2016 ATMI National Conference
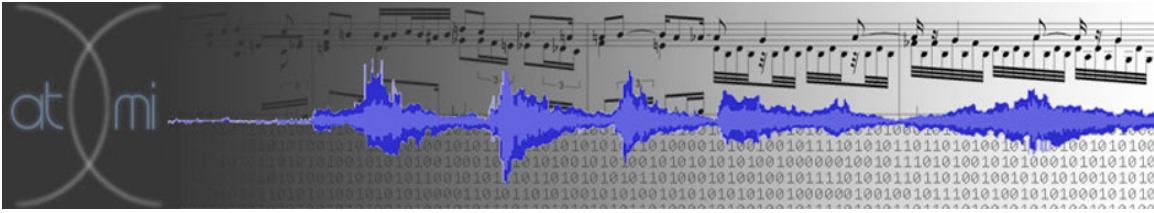

in conjunction with the:
College Music Society (CMS)

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Eldorado Hotel & Hilton Santa Fe Historic Plaza, Santa Fe

The "new" Multimedia File Formats: Fresh Wine In Innovative Bottles!
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Presentation Website:
http://fredkersten.com/SantaFe16/ATMI16Webpage/ATMI1.html
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<u>Outline</u>
Why New Files and Formats?

I. Over last years BIG Changes:
A. Increased media sharing on line!
B. New container formats and codecs for mobile devices.
C. Huge increase in streaming.
D. Huge increase in complexity of data in file container.
E. Files now contain complex multimedia, multichannel audio, and video.
F. Format obsolescence--development of proprietary format.
G. Increase of transmission of HD (High Defintion) video.
Whole Direction of new files and formats...give the "mostest" and the "bestest" with the "littlest!"....Meaning--the most information with the best quality and the smallest file size!

II. Definitions for clarity
*Codec - CODE—De--CODE--A formula for coding and decoding data to reduce the size of the file while keeping musical/visual integrity.
*H.264 Codec-MPEG-4 Part 10 is a current code that is utilized for compression. It is utilized in many formats for creation of video and provides quality output.
*Lossless - Lossless compressed audio format--A lossless compressed format stores data in less space without losing any information. The original, uncompressed data can be recreated from the compressed version.
*Lossy-As the word implies, lossy compression means you lose some image, video, or audio information.

III. The New Wine
A. Audio—
a. FLAC--stands for Free Lossless Audio Codec. a lossless compression codec format.
b. AAC. Advanced Audio Coding (AAC). Audio coding standard for lossy digital audio compression.
c. MP4& M4A--MP4 containers with audio data. Virtually identical.
d. Ogg-Vorbis Ogg-codec, Vorbis-container (good format, known but not totally popular--however newly used).
e. MP3 (old but continually used).
f. Comprehensive Audio File types wav, aiff, mp3, raw.

B. Video--
a. WebM--VP9—New video codec-- royalty-free.
*Primarily intended use with new HTML5 video tag.
*Sister project WebP for images.
*Development--sponsored by Google.
*Support by Google, Firefox, Opera, Chrome.
*Upcoming plugins for Internet Explorer and Safari through the standard HTML5 tag.

b. MP4 Video-MPEG container format utilized by many video technology applications

and hardware.
c. Traditional video containers avi, Quick Time, m4v mp4.

d. FLASH
*HTML-5 adoptance as default can allow for FLASH to be bypassed. No more plug-ins needed!
Content can be read on all device including handhelds such as iPads also. Totally cross the web. No blocks of plugins needed.
*Some companies such as Noteflight and YouTube are now not supporting Flash.
*Flash video used to be used on websites dedicated to video sharing-- YouTube and Vimeo.
*Firefox Mozilla now runs browser without the Flash plugin
New technology "Shumway!"
*Shumway integrated into browser--loads Flash programs without Flash Player.
*Shumway still experimental--runs on some operating systems but with modifications.
*PROBLEM: Flash Player vulnerable security wise. New directions with HTML5 would be helpful.

IV. Converting Files.
A. Video Conversion Packages
*Any Video Converter.
*VidCoder for Windows only
*MEDIAHUMAN Video Converter.
B. Audio Conversion Packages
*MEDIAHUMAN Audio Converter
*Switch Audio File Converter
*CONVERT.Com-Convert audio to FLAC.
V. Questions and Suggestions:
         *See what files your browser is set to read you can go to your browser preferences location and check under preferences. Look for the type of files it will read and support.

         *Check out and experiment with exporting your audio and video files in new versus old formats. Instead of saving in traditional MP3 format, try exporting in FLAC or AAC formats. See what Ogg/Vorbis can do. On the video side try to work with Web M. A great site for working with conversion is digital inspiration tech a la carte It gives ideas about conversion and presently it is still free. This converter lets you also easily extract audio from video files in high quality.

         *Should you continue use AIFF or .WAV formats?
.AIFF and .WAV will be continuously utilized and are available as exports. If you are looking for a simplistic total file of all data this is a good place to start. Obviously, the newer containers and codecs are appearing and can/should be utilized.
FLAC and AAC are becoming more standard because of the size and compression differential. AIFF will not be replaced totally but as you check on audio export software

other more streamlined formats are available and more commonly utilized.

    *Is there a file format that is better than others for uploading to YOU TUBE? There is a great site up with information for about uploading to YOUTUBE (see Resources for Digarty URL). The site indicates the best video format for YouTube: H.264, MPEG-2 or MPEG-4. Note YOUTUBE Conversion software that you can download specifically for this purpose! Digarty provides free video converter software you can download for both Mac (OS X 10.11) and PC (Windows 10).

<div align="center">Supplemental Definitions for Understanding</div>

*MPEG—Moving Picture Expert Group (1988). A standardization organization (industries, universities, and research institutions) formed to set standards for audio/video compression and transmission.
*WAV(actually WAVE)—Short for WAVE Audio File Audio Format. Uncompressed format or raw audio data format for Windows. The file stores audio data in blocks. Not at utilized as in past because of new compressed formats.
*MP4 (a multimedia container format standard specified as a part of MPEG-4)
*FLV (Flash Video, a kind of video format)
*AVI (Audio Video Interleaved,a kind of video format)
*MOV (the QuickTime multimedia file format)
*3GP (a multimedia container format defined by the Third Generation Partnership Project for 3G UMTS multimedia services.) MKV (an free container format that holds an unlimited number of video, audio, picture, or subtitle tracks in one file) MPEG (the
*WMV (Windows Media Video)
*SWF (Shockwave Flash)
*AIFF Audio Interface File Format. This file is usually totally uncompressed and large. There are "compressed" versions of this file but these have not gained popularity. Traditional to mac but utilized and read currently by other readers.
*Mp3 Abbreviation off Motion Picture Expert Group MPEG. Highly popular "lossy" format that is utilized. Better formats such as FLAC, and AAF are being utilized in its place.

<div align="center">Resources</div>

<u>Online</u>
*Tips of Getting Best YouTube Video Format for YouTube Uploading. Good source for imformation before uploading to YouTube. http://www.macxdvd.com/mac-dvd-video-converter-how-to/best-video-format-for-youtube.htm
*HandBrake, The open source video transcoder for OSX or later. https://handbrake.fr
*MediaHuman.com http://www.mediahuman.com Great location of freeaudio and video converters.
*Video Format Explained. Kyle Cassidy author. Videomaker Magazine,March 2012, Videomaker.com. Online at: https://www.videomaker.com/article/c10/15362-video-formats-explained Great article on video formats.
*Obsolescence: http://www.dpbestflow.org/Video_Format_Overview#format-obsolescence

*Video Codecs and Containers:
http://www.techhive.com/article/213612/all_about_video_codecs_and_containers.html
*The Right Container:
http://www.techhive.com/article/213612/all_about_video_codecs_and_containers.html?page=2
*FLAC files https://www.coolutils.com/Formats/FLAC (Free Lossless Audio Codec information.
*Difference between .MP4 and .M4A. https://en.m.wikipedia.org/wiki/MPEG-4_Part_14#.MP4_versus_.M4A
*WAV Definition http://mp3.about.com/od/glossary/g/WAV_def.htm
*WebM Definition https://en.m.wikipedia.org/wiki/WebM
Great current source clarifying the direction of WebM. http://www.webmproject.org
Understanding Streaming Video http://www.ehow.com/info_12218707_file-format-streaming-video-hd.html
*Practical ideas for conversion of your files into different formats
http://www.labnol.org/software/how-to-convert-files/19523/
*Video Signal Attributes—Frame, Aspect Ratio
http://www.dpbestflow.org/node/624
*YouTube uploading-best format to use and free conversion software
http://www.macxdvd.com/mac-dvd-video-converter-how-to/best-video-format-for-youtube.htm
*Browser support identification for YouTube-hrml5 on your computer.
https://www.youtube.com/html5

MediaTube Free Opportunities to Explore
*YouTube to MP3 Converter. Save sound from YouTube or SoundCloud to play offline.
http://www.mediahuman.com/youtube-to-mp3-converter/
*Collagerator. Create collages of pictures. Free presently!
http://www.mediahuman.com/collagerator/
*MediaTube. Excludes ads on videos from YouTube.
http://www.mediahuman.com/mediatube/
*Wondershare video converter (mac) http://www.wondershare.net/ad/video-converter-ultimate/bing.html?utm_source=bing&utm_medium=ppc&utm_campaign=BingvcmacUSbmm&utm_term=handbrake%20for%20mac%20mavericks&utm_content=handbrake
*Telestream converters for video file formats http://www.telestream.net/telestream-home.htm
*Using FLAC, Instruction, Conversion, Readers, and Converters.
https://xiph.org/flac/documentation_tasks.html
*fre:ac free audio converter. Great for converting files. http://www.freac.org/

About Dr. Fred Kersten

Dr. Fred Kersten is currently an Online Graduate Facilitator for Boston University. He works with graduate music education majors around the world who are completing their masters and doctorate degrees in music education.

Fred holds five degrees in music and music education. He received the B.S. and M Mus degrees from Crane School of Music in Potsdam, New York. His M.S. in Elementary Education and Certificate of Advanced Study in School Administration are from SUNY, New Paltz in New York. The Doctorate (D Ed) in music education/administration was awarded by The Pennsylvania State University.

A veteran of public school music teaching in Choral, General and Instrumental areas, Fred has taught music from Nursery, and Kindergarten through Graduate Levels. His doctoral dissertation focused on Music for the Visually Impaired and was developed from his many years of teaching music to students with exceptionalities.

Interest in the recorder as a performing instrument led to study at Indiana University and he authored a book on Teaching Recorder that has been published by NAfME. His performance repertoire includes Bach, Handel, Telemann, and the vast repertoire of classical recorder literature.

His current interests are focused on music technology and his study of classical pipe organ, which was his dual major as an undergraduate in addition to clarinet and saxophone. He presents nationally for CMS, ATMI, TI:ME, and NAfME.