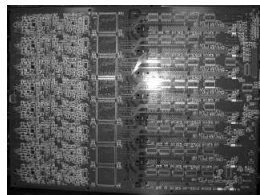


A Multimedia Example

(Please Click on Icons – Visit: <http://www.ieee-uffc.org/tr/>)

Abstract— This page shows some examples of multimedia files. It is also available at: <http://www.ieee-uffc.org/tr/mexample.pdf>. For submission of multimedia manuscripts to TUFFC, please follow “Information for Contributors” at: <http://www.ieee-uffc.org/tr/contrib.pdf>.

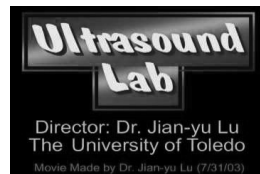
Color Picture: The grayscale photo below is a typical example that appears in the IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control (TUFFC). Authors may use the icon link to include a color on-line version of their grayscale pictures in their manuscripts (only include a color version when necessary). The color picture must be in JPEG (Joint Photographic Expert Group) or GIF (Graphics Interchange Format) format to reduce file size and to decrease the bandwidth usage on the TUFFC server.



[File size: 180KB; Format: JPEG; Color 24 bits; Resolution: 1024x777 pixels]

Fig. 1. An eight-layer printed circuit board (PCB) used primarily for multi-channel ultrasound signal reception and storage. The board was designed in the Ultrasound Lab at the University of Toledo, led by Dr. Jian-yu Lu. It is one of the many PCBs designed for a high-frame rate medical ultrasound imaging system [1]. The system consists of 128 linear, high-voltage, broadband, and 12-bit arbitrary waveform generators with an automatic bias and offset control for synchronized generation of ultrasound signals or for other research purposes.

Movies: Please click on the movie icon to see a movie. The two movies below give you an idea on the file size versus movie quality. “VCD quality” here means 1150kbits/s for video and 224kbits/s for 16-bit MP2 stereo audio at 44.1KHz sampling rate.



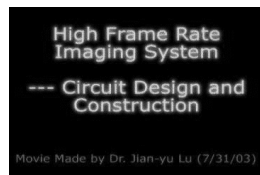
MOVIE
[File size: 1130KB; Format: MPEG1; Resolution: 320x240; Duration: 13 seconds]



MOVIE
[File size: 2290KB; Format: MPEG1 at VCD quality; Resolution: 320x240; Duration: 13 seconds]

Fig. 2. An introduction to the Ultrasound Lab at the University of Toledo.

Movies and Animations: Please click on the movie icons to see movies or animations.



MOVIE
[File size: 808KB; Format: MPEG1; Resolution: 320x240; Duration: 9 seconds]



MOVIE
[File size: 1585KB; Format: MPEG1 at VCD quality; Resolution: 320x240; Duration: 9 seconds]



ANIMATION

[File size: 739KB; Format: GIF; Resolution: 360x240; Number of slides: 16]



ANIMATION

[File size: 289KB; Format: GIF; Resolution: 180x120; Number of slides: 22]

Fig. 3. Circuit design and construction of the imaging system.

Movies and Animation: Please click on the movie icons to see movies or animation.



MOVIE
[File size: 785KB; Format: MPEG1; Resolution: 320x240; Duration: 9 seconds]



MOVIE
[File size: 1548KB; Format: MPEG1 at VCD quality; Resolution: 320x240; Duration: 9 seconds]



ANIMATION

[File size: 222KB; Format: GIF; Resolution: 360x240; Number of slides: 8]

Fig. 4. Software development for the imaging system.

Movies and Animation: Please click on the movie icons to see movies or animation.



MOVIE
[File size: 796KB; Format: MPEG1; Resolution: 320x240; Duration: 9 seconds]



MOVIE
[File size: 1635KB; Format: MPEG1 at VCD quality; Resolution: 320x240; Duration: 9 seconds]



ANIMATION

[File size: 225KB; Format: GIF; Resolution: 360x240; Number of slides: 5]

Fig. 5. Construction of the imaging system.

Movies and Animation: Please click on the movie icons to see movies or animation.



MOVIE
[File size: 715KB; Format: MPEG1; Resolution: 320x240; Duration: 8 seconds]



MOVIE
[File size: 1408KB; Format: MPEG1 at VCD quality; Resolution: 320x240; Duration: 8 seconds]



ANIMATION

[File size: 551KB; Format: GIF; Resolution: 360x240; Number of slides: 11]

Fig. 6. Test of the imaging system.

Sound Only: Please click on the sound icon to hear greetings from Dr. Jian-yu Lu, the Editor-in-Chief of the *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*.



[File size: 98KB; Format: MP3; Bit rate: 96kbits/s (radio quality); Duration: 8 seconds]

Other Animations: An IEEE TUFFC letter animation and an icon animation can be viewed by clicking on the movie icons:



ANIMATION

[File size: 188KB; Format: GIF; Resolution: 231x130; Number of slides: 13]



ANIMATION

[File size: 17KB; Format: GIF; Resolution: 100x100; Number of slides: 3]

REFERENCES

[1] Jian-yu Lu, “Experimental study of high frame rate imaging with limited diffraction beams,” *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*, vol. 45, no. 1, pp. 84-97, January, 1998.

For questions on this multimedia example (produced on July 31, 2003), please contact its author, Dr. Jian-yu Lu, Dept. of Bioengineering, The University of Toledo, Toledo, OH, and the Editor-in-Chief of TUFFC. Email: jilu@eng.utoledo.edu.