FH MMA SALZBURG – MUSIC PRODUCTION, MIX & MASTERING

DIGITAL AUDIO WORKSTATIONS

OVERVIEW OF CURRENT DAWS

Wavelab, Cubase, Nuendo, Studio One, Logic Pro, Pro Tools, Samplitude, Sequoia, Live, Bitwig Studio, Reason, Sound Forge, Wave Burner, Garage Band, Fruity Loops, etc.

1. Multitrack Audio + MIDI Recording, Editing & Mixing
2. Post Production
3. Live Performance
4. Editing, Mastering, Sound Restoration

1. MULTITRACK AUDIO + MIDI RECORDING, EDITING AND MIXING

Figure 1: Steinberg Cubase 8.5, featuring:
Arranger/Project view with Audio, FX and Group tracks, as well as MIDI tracks and automation (left);
Mixer/Console view with 2 VST effect panels open as well as R128 loudness meter (right)

SPECIAL FEATURES:

- simultaneous recording and playback of more than a hundred audio tracks
- integrated and combined editing of MIDI and audio data
- quantizing and groove functions for MIDI and audio
- integrated digital mixer with total recall/total automation functions
- advanced routing available for live inputs, audio channels and effect busses
- integrated high quality plugin effects and instruments
- integrated arranging and scoring tools (notation)
- support for mono, stereo and surround channel, bus, group and I/O formats
- extremely powerful and flexible, but very steep learning curve, very complex, not optimized for live usage (for example, every time a plugin is added or removed, there is a short audio drop-out)
- some program includes Melodyne-style pitch correction
- some programs include also CD-mastering (Sequoia, Studio One)
- Logic, Cubase and LIVE also support ACID-style real-time time-stretching and pitch-shifting
- to navigate through all functions more comfortably, some programs can switch between several "views" of the available editors (arranger, mixer, score, event, etc.), remembering the position of every window (somehow reducing the need of working with multiple screens)

WINDOWS + MAC OS X CROSSPLATFORM

- **Avid Pro Tools / Pro Tools HD**

  one of the most widely used audio workstations world-wide, often praised for its stability and reliability; the included effects are of very good quality;
  somewhat limited MIDI capabilities, but it is catching up with each new version

- **Steinberg Cubase / Nuendo**

  offers together with advanced audio functions very good MIDI composing, scoring and arranging tools; 32-bit float audio engine; includes Melodyne-style pitch and time-correction editing; the included effects and software instruments are of good quality, but not really comparable to 3rd party software like UAD, Slate Digital, Native Instruments, etc.
  Workspaces: Cubase can store and switch between several "views" of the available editors (arranger, mixer, score, event, etc.), remembering the position of every window

- **PreSonus StudioOne**

  developed by a group of ex-Steinberg programmers, similar to Cubase but with streamlined interface and workflow; offers also CD mastering with DDP image
  includes Celemony Melodyne Essential for pitch and time-correction editing
  the included effects are of very good quality, a step above Cubase

- **Ableton LIVE**

  multitrack recording/mixing is not the strength of LIVE, that was mainly developed with the focus on live performance; however, since version 9 (with the introduction of a 32-bit float audio engine) it is also a valid alternative to Cubase, Pro Tools and Logic

- **Bitwig Studio**

  similar to Ableton LIVE, runs also on Linux Ubuntu; multi-touch support
  advanced MIDI sequencing options (beyond the standard MIDI implementation)

- **Cockos Reaper**

  extremely low resource usage, fully theme-based GUI customization

WINDOWS ONLY

- **Magix Samplitude Pro / Sequoia**

  quite popular among classical music engineers and producers
  very untypical layout and menu-structure, takes some time to get used to if you come from one of the standard DAWs

- **Cakewalk Sonar**

  nowadays not very well known, it was however one of the first Audio/MIDI sequencers to be developed (over 25 years ago) and is still a very powerful DAW; 64-bit mixing engine and very good included effects

- **Pyramix Virtual Studio**

  high-end hardware + software solution (Windows 7 64 only)
  support for any speaker output layout, native DSD and DXD recording

MAC OS X ONLY

- **Apple Logic Pro**

  excellent MIDI composing, scoring and arranging tools; 32-bit float audio engine;
  the included software instruments are of excellent quality
  Logic offers a function similar to Cubase's Workspaces, here called Screensets

- **MOTU Digital Performer**

  not very well known in Europe, but very popular in the USA

2. POST PRODUCTION

Figure 2: AIKON Studios main mixing stage (Grödig, near Salzburg), featuring an AVID Pro Tools HD system and D-Control console

SPECIAL FEATURES:

- support for additional surround and multichannel formats (incl. 7.1, 10.2, Dolby Atmos, etc.)
- snapshot automation (very useful when switching between different movie scenes)
- support for multiple video clips (Nuendo)

WINDOWS + MAC OS X CROSSPLATFORM

- **Avid Pro Tools / Pro Tools HD**   by many considered *the* industry standard for audio post-pro
  native support for AVID family of controllers (Artist, S3, S6, C24, etc.)

- **Steinberg Cubase / Nuendo**   a valid alternative to Pro Tools, workflow practically identical to Cubase
  support for Yamaha Nuage console and AVID EUCON products

WINDOWS ONLY

- **Pyramix Virtual Studio**   high-end hardware + software solution (Windows 7 64 only)

Figure 3: Steinberg Nuendo 7 with Yamaha Nuage controller and Dolby Atmos support

3. LIVE PERFORMANCE

Figure 4: Bitwig Studio featuring a split clip/arrange view with device panels (left) and clip-launch with mixer (right)

SPECIAL FEATURES:

- reduced function set, but very easy and intuitive to use
- optimized for live performance
- realtime time-stretching and/or pitch-shifting
- ACID, LIVE, Bitwig Studio: loop-based arrangement structure: tracks can be "arranged" in real time activating/deactivating clips, adding new audio clips without interrupting the playback, etc.

WINDOWS + MAC OS X CROSSPLATFORM

- **Ableton LIVE** — designed from the start with live audio performance in mind, quite unbeatable for that

- **Bitwig Studio** — similar to Ableton LIVE, runs also on Linux Ubuntu

- **Propellerhead Reason** — Reason simulates a complete studio environment (virtual studio rack), including effects, instruments, a mixer, virtual cabling between components, a step sequencer, etc. ReWire support to use its instruments in other ReWire DAWs (like Cubase, Logic Pro, etc.)

WINDOWS ONLY

- **Sony ACID Pro** — one of the first programs featuring loop-based arrangement and composition with the introduction of "ACID Loops" in 1998

- **FL Studio** (Fruity Loops) — excellent production tool for techno, trance, dubstep and electronica music styles

MAC OS X ONLY

- **Apple Garage Band** — similar to Sony ACID, but including more advanced audio/MIDI sequencing features as well

- **FL Studio** (Fruity Loops) — still Beta version for Mac OS X (runs in an emulation environment)
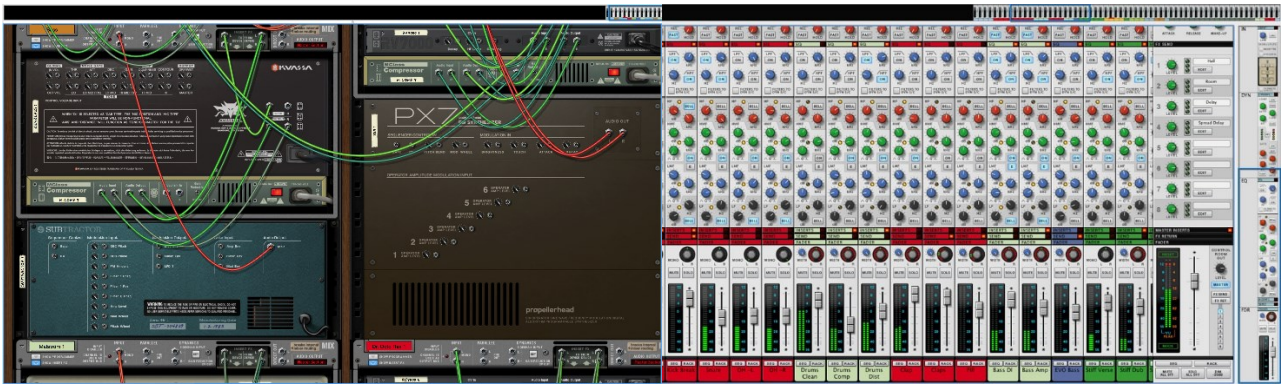
Figure 5: Propellerhead Reason Virtual Audio Rack and Console
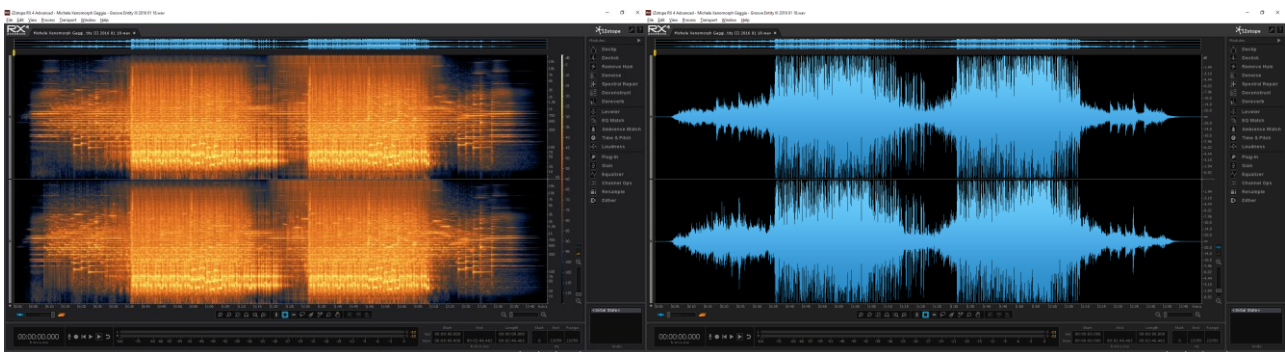
4. EDITING, MASTERING, SOUND RESTORATION

Figure 6: iZotope Studio RX 4, showing a track in spectral view (left) and traditional waveform view (right)

SPECIAL FEATURES

- support for stereo and surround formats (not all programs)
- very fast and straightforward editing with advanced crossfade and fade in/out options
- presets for mastering setups
- advanced dithering/noise shaping options
- CD Mastering incl. PQ editing, integrated CD burning and/or export as DDP image
- support for ISRC and UPC/EAN code and CD Text (not all programs)
- DVD Audio Authoring with support for surround mastering formats (some programs)
- plugin parameter automation (not all programs)

WINDOWS + MAC OS X CROSSPLATFORM

- **PreSonus Studio One**   premastering, CD and DDP mastering

- **Adobe Audition**   sound editing, premastering, CD mastering

- **Steinberg Wavelab**   stereo and surround editing and premastering; CD mastering and DVD-Audio authoring; offers also a multitrack editing environment, however no "true" multitrack I/O support

- **HOFA CD-Burn & DDP**   CD and DDP mastering

- **iZotope Studio RX**   audio restoration, premastering

- **iZotope Ozone**   premastering effect suite

- **Sony Sound Forge Pro**   sound editing, audio restoration, premastering, CD mastering

- **Audacity**   editing – free, runs also on Linux

WINDOWS ONLY

- **SADiE**   high-end hardware + software solution (Windows 7, 8 and 10; 32- and 64-bit support)

- **Pyramix Virtual Studio**   high-end hardware + software solution (Windows 7 64 only)

MAC OS X ONLY

- **DSP-Quattro**   editing, restoration, CD and DDP mastering

- **Sonic Solutions**   Sonic Studio DDP, Pre-Master CD, nextStage DSD

WEBSITE

- http://www.digitalnaturalsound.com/fh--multimediaart/music-production.html
- www.digitalnaturalsound.com or www.dns-studios.com > FH | MultiMediaArt > Music Production