S121:
Audio Restoration and Enhancement of Existing Content

By Jason E. Davies and Zac Wheacroft of BIAS, Inc.

Restoration Topics

Sources Of Noise - Why Audio Sounds Bad

- Recording Process - DC/Offset, 60/50 Hz Hum (ground loops), Digital Spikes/Clicks, Clipped Files - signal too high, poor mic placement/quality, phase problems

- Recording Environment - HVAC noise, Room ambience, Lighting (dimmer buzz), background noise - cough, wind, traffic, etc.

- Media Degradation - Tape Hiss/Drop outs, Bit depth reduction, Over-processing

Enhancement Topics

Making Good Audio Sound Better

- Source Enhancement - EQ(tone adjustment), Ambience, Pitch, Duration, Effects

- Content remixing - Customizing Media

- Final processing/mastering

Audio Software Tools

- Peak 4.1 - Recording, Editing, Onboard DSP Processing and Plug-ins

- Vbox - Multi-effects Matrix

- SoundSoap 2 - "One-Click" Audio Cleaning

- SoundSoap Pro - Advanced Audio Restoration

Recording Techniques

- Ensure proper mic placement

- Adjust levels properly

- Avoid controllable environmental interference - electrical, ambient, etc.

- Test signal path components - cables, hardware, connections

- Use as high quality gear as possible

LP Transfer Tips

- Ensure proper ground

- Clean LP and stylus

- Use quality cables

- Adjust recording levels around highest amplitude

- Choose right capture hardware

Analog Cassette Transfer Tips

- Clean and de-magnetized heads

- Use high quality cables, equipment

- Adjust recording levels around highest amplitude

- Choose right capture hardware

Prevent Degradation

- Use professional dithering

- Avoid over-processing and clipping

- Make backups

Audio Enhancement Tips

- Avoid over processing/clipping

- Begin with highest possible quality content

- Seek feedback - more ears may help

- Beware of processing redundancy

- Resist over normalization, compression, ambience

- Use gain adjustments tastefully

- Be mindful of purpose and target audience

Tools and Approach

- Use Accurate Reference Monitors

- Use Quality Audio I/O

- Minimize Signal Chain

- Approach with Fresh Ears and Mind

- Avoid Fatigue And Rushing Project

Tools and Process
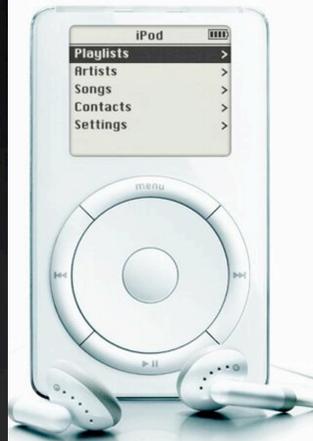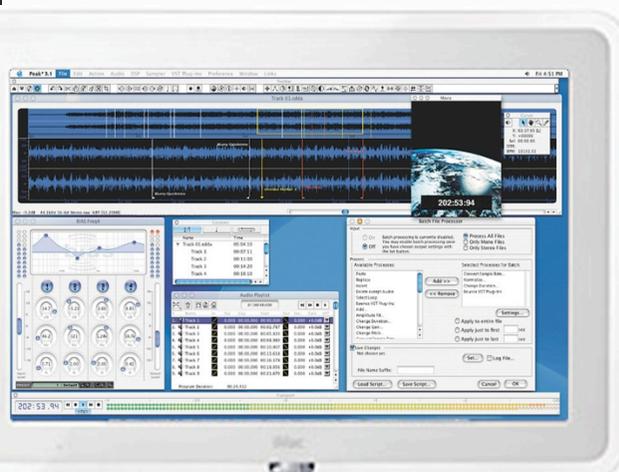
LP Restoration Demo

- Record Into Peak 4.1

- Listen and Analyze

- Remove Clicks/Crackle using SoundSoap 2 or SoundSoap Pro

- Remove Hiss, Hum, Rumble, DC offset as needed with SoundSoap 2, SoundSoap Pro, and Peak 4.1

- Apply EQ and Normalization as desired

- Create Regions, build playlist, prepare for CD burning

Analog Cassette Restoration Demo

- Record from cassette into Peak 4

- Listen and Analyze

- Reduce Hiss with SoundSoap 2 or SoundSoap Pro

- Apply EQ and Normalization as desired

- Create Regions, build playlist, prepare for CD burning

Restore and Enhance DV Audio Demo

- Evaluate DV Audio Noise in Final Cut Pro or iMovie project

- Launch into Peak for clean up using included DSP, editing tools, and additional SoundSoap 2 plug-in

- Enhance as desired with EQ and other DSP included with Peak 4.1

- Save and return to Final Cut Pro or iMovie

Editing and Effects: Enhancement For Sound Design Demo

- Custom Remix - Create Loops, Build Playlist, Bounce(Render)

- DSP Tools and Plug-ins for Creating Sound Effects

- Batch Processing

Enhance for CD/DVD/MP4 Demo

- Use analysis and mastering effects such as compression/limiting, EQ, and other processing as desired

- Use Peak's included POWr dithering to reduce bit depth from 24 bit to 16 bit (CD Mastering)

- Prepare audio for import into DVD Studio Pro

- Create MP4 files for upload to web, iTunes, and iPod

Conclusion

- Avoid pitfalls as much possible during capture

- Listen, assess, and analyze

- Use audio software tools to restore and enhance

Thanks for listening!
Come See Us In
Booth#1049

Visit Our Web Site:
www.bias-inc.com

Questions?