**Method description SVM classification algorithm of MWM tracks:**

***Main features***

* supervised classification learning
* 2038 tracks scored by human observer
* based on 34 track parameters
* one-against-one binary SVM with linear kernel
* with feature selection
* multiclass combined using voting

***Short description***

We trained a multiclass SVM model that was trained on 2038 tracks scored by one human observer (based on static track images). We followed the classification criteria proposed by Brody&Holtzman (2006); 3 main classes – 9 sub- classes. For each track in the dataset, we extracted 34 parameters based on a thorough scan of the literature (refs). The model was trained using 80% randomly selected tracks. 36 one-against-one SVMs with linear kernel were trained for each pair-wise comparison of classes. The resulting model was tested on the remaining 20% of tracks using a voting scheme (MWV-SVM). The track was assigned to the class that received the most votes (in case of a tie, we selected the first category with maximal number of votes).

We obtained model performance of 83% classification for all unseen tracks. This score is comparable to the correlation between human classifiers of xx (based on 693 tracks). Subsequently, we trained the model using all tracks (which could possibly yield a higher performance) and tested all tracks recorded for the current experiment. Our method is easy to implement, gives quick and reliable scores and allows application to different classification schemes.