Figure 1. Qualitative result of three concerts, which represent the best (Concert 6, 'Guns N' Roses'), medium (Concert 8, 'Linkin' Park'), and worst (Concert 1, 'Metallica') output cases in the dataset. Black blocks correspond to no song. Different songs are marked by different colors. The number in a song block stands for the song index in the studio database. Note that Song 42 ('Numb') was sung twice in Concert 8, firstly by 'Linkin' Park' and then by 'featuring Jay-Z.'

[6] E. Gómez et al. PHENICX: Performances as highly enriched and interactive concert experiences. In *Proc. SMC*, 2013.

[7] P. Grosche, M. Müller, and J. Serrà. Audio content-based music retrieval. *Multimodal Music Processing*, 3:157–174, 2012.

[8] P. Grosche, M. Müller, and J. Serrà. Towards cover group thumbnailing. In *Proc. ACM MM*, pages 613–616, 2013.

[9] M. Guggenberger, M. Lux, and L. Boszormenyi. AudioAlign - Synchronization of A/V-streams based on audio data. In *Proc. IEEE ISM*, pages 382–383, 2012.

[10] L. Guimarães et al. Creating personalized memories from social events: community-based support for multi-camera recordings of school concerts. In *Proc. ACM MM*, 2011.

[11] L. Kennedy and M. Naaman. Less talk, more rock: Automated organization of community-contributed collections of concert videos. In *Proc. WWW*, pages 311–320, 2009.

[12] J. H. Lee and N. M. Waterman. Understanding user requirements for music information services. In *Proc. ISMIR*, 2012.

[13] Kjell Lemström. *String matching techniques for music retrieval*. Ph.D. Thesis, University of Helsinki, 2000.

[14] Z. Li, J.-C. Wang, J. Cai, Z. Duan, H.-M. Wang, and Y. Wang. Non-reference audio quality assessment for online live music recordings. In *Proc. ACM MM*, pages 63–72, 2013.

[15] B. Martin, P. Hanna, M. Robine, and P. Ferraro. Indexing musical pieces using their major repetition. In *Proc. JCDL*, pages 153–156, 2011.

[16] M. Mauch, K. Noland, and S. Dixon. Using musical structure to enhance automatic chord transcription. In *Proc. ISMIR*, pages 231–236, 2009.

[17] B. McFee and G. Lanckriet. The natural language of playlists. In *Proc. ISMIR*, pages 537–542, 2011.

[18] M. Müller. *Information retrieval for music and motion*. 2007.

[19] M. Muller and S. Ewert. Towards timbre-invariant audio features for harmony-based music. *IEEE Trans. Audio, Speech, and Lang. Process.*, 18(3):649–662, 2010.

[20] M. Müller and S. Ewert. Chroma Toolbox: MATLAB implementations for extracting variants of chroma-based audio features. In *Proc. ISMIR*, pages 215–220, 2011.

[21] M. Müller, F. Kurth, and M. Clausen. Audio matching via chroma-based statistical features. In *Proc. ISMIR*, 2005.

[22] S. U. Naci and A. Hanjalic. Intelligent browsing of concert videos. In *Proc. ACM MM*, pages 150–151, 2007.

[23] Z. Rafii, B. Coover, and J. Han. An audio fingerprinting system for live version identification using image processing techniques. In *Proc. ICASSP*, pages 644–648, 2014.

[24] J. Serra, E. Gómez, and P. Herrera. Audio cover song identification and similarity: background, approaches, evaluation, and beyond. In *Advances in Music Information Retrieval*, pages 307–332. 2010.

[25] J. Serra, X. Serra, and R. G Andrzejak. Cross recurrence quantification for cover song identification. *New Journal of Physics*, 11(9):093017, 2009.

[26] J. Serrà, M. Zanin, and R. G Andrzejak. Cover song retrieval by cross recurrence quantification and unsupervised set detection. In *MIREX*, 2009.

[27] P. Shrestha et al. Automatic mashup generation from multiple-camera concert recordings. In *Proc. ACM MM*, pages 541–550, 2010.

[28] C. GM Snoek et al. The role of visual content and style for concert video indexing. In *Proc. ICME*, 2007.

[29] K. Su, M. Naaman, A. Gurjar, M. Patel, and D. PW Ellis. Making a scene: alignment of complete sets of clips based on pairwise audio match. In *Proc. ICMR*, page 26, 2012.

[30] A. Wang. An industrial strength audio search algorithm. In *Proc. ISMIR*, pages 7–13, 2003.

[31] C.-C. Wang, J.-S. R. Jang, and W. Li. Speeding up audio fingerprinting over GPUs. In *Proc. ICALIP*, 2014.

[32] J.-C. Wang, H.-M. Wang, and S.-K. Jeng. Playing with tagging: A real-time tagging music player. In *ICASSP*, 2012.

[33] S.-Y. Wang, J.-C. Wang, Y.-H. Yang, and H.-M. Wang. Towards time-varying music auto-tagging based on CAL500 expansion. In *Proc. ICME*, 2014.