Musical Analysis of the Electronic Dance Music

Seminar: Topics in Computer Music

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What is Electronic Dance Music?

- Broad term encompassing a wide range of musical genres
- Utilization of electronic technologies
- Live performance and role of the DJ
- Relationship to the dance floor

Origins of Electronic Dance Music

- Creation of the gramophone 1887
- Role of the jukebox in America 1920s
- First documented DJ playing 1943 United Kingdom
- First radio DJs events in America 1950s
- Discothèques in Europe 1960s
Introduction and History of EDM

The Disco Era

• First established on the dance floor, followed by later production

• Remixing of Disco singles firstly by Tom Moulton
  • Problem due to record sizes → switch to twelve-inch singles

• Disco records not really electronic
  • Usually created with session musicians

• Preserving Disco in the late 70s
  • Paradise Garden, New York City
Introduction and History of EDM

Further development of EDM

- House Music in the 80s
  - Chicago, USA

- Techno in the mid 80s
  - Officially established by a record company in 1988

- Jungle and Drum&Base early 90s
  - Developed in England

- Hardcore early 90s
  - Paradise Garden, New York City
Less traditional music instruments

- Very expensive and hard to use in the 1970s
- Price-drop after the entrance of Roland

Roland TR-909 drum machine early 80s
State of the art Pioneer DJ equipment used by David Guetta
Main Characteristics of EDM

Basics

Tempo – How fast is a music piece performed
  • Measured in beats per minute (BPM)

Beat – The steady pulse of the music
  • Usually defined by the bass line and drums

Rhythm – The pattern within each measure
  • In 4/4 we have 4 beats per measure but not always 4 notes
Main Characteristics of EDM

**Tempo**
- Usually fast, mostly in the range 120-150 BPM
- Some subgenres higher than 160 BPM

**Beat**
- Often similar to other non-EDM musical genres

**Rhythm**
- Rhythmical diversity, two main types:
  - Syncopated
  - Diatonic
Main Characteristics of EDM

Clear separation between the musical layers:
- Unlike other musical genres
- Listener can easily distinguish each layer

Two main types of EDM according to the beat:
- Breakbeat driven
  - Originate from live percussion (a whole drum set)
  - Main characteristic is irregularity
- Four-on-the-floor based
EDM Genres and Subgenres

Disco Music

- Relatively “slow” tempo for EDM around 120 BPM
- Four-on-the-floor based
- Sounds resemble real instruments
- Less accent on the drums compared to techno and more session musicians involved
EDM Genres and Subgenres

**Techno Music**

- Tempo mostly within 130-150 BPM, faster than Disco
- Four-on-the-floor based
- Usually no conventional instruments – a more mechanical sound
- “Drums are the music”
EDM Genres and Subgenres

Jungle and Drum&Base

- Very fast tempo
  - Jungle around 150-170 BPM
  - Drum&Base around 160-190 BPM

- Breakbeat driven

- Influence from other genres
  - Reggae motives often part of Jungle

- No solid boundary between them
Algorithmic view on EDM

How to detect different EDM Genres?

Currently no known algorithm for a complete detection

**HOWEVER,**

Existing algorithms may be used as a start

- Detecting Tempo
- Downbeat Detection for Jungle and Drum&Base
- Beat Detection Algorithms
Social Impact of EDM

- Importance of naming subgenres
  - A market “trick” to draw attention to something new
  - Record buyers search for new genres
  - Renaming of subgenres so that they sell

- Music usually appealing to younger individuals from urban communities

- Relation to the fashion industry

- Many subgenres are closely linked with drug usage
Conclusion

EDM – a huge musical genre

- Combines elements from different genres
- Over 300 subgenres and counting
- Big social impact since the 80s

Relation to Computer Science research

- Developing an algorithm for EDM detection is challenging but desirable task
  - Based on the music-theoretical knowledge mathematical models can be defined
  - However, no guarantee for exact precision
Thank you for your attention!
Literature

