Although automatic accompaniment debuted in the mid-1980s [1], it was not applied to Arab music till recently [2] and [3]. This is due, in part, to the lack of research applying informatics to Arab music, also to the particularity of Arab music. As a case study, we review the melodic part of the mawaweel web model for the Accompaniment of Arab vocal improvisation, Mawwāl. The three tracks – the retrieved score, reduced score and imitation – are more of an illustration to the tasks performed by the music information retrieval unit rather than a creative composition. The instrumental tracks follow the improvisation literally without a mere creativity.

We also propose an approach for accompaniment in this heterophonic context. Firstly, the maqam’s pivot notes are marked within the structural score of the improvisation. Then, the contours of accompaniment tracks can be generated by connecting successive structural pivots using several routes: sequence, glissando, etc.

At the end, we cross-checked with common practice by recording two improvisations, asking an oudist to perform two different accompaniments for each, and analyzing the score of each pair: vocal & oud. The analysis allows for a more robust modeling of accompaniment and reveals those findings:

• Similarity is huge within pairs, ranging from 75% to 81%, using combinatorial contour representation for distance comparison.
• When measuring the relative importance of the tonics of the main tetra-chords over other tones, the proportion of the tonics is found from 37% to 50%. Relative importance of the lower chord is also measured over the upper one; the former does not go below 55%.
• The number of notes in the oud score exceeds the vocal by 66% to 174%. Duration distributions show that the proportion of long notes ranges from 29% to 37% in the vocal scores, but is about 5% to 11% in the oud. This alerts to a drawback in the reviewed model in which the oud performs a slightly modified copy of the improvisation, but note density is similar in both. On the other hand, the findings agree with our proposed approach in embellishing the route between pivots.
• Creating an accompanying line by connecting structural pivots is repeatedly followed by the oudist. However, the route can twist in a pattern that is challenging-to-model.
• Examples of oud embellishments include hitting the lower octave interval at resolution and arpeggios. Imitation isn’t very common, but recapitulating singers’ figures by melodic variations is.

References: