AMBISONIC
IN
LIVE SURROUND SOUND

08.06.2018 Raphael Eismann

Why Ambisonic
- encoder detached from decoder
- good localisation
- DAW usability

How to setup
- 13m diameter
- 8 speaker circle 3rd-order Ambisonics (main)
- 6 speaker monocluster bass (w)
- 6 speaker circle 2nd-order Ambisonics (monitoring)

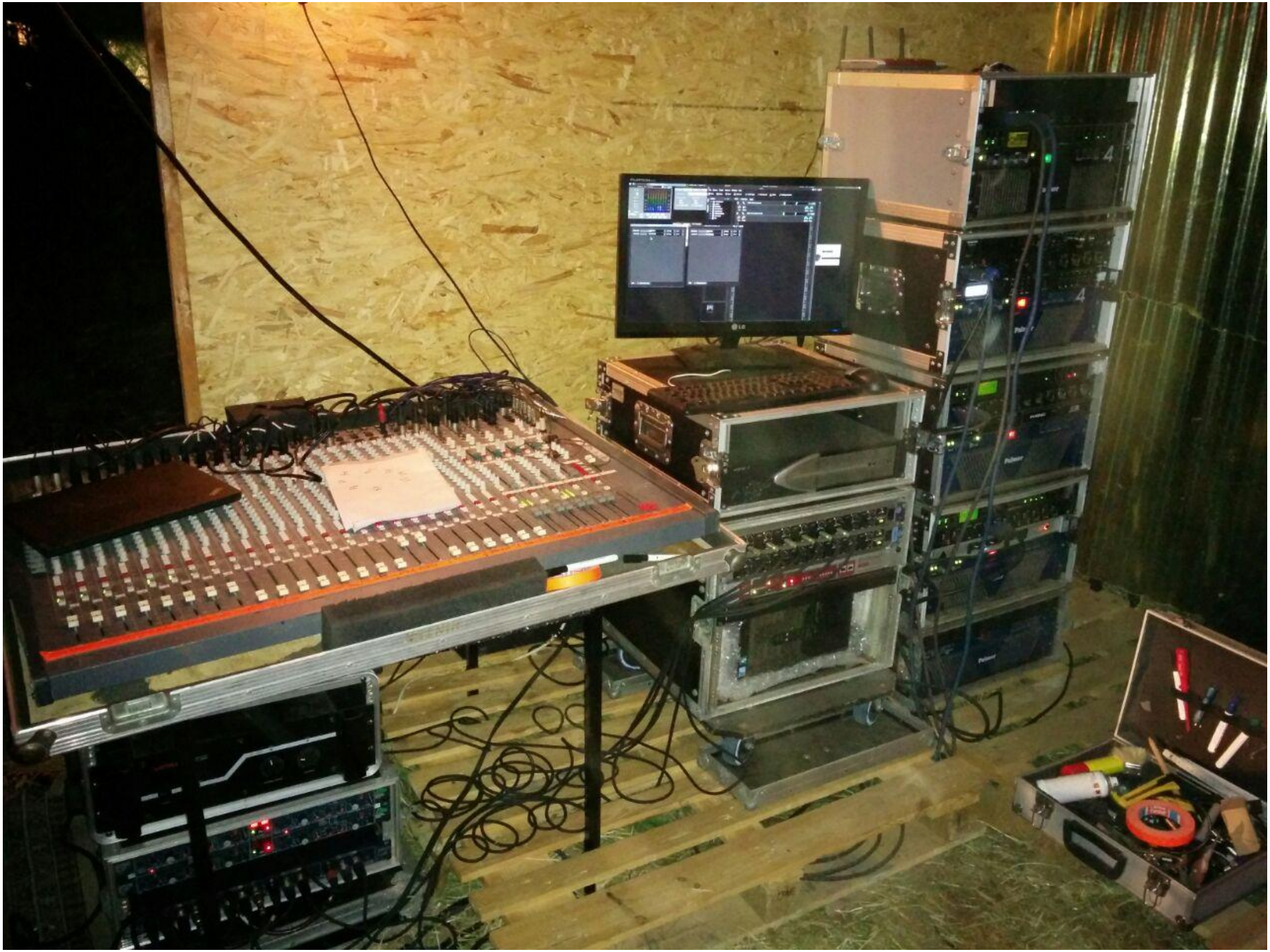
Milestones

- AmbiX (ACN channel order, SN3D normalisation)
- The DAW: building a max for live patch
- Fallback signal routing
- Provide a seamless integration of stereo and Ambisonics signals from the live performers
- How to explain unknown panning FX to a DJ just a few minutes before the gig?
- Recording

Software:
- Fons Adriansen's Ambdec software decoder
- IEM plugin-suite stereo encoder
- Max-for-Live patch for Ableton (Benedikt Prechter)
- Pure Data patch for FX control (Patric Schmitz)
- Jack sound server (Cadence)
- Carla plugin host
- Ardour

Hardware (computing Ambisonics):
- 4-core AMD PC, 8gb Ram, SSD
- RME HDSP9652
- RME Fireface UC
- 2x Behringer ADA8000
- Rosendahl Nanoclock
- Target 24/8/8/2 Mixer (for stereo fallback)
- AH Xone92 DJ-Mixer

The PA system, (complete bi-amped):
- 2x BSS dpr-402 Limiter
- 1x Palmer prm-ms Splitter
- 3x Behringer DCX2496 speaker management
- DBX Driverack 260 speaker management
- 4 tops (Beyma CD10Nd & 12G40)
- 4 tops (Beyma CD10Nd & 15MI100)
- 2 subs (Beyma 18P1200Nd)
- 4 subs (PD186)
- 2x Palmer LX1500
- 2x Palmer LX1400
- Palmer LX3000
- Camco Vortex 6
- 2x Phonic Max 500



Thanks a lot to my Ambisonics task force:
- Patric Schmitz and Sevinc Eroglu (RWTH Aachen)
- Benedikt Prechter (Ableton Live)
- Mark Schulze (Bitwig Studio)
- Impressions of Wave Field Synthesis and Ambisonics were given by Henrik von Coler (TU-Berlin).