My Connection to Music, Sound Design and how STEM shaped it

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1. What is STEM?

From reading the post's title, there's probably some guessing going on about what "STEM" stands for. Of course, STEM, being the acronym for the combination of the disciplines of science, technology, engineering, and mathematics, comes to mind. But for me, STEM was an important club evening, organisational challenge, and most of all, learning experience in my music informatics / musicology studies at HfM Karlsruhe. STEM, which stands for "Stehkonzert für tanzbare elektronische Musik" (standing concert for danceable electronic music) were students testing out the limits of what was possible at HfM Karlsruhe, an institution that is overly focused on classical music. This focus was noticeable in the musicology lessons where the concept of "E-Musik" was still a relevant one to our lecturer, but also in the performances by the music informatics students mostly resembling elitist electronic art music.

2. Planning STEM

Out of the thus resulting lack of danceable music, Ricardo Rodrigues Erl, a classmate and friend of mine, had the idea of combining the possibilities of our institute for performing 3D Audio pieces, with the energy and liveliness of club culture and its music. As I was part of the organisation team, I helped to plan the technical setup, which came with many challenges. In the end, we had a setup consisting of one master desk, that was connected to the speaker system via MADI, and the performers' desk on the other side of the room, which had each of the performers' very distinct setups and one interface connected to the other desk. The two desk approach was important because we had to switch between the performances by giving the USB cable connected to the audio interface to the next performer. Having this hands-on experience without much help but that from my fellow students', and the equipment given to us by our institute, was important for me to take note of how far I've already come in my studies at that point. In the start of my bachelors, I never heard of MADI connections or 3D Audio, but at this performance everybody understood our setup, because we built it.

3. Creating a DX7 DnB Set

Other challenges included me and my friend, Till Bechtloff, creating a performance together. We decided early on that we wanted to include our shared obsession, the Yamaha DX7 in our performance, as our university had the original DX7 as well as the DX7 II•D, and then settled on something resembling jungle or drum and bass as a genre (while of course putting our own spin on it), as we enjoy going to DnB events at clubs ourselves. In the end, I had created three tracks for the set, in a genre that I've never produced before, of which one was fixed, while the other two were arranged as clips in Ableton Live. I was truly proud of my effort and my tracks, especially after witnessing the energy of the crowd for the last two tracks of the set. Meanwhile, Till produced another awesome track for the set and maybe more importantly our wireframe visuals inspired by Star Wars, consisting of a tunnel scrolling along, while the walls of the tunnel were audio reactive. He created them in openFrameworks, which I am still in awe of, and why I hope to further explore the connection between live audio and live visuals in my studies.

4. Reflecting on STEM

I relate this experience to me starting my studies here, because of realising how far I've come in the 4 years I've studied at HfM Karlsruhe. There were many things coming together like

- being able to adapt my mix to the room quickly,
- helping my fellow performers with fixing technical issues, as well as having worked out our own setup[1],
- having my first EDM live performance,

to show me what my education has enabled me to do, as well as what I still need and want to learn.

[1] consisting of DX7 II•D + an effect loop with 3 guitar pedals → Ableton Live with Envelop for Live for Ambisonics spatialisation → Reaper to be able to output it to enough speakers

5. What I want to learn while studying Sound Design

As this experience has deepened my love for Ambisonics I'm really excited to further my knowledge and experience in all forms of immersive sound, especially with the help of IEM's expertise in this field. Because of the focus my other studies had on computer music, I'd also like to learn more about recording techniques, as all I've done so far is educated guess work, whereas I'd like to become so proficient so that I'm able to experiment outside what are considered 'standard' techniques. This is also to further my ability to shape the sound of a song production, for example. Currently, I have the feeling of being stuck in my own very niche style of mixing, that grew out of not being able to record myself very well, which often led to masking everything with distortion or other stylised effects. I'm not dismissing the experiences I've made along this path of mixing my own stuff in my own very peculiar way, but I'd like to be able to let the mix and the subsequent mastering serve the song, and not the other way around (at least not all the time). As well as focussing on sound, I am also excited to, as I've already mentioned, learn more about visualisation and the interplay of audio and video, especially after writing my bachelor thesis on a similar topic, which I will go into more in my next blog posts.

If you're interested in watching a raw cut of the performance, you can find it attached as a footnote under the link[2]. The process of cutting the video was an exercise in finding the balance between keeping the source footage in order and full length as it is intended to reflect the set, as it was performed on the 2024-12-07, and at the same time keeping it interesing enough. As my lecturer Prof. Dr. Sontacchi pointed out to me, there are still many issues in the link between audio and video, in that the viewer may not understand which medium interacts with the other in what manner. This is of course – something very well known to someone like me, a computer musician – the age-old question of mapping. Mapping one characteristic of e.g. my sound to another one in

[2] https://youtu.be/kUVLZqNqFE8

my visuals, in a manner which produces the desired outcome, either creating a smooth and intuitive connection between multiple senses, or on the other end of the spectrum, creating a jarring experience highlighting the difference in perception between the senses. I hope to gain knowledge and more importantly, experience, in this interplay between senses, especially between audio and video, in my masters of sound design.