

Project Name

Student Mediated Video Lecture Capture

Principal Investigator Ronald Sarnier

Campus SUNY Polytechnic Institute

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Tier Tier One

Project Team

- Rosemary J. Mullick, SUNYIT
- Jorge Novillo, SUNYIT
- Christopher Urban, SUNYIT
- Nick Merante, SUNYIT

Overview Summary

Evaluation of open source Class-X lecture capture software with inexpensive consumer grade equipment. Enables the viewer pan and zoom control over the image that is displayed.

Outcomes Summary

Several courses were captured and distributed using Class-X process. Outcomes, examples, publication and report are [available](#).

Project Abstract

Video capture of class sessions is appealing for a variety of reasons, among them: a means for a student to review a small portion of a class that may be confusing or to prepare for exams; reducing in-class time devoted to note-taking; removing reliance upon notes taken by fellow classmates in the event of a one-time class absence; solving unexpected time conflicts by providing an alternate means of "attending" a class; delivering a traditional course in a distance format; and providing a means to deliver course material during an

instructor's absence. Video capture has the potential to provide these benefits while not altering how faculty teach.

For years students have sought permission to make audio recordings of classes. For some these audio recordings reduce the burden of note-taking or assist in preparation for exams or assignments. Many institutions have facilities for audio capture and routinely post podcasts for student use.

Video capture takes this concept to the next level. It is particularly appealing in disciplines where classes involve substantial visual material including math, science, and computer science. Visual material includes prepared slides, writing on a board, and computer input and output - important content not captured by traditional audio recording. Video capture is labor-intensive requiring mounting a camera on a tripod and the presence of a camera operator. The resulting video is a record of what the cameraperson thought was most important.

SUNYIT has experimented with video capture. During the 1990s graduate courses were videotaped and sent to Moscow where they were viewed by Russian students enrolled in our master's program in computer science; nine out of eleven students successfully completed the program. For these students the videotapes were the primary means of instruction.

More recently two computer science faculty have used consumer grade camcorders to capture classes. This process has been labor-intensive, using students enrolled in the class or graduate assistants as camcorder operators. After capture, the video has been transcoded from the mp4 format to Adobe's flv format, and to reduce file sizes image resolution and frame rates were reduced - a process involving some manual intervention. The resulting files are linked to their respective Angel course sites.

Anecdotal evidence suggests that students are using these videos. In a recent semester where activity monitoring for an introductory computer programming course was enabled in Angel, 37 out of 45 students enrolled viewed videos; in total the videos were accessed 560 times, or an mean of about once a week per student. It is important to note that no component of the student's grade was tied to viewing a video, thus viewing was strictly voluntary. Last semester when there was a delay in posting the video of the last class session in which an old final exam was reviewed, the instructor received several e-mail requests to expeditiously post the video.

Thus, there is reason to believe that if video capture is available students will use it. The major impediments to more widespread use are the labor-intensive nature of the capture, transcoding, and uploading process, and that the resulting image is a reflection of what the camera operator thought was most important at any given moment.

Stanford University has developed a product called CLASSX that purports to have solved these problems. CLASSX (classx.stanford.edu) is an open-source product that is licensed without cost. A high-quality, consumer-grade camcorder is mounted on a tripod. Operator intervention is limited to turning on the camcorder at the beginning of the class and off at the end. The instructor wears a wireless microphone to ensure a high-quality audio track. The captured image is that of the entire front of the classroom. What makes CLASSX unique is that it stores the entire front of the classroom as a high resolution image, and a multimode client enables the viewer to determine what portion of the image is important and to have that part of the image enlarged as it is served. In another mode the movement of the instructor is followed, and the image recognition software adjusts the picture with the instructor's movement. In a third mode, power point slides are synchronized to the instructor's presentation so the viewer sees the slides instead of the classroom. The viewer can dynamically switch between modes. Client software is available without cost for PCs, Macs, tablets and smartphones.

In this project CLASSX will be implemented in the Computer Science Department. It will be used by at least three of the department's twelve full-time faculty. All undergraduate and graduate courses taught by these

three will be captured during the 2012-13 academic year and made accessible through Angel . Support is being sought to assist with the purchase of required equipment, and for a student assistant to maintain the system. Student use will be logged, and students will be queried with respect to why they are using it, frequency of use, and satisfaction.

Constructivists might argue that investing in lecture capture is inappropriate because it perpetuates a poor instructional methodology. Such criticism fails to account for the fact that universities have very large numbers of faculty who can not, or will not, alter their teaching style. While awaiting the next generation of faculty we can not simply write off these thousands of veterans. We may not be able to change how they teach, but we may be able to provide tools that make them more effective. A substantial attraction of video capture is that does not require faculty to change what they do or how they do it. It promises to involve little or no training. If successful, it may be a highly cost-effective way to leverage and extend the faculty expertise that is already in place and to provide an alternate means of distance course delivery.

Reports and Resources

- [Project final report](#)

Instructional Design

- Student Learning Support