

DECLARATION OF WALTER BENDER

I, Walter Bender, declare as follows:

1. I am over 18 years of age and make this declaration based upon my own personal knowledge. If called upon to testify in person, I would testify competently to the matters contained herein.

2. My current title is Senior Research Scientist at the Massachusetts Institute of Technology Media Lab. I am also founder of Sugar Labs, a member project of the non-profit Software Freedom Conservancy that promotes the development of educational software.

3. I supervised Michael R. Truog in his work on *The Television Pause Function*, (the "Truog Thesis") a thesis Mr. Truog submitted to the Department of Electrical Engineering and Computer Science at Massachusetts Institute of Technology ("MIT") on or about May 16, 1989. Based in part on this thesis, Mr. Truog received a B.S. degree in Electrical Engineering and Engineering from MIT in 1989. My title at the time this thesis was prepared was Principle Research Scientist at the MIT Media Lab.

4. I was familiar with the process for publication of theses by MIT at the time of the Truog Thesis. In particular, student theses were certified by the student's thesis supervisor, then submitted to the relevant

department's committee on undergraduate theses for acceptance. Once accepted, the thesis would be transmitted to the MIT Library, where it would be indexed in the Library's catalog, and made available for public viewing and copying. The theses would generally be indexed and publicly available within a month or two of submission. In addition, hard copies of student theses related to work done in the MIT Media Lab, including the Truog Thesis, were made available to visitors to the MIT Media Lab.

5. Exhibit 1002 is a true and correct copy of the Truog Thesis, followed by a record from the MIT's Library catalog showing the public availability of the Thesis in the MIT Library. The Truog Thesis was submitted for acceptance by the MIT Department of Electrical Engineering and Computer Science on or about May 1989. To best of my understanding, the stamped date of June 16, 1989 on the front of Exhibit 1002 indicates the date that the Truog Thesis was cataloged and publicly available in the MIT Library. I also spoke publicly to various audiences of academics and broadcast industry participants about the work described in the Truog Thesis on several occasions prior to April 1992.

6. Mr. Truog worked on the project described in the Truog Thesis during the 1988-1989 academic year. Mr. Truog successfully built a prototype of the design described in the Thesis. The prototype

was operational and successfully demonstrated the feasibility of the design described in the Truog Thesis. The prototype was left in the custody of the MIT Media Lab after the acceptance of the Truog Thesis.

7. In my role at the MIT Media Lab, I was aware of the general operation and state of the art of television communications equipment and video cassette recorders (VCRs) in the 1980s. During that time, I conceived of the idea of a system that allowed users to pause a live television broadcast (such as during a temporary interruption) and subsequently resume the playback of the program immediately after the end of the interruption. I also conceived of the idea of using a fast-forward function so the user could speed over portions of the recorded program to catch up to the real-time broadcast. I eventually suggested these ideas to Mr. Truog as a basis for a thesis project. These concepts that I suggested to Mr. Truog are described in the Truog Thesis, as explained below.

8. The abstract of the Truog Thesis described the “television pause function” as follows: “a new pause function is designed and implemented which enables a television viewer to pause a live television program for a variable length of time, and then to return at a later time and continue watching without missing any portion of the program.” *Id.* at Abstract. Thus, the Truog Thesis described “pausing a live television

program.”

9. In the introduction of the Truog Thesis, the pause function is described in more detail: “The new ‘television pause’ function I have designed is a third option which will enable viewers to continue watching the program from where they left off to completion as soon as they return.” *Id.* at pg. 1. In addition, as explained in the Truog Thesis, the “television pause” feature that I had conceived and suggested to Mr. Truog was designed to pause a live TV broadcast and not a previous recording: “Although the television program continues to be broadcast, the ‘television pause’ feature leads the viewer to believe that the broadcast has been put on hold.” *Id.* Thus, my idea, as described in the Truog Thesis, was the “live pause” of a broadcast television program as the term is understood today.

10. The Truog Thesis also described the aspect of my idea mentioned above where the playback speed of the paused video could be altered by the user. For example, the Truog Thesis explained that “the user should be able to catch up to actual time by fast forwarding through commercials.” *Id.* p. 4. The implementation of this feature is described in the Truog Thesis as follows:

When a commercial is reached, the 'fast forward' button should be pushed. My circuit will then tell the VCR to search in fast forward mode. When the commercials are over, the 'fast forward' button is pushed again, so that my circuit knows to end the search mode. By allowing the user to fast forward through unnecessary portions, he will be able to approach real time and thus save viewing time.

Id. p. 22.

11. A "television pause" or "live pause" feature had not been implemented in low cost, consumer electronics due to the relatively high cost of digital memory technologies in the 1989 timeframe and the limitations of a single VCR tape system. However as stated in the Truog Thesis, the feature could easily be achieved technically using digital memory once those technologies matured. Indeed, prior to the time Mr. Truog began working on his implementation of the Television Pause function, I had already been involved with work in the MIT Media Lab that had successfully digitized and stored video programming onto a digital hard disk drive ("HDD"). (Between 1987 and 1989 we developed family of full motion digital video decoders for the IBM PC and Macintosh II. These systems, which featured the storage and retrieval of video programming on a digital hard disk drive were demonstrated to the public on numerous occasions.) Therefore, before I suggested the idea of the Television Pause function to Mr. Truog, I knew that the

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