser and special players for viewing are listed as some of the problems.

In the Browser capture mode the teacher captures the contents of the Browser into a streaming video file (e.g. WMV), records whatever is displayed in the browser space. The major drawback is that if the teacher wants to display say an application outside the area defined by the browser window it is not recorded.

2. AniCAM Features

AniCAM allows capturing of the entire screen, with teacher annotations to create one streaming video file that includes the images supplied by a web-cam and sounds recorded via a microphone. This is shown in Figure 1.

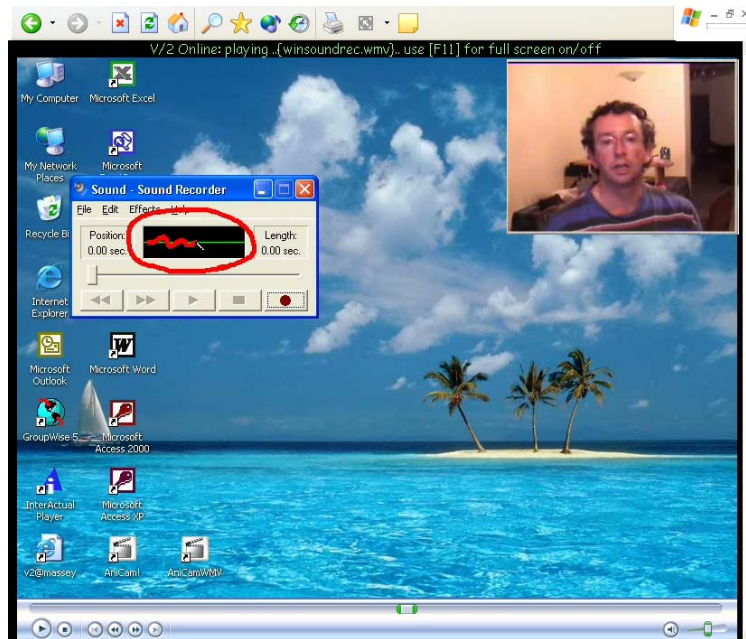


Figure 1. An Anicam streaming video displaying an annotation and web-cam. The tutorial is on the windows sound recorder

A simple control window allows record/stop and customization options (Figure 2). The control window can be minimized while recording. Capturing is to an AVI file, then using an encoding wizard this is converted to the WMV streaming video format.



Figure 2. AniCAM control window

3. Installation and operation

Installation was straight forward, though on Windows 2000 the logged in user must have administrator privileges. A special English version was used as the development version was in Chinese.

Operation is via the control panel (Figure 2). This is enhanced during recording mode to add the annotation commands (Figure 3). Additionally the recording mode control can be hidden and function keys used to control operations such as pen drawing on/off, and Anicam recording off. Using this was straight forward and intuitive.



Figure 3. AniCAM – enhanced controls showing annotation commands

Recording sound via a head set microphone on my Pentium III 850 Laptop with a Hard Drive approaching full!, proved unsatisfactory with the sound out of sych with the images, and of poor quality. Trying AniCAM on an AMD500 with a new and fast Hard Disk gave better results.

The AVI to WMV file encoder would only encode to a maximum of 800 x 600 so setting the screen properties to 800 x 600 created a better quality output. As with any sound/video capture the quality of the equipment has a major effect on the quality of the result.

A second version is currently being developed allowing for immediate capture to a WMV file.

Anicam Maker is also available that enables simple editing of captured AVI video. At present this version is in Chinese.

4. Critique

4.1. AniCAM in teaching and Learning

In a course that the reviewer was a participant in, a discussion was had regarding the suitability of systems such as AniCAM to teaching and learning. AniCAM was first demonstrated then discussed. A summary of this discussion follows. It should be noted that updated versions were made available subsequent to the discussion, so some comments have been modified and represent the current version.

4.1.1. Advantages

For pre-recorded sessions, the system would have benefits to Extra-mural students, as it would give a “live” feel to what are traditionally static content notes. For lessons that are recorded in real-time, then made available as a movie, the system would be useful to students as they can review the lecture including teacher comments and class interaction. In the case of timetabling clashes or absences students would be able to view the lecture they have missed. The video lesson was seen as an addition to normal teaching delivery. If the video lesson was constructed well it could be part of a repository of video lesson clips. It was thought that the video lessons would be most useful in practical subjects such as cooking. The inclusion of the video allows for the teacher’s personality to be included into the lesson.

It was believed that an important advantage would be that the lesson video could display reasoning behind a concept. For example, developing a graphical representation of a system is not just showing the final result (as would be the case in a static system), but the reasoning process that were used to create the diagram.

4.1.2. Disadvantages

Given that the lesson is a complete streaming video file the following observations were made. As the session is streamed, the video will be viewed sequentially until fully downloaded to the PC, this means that essentially it is asynchronous. As the lesson video file is created prior there is no interaction between the teacher and learner. If the lesson is captured in real time the student interruptions can break the flow of the lesson. (This is to be addressed with Anicam Maker – which was not available when the class discussion took place).

Concern was expressed as to the quality of the lesson video. Video production is a skilled process and production by amateurs can create poorly constructed, difficult to follow and inefficient files. For example, video compression can be improved by using white space effectively; the position of the web-cam can make a big difference to the linking of the teacher to the content. The suggestion that the video could be edited was discussed. Those who had edited video previously indicated that this was a significant task, and in many cases could take longer than the time it took to create the original video lesson.

Privacy, copyright and ethical issues were also discussed. There are many things that need to be considered in this area. Performance issues were also noted. In the demonstration the video was often out of sync with the sound. This created a disturbing effect for some in the group. A suggestion was made that lesson videos be created with a range of common frame rates.

Compatibility was discussed. If the files were created in WMV the student must have available a WMV player. At present this is available on modern Windows systems but not on many other platforms. This issue will probably resolve itself over time.

4.2. Application models

Possible applications that AniCam could be applied to include:

- Recording of an actual lesson. This is the model proposed by the authors.
- Prior recording of a technique. For example a complex graphic task can be illustrated, where the techniques can be discussed while they are being demonstrated.

- Recording of a “brain-storming” concept map. Where a concept map is being developed the rational and reasoning behind the entries can be as important as the entries themselves.
- For new software it can assist in evaluating the human-computer interaction. As the recording is in real-time and can include verbal input, system designers can track the movements of new users in their application. This will give a valuable insight into the usability of the software.
- Help desk. When a user has a reproducible problem, they are able to record what was done to cause the problem. This would greatly assist a Help desk operator in identifying the causes of the problem.
- Creating multimedia video elements. As the use of Anicam is straightforward, it could be used to create simple Internet and TV advertising. A video of a presenter could be captured along with product information.
- Student assessments. Students could use AniCam to record the answer to an assessment item, for example dismantling a PC recorded via a web cam with typed notes and verbal comments included. This could be set up in such a way as to prove authenticity of the student with the assessment.
- Annotating existing PC video. As a video is displayed on-screen, use of either voice or a notepad that can be captured with the video is possible. The PC video could be paused while the annotating is being made.

5. Observations in creating a sample session

In the first example, a short video that would illustrate a mail merge in Microsoft Access was to be created. For this no Camera was attached just a headset microphone. Setting up was reasonably straightforward. To highlight a button the drawing tool was used. Unfortunately in this version returning back to the standard cursor mode was not possible (There is a bug-fix that resolves this problem). By creating multiple short videos the task was completed. One of the main observations to come out of the first recording is that it is important to be able to do basic editing of the video. In recording you make false moves (for example opening the wrong window) or at the end hunting for the AniCAM off button! The video continues to record these. Anicam maker is actually an important tool and needs to be included with Anicam.

Playing the video produced its own challenges. As the video was saved at 800 x 600 (see earlier note), playing the video in Windows media player on a screen set to 1024 x 768 distorted the image, as the controls of media player meant the viewable area for the video was less than 600 pixels high. Attempting to run the video in full screen produced the alternative effect of stretching the video also creating an undesirable effect. Experimenting with different skins it is possible to choose one with minimal controls so that the full 600 depth can be displayed. Another alternative that was explored was to place the video in a web page and set the height and width properties to display the video correctly.

Recording techniques where a Web-Cam is included needs to be explored. Initial efforts with the reviewer included in a video window, actually distracted from what was being demonstrated.

5.1. Observations

It was thought that a video of an entire lesson would create attention and concentration problems for many students. A repository of video lessons could be considered where examples of best practice lessons are available to course builders. Also, in the repository associated case studies could be included, from say an expert or practitioner in the domain. The streaming video files could be hyper-linked by teachers into their own lessons. The availability of the lessons on CD or VCD should be considered in cases where there are slow bandwidth problems.

Anicam maker is an important and essential part of the application, as editing the video is important to edit out undesirable parts. This needs to be as simple as possible, as editing quality video is a time consuming and demanding task.

This innovative application will be applicable to a wide variety of teaching and learning situations.

6. Reference

Nian-Shing Chen and Shun-Yi Huang (2001), Applying Evolutionary Prototyping Model in Developing Stream-based Lecturing systems.