

Optimizing Feature Extraction for Symbolic Music

Poster #96

Simonetta F., Llorens A., Serrano M., García-Portugués E., Torrente Á.

Three Tools



JSymbolic



music21



musif

Five Datasets

ASAP Piano music performances and scores

Quartets Haydn/Mozart/Beethoven quartets

EWLD Jazz/Pop/Rock Leadsheets

JLR Renaissance vocal music

Didone Opera arias voice + orchestra



Three File Formats



musicXML



Results

Accuracies of AutoML using 10-fold cross-validation on all the extracted features. The best-performing tool is underlined. The best-performing combination is shown in bold.

Extension	Dataset	Dummy guessing	Tools					Combinations			
			musif	musif native	music21	music21 native	jSymbolic	musif native + music21 native	musif native + jSymbolic	music21 native + jSymbolic	musif native + music21 native + jSymbolic
MIDI	ASAP performances	.100	.983	.839	.983	.984	.985	.983	.985	.990	.988
	ASAP scores	.146	.843	.626	.877	.887	.886	.911	.898	.912	.937
	EWLD	.0912	.224	.180	.249	.227	.248	.236	.250	.249	.251
	JLR	.344	.746	.697	.806	.761	.747	.789	.787	.751	.774
	Quartets	.340	.828	.771	.843	.813	.901	.843	.896	.880	.904
	Didone	.125	.480	.429	.525	.508	.586	.515	.572	.596	.557
MusicXML	ASAP scores	.171	.830	.710	.880	.841		.847			
	EWLD	.091	.251	.200	.266	.253		.245			
	JLR	.334	.797	.704	.815	.806		.750			
	Didone	.126	.510	.504	.527	.516		.535			
**kern	Quartets	.340	.822	.786	.830	.820		.842			

Accuracies of AutoML using 10-fold cross-validation on the first ten principal components. The best-performing tool is underlined. The best-performing combination is shown in bold.

Extension	Dataset	Dummy guessing	Tools					Combinations			
			musif	musif native	music21	music21 native	jSymbolic	musif native + music21 native	musif native + jSymbolic	music21 native + jSymbolic	musif native + music21 native + jSymbolic
MIDI	ASAP performances	.100	.960	.715	.978	.976	.916	.972	.962	.980	.979
	ASAP scores	.146	.743	.644	.781	.751	.780	.791	.819	.819	.857
	EWLD	.091	.201	.157	.212	.204	.257	.219	.245	.242	.259
	JLR	.344	.700	.642	.779	.751	.722	.711	.751	.742	.741
	Quartets	.340	.678	.668	.725	.711	.810	.768	.831	.791	.822
	Didone	.125	.359	.362	.403	.380	.443	.414	.451	.479	.462
MusicXML	ASAP scores	.171	.773	.669	.759	.745		.785			
	EWLD	.091	.216	.185	.215	.201		.231			
	JLR	.334	.793	.663	.768	.756		.793			
	Didone	.126	.398	.399	.384	.374		.392			
**kern	Quartets	.340	.713	.711	.767	.763		.810			

Accuracies of AutoML. Effect of harmonic features on the Didone dataset.

	Extension	Harmonic features	musif	musif native	musif native + music21 native	musif native + jSymbolic	musif native + music21 native + jSymbolic
First 10 PCs	MIDI	No	.359	.362	.414	.451	.462
		Yes	.380	.372	.398	.452	.465
	MusicXML	No	.398	.399	.392		
		Yes	.385	.406	.409		
All features	MIDI	No	.510	.504	.515	.596	.557
		Yes	.507	.437	.518	.575	.560
	MusicXML	No	.480	.429	.535		
		Yes	.535	.521	.564		

