



Artist to
Business to Business
to Consumer
Audio Branding System

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Press Release: Turning Brand Values Into Music

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ABC_DJ develops innovative music recommendation software to predict brand-fit music

The ABC_DJ project, coordinated by the Technical University of Berlin (TU Berlin) investigates and develops the future of Audio Branding.

Berlin - Researchers from the ABC_DJ project have created a powerful algorithm that automatically chooses brand-relevant music relying solely on the audio content of the songs themselves, rather than on manually assigned tags. With this software, brands and advertising agencies can automatically find the right music for any given brand or campaign, giving strategic planning a sonic dimension.

"The ABC_DJ recommendation algorithm can predict the brand-fit of music or perceived musical expression with an accuracy of 80.1%. The theoretical maximum value of 100% can never be reached, because people are and will always have a different reaction to music; this means that 80.1% match will be exceptionally valuable to the industry."
says Dr. Jochen Steffens from TU Berlin



The algorithm extracts musical expressions as perceived by different target groups from audio signals and provides customized brand-fitting music for each context. To create such a system, researchers from ABC_DJ first developed a vocabulary with which to systematically describe music in the branding context.

This novel "General Music Branding Inventory" was established with nine audio branding experts and refined by 305 marketing experts. The next step in the development process was to test this semantic inventory in the field. A 28,543-song pool was used from which 549 songs were selected for detailed evaluation. A large-scale listening experiment was then conducted in which 10,144 participants in Germany, Spain and the UK were asked to match semantic features to songs (e.g. modern, passionate, innovative, happy, trustworthy.) Statistical analysis of the results – over 53,344 measurements based on 2,018,704 data points – pinpointed the 36 features most relevant to both music and brands. The sample was balanced with regards to age, country and education to ensure representative insights into how different target





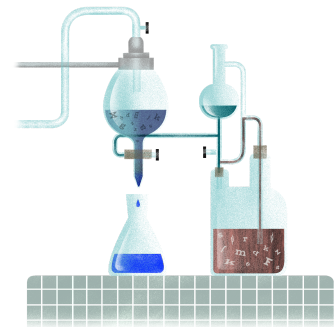
groups perceive semantic expression in music. To operationalise these findings, it was necessary to map semantic features onto acoustic features.

Paris-based ABC_DJ project partner IRCAM (the Institute for Research and Coordination in Acoustics/Music) extracted a vast amount of information from the 549 songs used in the listening experiment, breaking down their harmonies, rhythms, instrumentation, genres, and styles on a signal-by-signal level. Using highly effective machine learning procedures (such as the so-called random forest regression), an algorithm was then developed which finds the acoustic features best capable of predicting real listeners' appraisals of music. This prediction module is the heart of the ABC_DJ system.

Of course, the point of all this is not just to paint accurate musical portraits of brands, but to better engage and delight their target customers. Integrating the 'Sinus-Milieus®' target group model into the prediction module allows ABC_DJ to recommend music based on both brand characteristics and the lifestyles and aesthetic tastes of a broad range of social milieus.

"The ABC_DJ procedure can now be considered as a standard to be used by creative agencies to describe brands and brand music."

*says Robin Hofmann,
Co-Founder and Creative Director of HearDis!*



But how exactly does the ABC_DJ recommendation algorithm work? It is based on four basic factors: emotional valence, emotional arousal, authenticity, and timeliness. Although different target groups will inevitably describe a given piece of music in different ways, it is generally possible to distil and harmonise their descriptions using these factors: e.g. a given piece can be described as more or less joyful (emotional valence), intense (emotional arousal), authentic, and progressive.



Please click here to listen to a music excerpt that was predicted by the algorithm to sound bright, playful, and funny:

<http://tinyurl.com/ABC-DJ-Bright-Playful-Funny>

Please click here to listen to a music excerpt that was predicted by the algorithm to sound loving, friendly, and warm:

<http://tinyurl.com/ABC-DJ-Loving-Friendly-Warm>

The ABC_DJ development process offers profound insights into the ways music is perceived and the ways it moves listeners. Musical characteristics like rhythm and dynamics, as well as instrumentation (e.g., piano, guitar, vocals) and musical styles (e.g., classic rock, deep house), are all crucial to perceived musical expression. For instance, the listening experiment shows that people perceive music with a high



dynamic range, in particular pieces belonging to styles such as classic music, tango, flamenco, and blues, as more authentic than other pieces.

In contrast, pieces representing electronic styles, especially those with low micro-dynamics and heavy sub-bass frequencies, are perceived as less authentic. As the researchers further expected, the louder, faster, and more sharp-sounding or disharmonic a song, the more emotionally arousing it is. Finally, songs representing from styles like Electro, EDM, Pop, Rock are perceived as highly progressive, whereas German schlager are seen as traditional.

The ABC_DJ results radically disrupt the 'one-sound-fits-all' formula currently offered by many audio branding companies and in-store music providers. As brand-fitting musical properties can be extracted directly from audio signals, novel musical pieces from any digital music library can be discovered and added in real-time to the music pool for a given brand. This will considerably extend the range of music that can be used by creative agencies and brands. It also offers European artists and independent recording labels new possibilities to gear up their audio branding value and to create new means of monetizing music (e.g. through play in stores, music in TV commercials etc.). The end game is stronger identities for businesses, more meaningful experiences for customers, and better music for everyone.

The ABC_DJ project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 688122 (Please mention this number in every publication) and comprises seven companies and research institutions from five different European countries. The overall aim of the three-year project is to actively provide European creative agencies in the field of audio branding with sophisticated tools to support the entire process of music creation and to foster audio branding campaigns.

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