1	Feature	ReliefF
1		weight
	$N_{1,0.001}$	0.0274
2	$L_{2,4}$	0.0239
3	$N_{1,0.005}$	0.0208
	$N_{2,0.005}$	
4	$\mathbb{E}(SF)$	0.0205
5	max(STE)	0.0198
6	QPS	0.0197
7	E(P)	0.0192
8	std(STE)	0.0188
9	L <sub>1,1</sub>	0.0185
10	PS PS	0.0184
11 12	$\mathbb{E}(STE)$ $\sigma_2^2$	0.0168
	σ <sub>2</sub> std(DWTE)	0.0148
13 14	med(MFCC)	0.0146 0.0145
15	$\sigma_1^2$	0.0143
16	$\mathbb{E}(MFCC)$	0.0144
17	med(SF)	0.0143
18	$L_{0,1}$	0.0140
10	$L_{0,1} \cdot (L_{1,1} - L_{1,2})$	0.0137
19	$\min(SF)$	0.0137
20	std(SFs)	0.0137
21	$\max(SF)$	0.0130
22	$N_{0,0.1}$	0.0130
23	$L_{1,1} \cdot L_{2,1}$	0.0128
24	$m_0$	0.0126
25	med(STE)	0.0126
26	$L_{0,2}$	0.0125
27	FSS	0.0122
28	$L_{0,2} \cdot L_{1,2}$	0.0119
29	$L_{0,2}$	0.0118
30	$L_{1,2}$	0.0118
31	$m_{\scriptscriptstyle 1}$	0.0114
32	L <sub>1,1</sub>	0.0113
	$ \mathcal{L}_1 $	
	**	
33	$N_{0,0.005}$	0.0113
33	$\frac{N_{0,0.005}}{N_{1,0.005}}$	0.0113
33	$N_{1,0.005}$	0.0113
	$N_{1,0.005}$ $N_{2,0.005}$ $L_{0.1}$	
34 35	$N_{1,0.005} $ $N_{2,0.005} $ $L_{0,1} $ $\cdot (L_{2,1} - L_{2,2})$	0.0112 0.0110
34 35 36	$N_{1,0.005}$ $N_{2,0.005}$ $L_{0,1}$ $\cdot (L_{2,1} - L_{2,2})$ $\min(STE)$	0.0112 0.0110 0.0109
34 35	$N_{1,0.005}$ $N_{2,0.005}$ $L_{0,1}$ $\cdot (L_{2,1} - L_{2,2})$ $\min(STE)$ $m_1$	0.0112 0.0110
34 35 36 37	$N_{1,0.005}$ $N_{2,0.005}$ $L_{0,1}$ $\cdot (L_{2,1} - L_{2,2})$ $\min(STE)$ $\frac{m_1}{m_2}$	0.0112 0.0110 0.0109 0.0109
34 35 36 37 38	$N_{1,0.005}$ $N_{2,0.005}$ $L_{0.1}$ $\cdot (L_{2,1} - L_{2,2})$ $\min(STE)$ $\frac{m_1}{m_2}$ $N_{3,0.005}$	0.0112 0.0110 0.0109 0.0109 0.0106
34 35 36 37	$N_{1,0.005}$ $N_{2,0.005}$ $L_{0,1}$ $\cdot (L_{2,1} - L_{2,2})$ $\min(STE)$ $\frac{m_1}{m_2}$ $N_{3,0.005}$ $L_{2,1}$	0.0112 0.0110 0.0109 0.0109
34 35 36 37 38 39	$N_{1,0.005}$ $N_{2,0.005}$ $L_{0.1}$ $\cdot (L_{2,1} - L_{2,2})$ $\min(STE)$ $m_1$ $m_2$ $N_{3,0.005}$ $L_{2,1}$ $ \mathcal{L}_2 $	0.0112 0.0110 0.0109 0.0109 0.0106 0.0106
34 35 36 37 38 39 40	$N_{1,0.005}$ $N_{2,0.005}$ $L_{0,1}$ $\cdot (L_{2,1} - L_{2,2})$ $\min(STE)$ $m_1$ $m_2$ $N_{3,0.005}$ $L_{2,1}$ $ \mathcal{L}_2 $ $\min(SFs)$	0.0112 0.0110 0.0109 0.0109 0.0106 0.0106
34 35 36 37 38 39 40 41	$N_{1,0.005}$ $N_{2,0.005}$ $L_{0,1}$ $\cdot (L_{2,1} - L_{2,2})$ $\min(STE)$ $\frac{m_1}{m_2}$ $N_{3,0.005}$ $\frac{L_{2,1}}{ \mathcal{L}_2 }$ $\min(SFs)$ $\max(P)$	0.0112 0.0110 0.0109 0.0109 0.0106 0.0106 0.0102 0.0098
34 35 36 37 38 39 40 41 42	$N_{1,0.005}$ $N_{2,0.005}$ $L_{0,1}$ $\cdot (L_{2,1} - L_{2,2})$ $\min(STE)$ $\frac{m_1}{m_2}$ $N_{3,0.005}$ $\frac{L_{2,1}}{ \mathcal{L}_2 }$ $\min(SFs)$ $\max(P)$	0.0112 0.0110 0.0109 0.0109 0.0106 0.0106 0.0102 0.0098 0.0092
34 35 36 37 38 39 40 41	$N_{1,0.005}$ $N_{2,0.005}$ $L_{0,1}$ $\cdot (L_{2,1} - L_{2,2})$ $\min(STE)$ $\frac{m_1}{m_2}$ $N_{3,0.005}$ $\frac{L_{2,1}}{ \mathcal{L}_2 }$ $\min(SFs)$ $\max(P)$	0.0112 0.0110 0.0109 0.0109 0.0106 0.0106 0.0102 0.0098 0.0092 0.0088
34 35 36 37 38 39 40 41 42 43	$N_{1,0.005}$ $N_{2,0.005}$ $L_{0,1}$ $\cdot (L_{2,1} - L_{2,2})$ $\min(STE)$ $\frac{m_1}{m_2}$ $N_{3,0.005}$ $\frac{L_{2,1}}{ L_2 }$ $\min(SFs)$ $\max(P)$ $m_2$ $std(ZCR)$ $\frac{m_0}{m_1}$	0.0112 0.0110 0.0109 0.0109 0.0106 0.0106 0.0102 0.0098 0.0092
34 35 36 37 38 39 40 41 42 43	$N_{1,0.005}$ $N_{2,0.005}$ $L_{0.1}$ $\cdot (L_{2,1} - L_{2,2})$ $\min(STE)$ $m_1$ $m_2$ $N_{3,0.005}$ $L_{2,1}$ $ L_2 $ $\min(SFs)$ $\max(P)$ $m_2$ $std(ZCR)$	0.0112 0.0110 0.0109 0.0109 0.0106 0.0106 0.0102 0.0098 0.0092 0.0088
34 35 36 37 38 39 40 41 42 43 44	$N_{1,0.005}$ $N_{2,0.005}$ $L_{0,1}$ $\cdot (L_{2,1} - L_{2,2})$ $\min(STE)$ $\frac{m_1}{m_2}$ $N_{3,0.005}$ $\frac{L_{2,1}}{ L_2 }$ $\min(SFs)$ $\max(P)$ $m_2$ $std(ZCR)$ $\frac{m_0}{m_1}$	0.0112 0.0110 0.0109 0.0109 0.0106 0.0106 0.0102 0.0098 0.0092 0.0088 0.0087
34 35 36 37 38 39 40 41 42 43 44	$N_{1,0.005}$ $N_{2,0.005}$ $L_{0.1}$ $\cdot (L_{2,1} - L_{2,2})$ $\min(STE)$ $m_1$ $m_2$ $N_{3,0.005}$ $L_{2,1}$ $ \mathcal{L}_2 $ $\min(SFs)$ $\max(P)$ $m_2$ $std(ZCR)$ $m_1$ $L_{1,1}$ $m_1$ $L_{0,3} \cdot L_{1,3}$	0.0112 0.0110 0.0109 0.0109 0.0106 0.0106 0.0102 0.0098 0.0092 0.0088 0.0087
34 35 36 37 38 39 40 41 42 43 44	$\begin{array}{c} N_{1,0.005} \\ N_{2,0.005} \\ L_{0,1} \\ \cdot (L_{2,1} - L_{2,2}) \\ \min(STE) \\ \frac{m_1}{m_2} \\ N_{3,0.005} \\ L_{2,1} \\  L_2  \\ \min(SFs) \\ \max(P) \\ m_2 \\ std(ZCR) \\ \frac{m_0}{m_1} \\ L_{1,1} \\ m_1 \\ L_{0,3} \cdot L_{1,3} \\ L_{1,1} \end{array}$	0.0112 0.0110 0.0109 0.0109 0.0106 0.0106 0.0102 0.0098 0.0092 0.0088 0.0087
34 35 36 37 38 39 40 41 42 43 44 45	$N_{1,0.005}$ $N_{2,0.005}$ $L_{0,1}$ $\cdot (L_{2,1} - L_{2,2})$ $\min(STE)$ $\frac{m_1}{m_2}$ $N_{3,0.005}$ $\frac{L_{2,1}}{ \mathcal{L}_2 }$ $\min(SFs)$ $\max(P)$ $m_2$ $std(ZCR)$ $m_0$ $m_1$ $\frac{L_{1,1}}{m_1}$ $L_{0,3} \cdot L_{1,3}$ $L_{1,1}$ $\cdot (L_{2,1} - L_{2,2})$	0.0112 0.0110 0.0109 0.0109 0.0106 0.0106 0.0102 0.0098 0.0092 0.0088 0.0087 0.0086
34 35 36 37 38 39 40 41 42 43 44 45	$\begin{array}{c} N_{1,0.005} \\ N_{2,0.005} \\ L_{0,1} \\ \cdot (L_{2,1} - L_{2,2}) \\ \min(STE) \\ \frac{m_1}{m_2} \\ N_{3,0.005} \\ L_{2,1} \\  L_2  \\ \min(SFs) \\ \max(P) \\ m_2 \\ std(ZCR) \\ \frac{m_0}{m_1} \\ L_{1,1} \\ m_1 \\ L_{0,3} \cdot L_{1,3} \\ L_{1,1} \end{array}$	0.0112 0.0110 0.0109 0.0109 0.0106 0.0106 0.0102 0.0098 0.0092 0.0088 0.0087

50	$\mathbb{E}(SC)$	0.0076
51	$L_{0,2}$	0.0075
	$\cdot \left(L_{1,2}-L_{1,3}\right)$	
52	$L_{1,2} \cdot L_{2,2}$	0.0075
53	std(MFCC)	0.0074
54	$L_{0.2}$	0.0074
	$\cdot \left(L_{2,2}-L_{2,3}\right)$	
55	max(SFs)	0.0074
56	std(P)	0.0072
57	$L_{1,2}$	0.0071
	$L_{1,2} \cdot (L_{2,2} - L_{2,3})$	
58	min(P)	0.0070
59	$L_{1,3}$	0.0070
60	std(SRO)	0.0069
61	$L_{1,3}$	0.0068
60	$\cdot (L_{2,3} - L_{2,4})$	0.0000
62	std(DWTW)	0.0068
63	$m_3$	0.0067
64	$L_{0,2} \cdot L_{2,2}$	0.0067
65	$L_{0,3}$	0.0067
CC	$\frac{L_{0,3}}{\cdot (L_{1,3} - L_{1,4})} = \frac{m_0}{m_0}$	0.0065
66	$\frac{m_0}{m_2}$	0.0065
67	$m_4$	0.0064
68	max(ZCR)	0.0063
69	L <sub>2,3</sub>	0.0062
70		0.0062
71	$L_{3,1}$	0.0059
72	$L_{0,1} \cdot L_{2,1} \\ L_{0,3} \cdot L_{2,3}$	0.0056
73	$N_{0,0.005}$	0.0056
75	$\frac{N_{0,0.005}}{N_{2,0.005}}$	0.0036
7/		0.0056
74	$L_{0,3}$	0.0056
	$L_{0,3} \\ \cdot \left( L_{2,3} - L_{2,4} \right)$	
74 75 76	$L_{0,3} \cdot (L_{2,3} - L_{2,4})$ $med(SC)$	0.0056 0.0056 0.0056
75	$L_{0,3} \\ \cdot \left(L_{2,3} - L_{2,4}\right) \\ med(SC) \\ \underline{L_{2,1}}$	0.0056
75	$L_{0,3} \\ \cdot (L_{2,3} - L_{2,4}) \\ med(SC) \\ \frac{L_{2,1}}{m_2}$	0.0056
75 <b>76</b>	$L_{0,3} \cdot (L_{2,3} - L_{2,4})$ $med(SC)$ $L_{2,1} \over m_2$ $L_{2,4}$ $med(P)$	0.0056 0.0056
75 76 77	$L_{0,3} \cdot (L_{2,3} - L_{2,4})$ $med(SC)$ $L_{2,1} \over m_2$ $L_{2,4}$ $med(P)$	0.0056 0.0056 0.0055 0.0055
75 76 77 78	$L_{0,3} \cdot (L_{2,3} - L_{2,4})$ $med(SC)$ $\frac{L_{2,1}}{m_2}$ $L_{2,4}$ $med(P)$	0.0056 0.0056 0.0055 0.0055 0.0055
75 76 77 78 79	$L_{0,3} \cdot (L_{2,3} - L_{2,4})$ $med(SC)$ $L_{2,1} \over m_2$ $L_{2,4}$ $med(P)$ $\sigma_0^2$ $L_{3,2}$	0.0056 0.0056 0.0055 0.0055
75 76 77 78 79 80	$L_{0,3} \cdot (L_{2,3} - L_{2,4})$ $med(SC)$ $\frac{L_{2,1}}{m_2}$ $L_{2,4}$ $med(P)$ $\sigma_0^2$ $L_{3,2}$ $L_{0,2} \cdot L_{1,2}$	0.0056 0.0056 0.0055 0.0055 0.0055 0.0054
75 76 77 78 79 80 81	$L_{0,3} \cdot (L_{2,3} - L_{2,4})$ $med(SC)$ $L_{2,1} \over m_2$ $L_{2,4}$ $med(P)$ $\sigma_0^2$ $L_{3,2}$	0.0056 0.0056 0.0055 0.0055 0.0055 0.0054 0.0053
75 76 77 78 79 80 81 82	$L_{0,3} \cdot (L_{2,3} - L_{2,4})$ $med(SC)$ $\frac{L_{2,1}}{m_2}$ $L_{2,4}$ $med(P)$ $\sigma_0^2$ $L_{3,2}$ $L_{0,2} \cdot L_{1,2}$ $N_{4,0.005}$ $L_{0,4} \cdot L_{2,4}$ $L_{0,4}$	0.0056 0.0056 0.0055 0.0055 0.0055 0.0054 0.0053 0.0050
75 76 77 78 79 80 81 82 83 84	$\begin{array}{c} L_{0,3} \\ \cdot \left( L_{2,3} - L_{2,4} \right) \\ med(SC) \\ \hline \frac{L_{2,1}}{m_2} \\ L_{2,4} \\ med(P) \\ \sigma_0^2 \\ L_{3,2} \\ L_{0,2} \cdot L_{1,2} \\ N_{4,0.005} \\ L_{0,4} \cdot L_{2,4} \\ L_{0,4} \\ \cdot \left( L_{2,4} - L_{2,5} \right) \end{array}$	0.0056 0.0055 0.0055 0.0055 0.0054 0.0053 0.0050 0.0050
75 76 77 78 79 80 81 82 83	$L_{0,3} \cdot (L_{2,3} - L_{2,4})$ $med(SC)$ $\frac{L_{2,1}}{m_2}$ $L_{2,4}$ $med(P)$ $\sigma_0^2$ $L_{3,2}$ $L_{0,2} \cdot L_{1,2}$ $N_{4,0.005}$ $L_{0,4} \cdot L_{2,4}$ $L_{0,4} \cdot (L_{2,4} - L_{2,5})$ $L_{1,3} \cdot L_{2,3}$	0.0056 0.0055 0.0055 0.0055 0.0055 0.0054 0.0053 0.0050
75 76 77 78 79 80 81 82 83 84 85	$\begin{array}{c} L_{0,3} \\ \cdot \left( L_{2,3} - L_{2,4} \right) \\ med(SC) \\ \hline \\ \frac{L_{2,1}}{m_2} \\ L_{2,4} \\ med(P) \\ \sigma_0^2 \\ L_{3,2} \\ L_{0,2} \cdot L_{1,2} \\ N_{4,0.005} \\ L_{0,4} \cdot L_{2,4} \\ \cdot \left( L_{2,4} - L_{2,5} \right) \\ L_{1,3} \cdot L_{2,3} \\ std(SF) \end{array}$	0.0056 0.0055 0.0055 0.0055 0.0055 0.0054 0.0053 0.0050 0.0049
75 76 77 78 79 80 81 82 83 84	$L_{0,3} \cdot (L_{2,3} - L_{2,4})$ $med(SC)$ $\frac{L_{2,1}}{m_2}$ $L_{2,4}$ $med(P)$ $\sigma_0^2$ $L_{3,2}$ $L_{0,2} \cdot L_{1,2}$ $N_{4,0.005}$ $L_{0,4} \cdot L_{2,4}$ $L_{0,4} \cdot (L_{2,4} - L_{2,5})$ $L_{1,3} \cdot L_{2,3}$ $std(SF)$ $L_{4,1}$	0.0056 0.0055 0.0055 0.0055 0.0055 0.0054 0.0053 0.0050 0.0050
75 76 77 78 79 80 81 82 83 84 85 86 87	$\begin{array}{c} L_{0,3} \\ \cdot \left( L_{2,3} - L_{2,4} \right) \\ med(SC) \\ \hline \\ \frac{L_{2,1}}{m_2} \\ L_{2,4} \\ med(P) \\ \hline \\ \sigma_0^2 \\ L_{3,2} \\ L_{0,2} \cdot L_{1,2} \\ N_{4,0.005} \\ L_{0,4} \cdot L_{2,4} \\ L_{0,4} \\ \cdot \left( L_{2,4} - L_{2,5} \right) \\ L_{1,3} \cdot L_{2,3} \\ std(SF) \\ \hline \\ \frac{L_{4,1}}{m_4} \\ \end{array}$	0.0056 0.0055 0.0055 0.0055 0.0055 0.0054 0.0053 0.0050 0.0049 0.0048 0.0048
75 76 77 78 79 80 81 82 83 84 85	$\begin{array}{c} L_{0,3} \\ \cdot \left( L_{2,3} - L_{2,4} \right) \\ med(SC) \\ \hline \\ L_{2,1} \\ m_2 \\ L_{2,4} \\ med(P) \\ \sigma_0^2 \\ L_{3,2} \\ L_{0,2} \cdot L_{1,2} \\ N_{4,0.005} \\ L_{0,4} \cdot L_{2,4} \\ \cdot \left( L_{2,4} - L_{2,5} \right) \\ L_{1,3} \cdot L_{2,3} \\ std(SF) \\ \hline \\ L_{4,1} \\ m_4 \\ L_{3,1} \\ \end{array}$	0.0056 0.0055 0.0055 0.0055 0.0055 0.0054 0.0053 0.0050 0.0049
75 76 77 78 79 80 81 82 83 84 85 86 87	$\begin{array}{c} L_{0,3} \\ \cdot \left( L_{2,3} - L_{2,4} \right) \\ med(SC) \\ \hline \\ L_{2,1} \\ m_2 \\ L_{2,4} \\ med(P) \\ \sigma_0^2 \\ L_{3,2} \\ L_{0,2} \cdot L_{1,2} \\ N_{4,0.005} \\ L_{0,4} \cdot L_{2,4} \\ \cdot \left( L_{2,4} - L_{2,5} \right) \\ L_{1,3} \cdot L_{2,3} \\ std(SF) \\ \hline \\ L_{4,1} \\ m_4 \\ L_{3,1} \\ m_3 \\ \end{array}$	0.0056 0.0056 0.0055 0.0055 0.0055 0.0054 0.0053 0.0050 0.0049 0.0048 0.0048 0.0047
75 76 77 78 79 80 81 82 83 84 85 86 87	$\begin{array}{c} L_{0,3} \\ \cdot \left(L_{2,3} - L_{2,4}\right) \\ med(SC) \\ \hline \\ L_{2,1} \\ m_2 \\ L_{2,4} \\ med(P) \\ \sigma_0^2 \\ L_{3,2} \\ L_{0,2} \cdot L_{1,2} \\ N_{4,0.005} \\ L_{0,4} \cdot L_{2,4} \\ \cdot \left(L_{2,4} - L_{2,5}\right) \\ L_{1,3} \cdot L_{2,3} \\ std(SF) \\ \hline \\ L_{4,1} \\ m_4 \\ L_{3,1} \\ m_3 \\ \mathbb{E}(SFs) \end{array}$	0.0056 0.0055 0.0055 0.0055 0.0055 0.0054 0.0053 0.0050 0.0049 0.0048 0.0048 0.0047
75 76 77 78 79 80 81 82 83 84 85 86 87 88	$\begin{array}{c} L_{0,3} \\ \cdot \left(L_{2,3} - L_{2,4}\right) \\ med(SC) \\ \hline \\ L_{2,1} \\ m_2 \\ L_{2,4} \\ med(P) \\ \sigma_0^2 \\ L_{3,2} \\ L_{0,2} \cdot L_{1,2} \\ N_{4,0.005} \\ L_{0,4} \cdot L_{2,4} \\ L_{0,4} \\ \cdot \left(L_{2,4} - L_{2,5}\right) \\ L_{1,3} \cdot L_{2,3} \\ std(SF) \\ \hline \\ L_{4,1} \\ m_4 \\ L_{3,1} \\ m_3 \\ \hline \\ \mathbb{E}(SFs) \\ \sigma_3^2 \end{array}$	0.0056 0.0055 0.0055 0.0055 0.0055 0.0054 0.0053 0.0050 0.0049 0.0048 0.0048 0.0047
75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90	$\begin{array}{c} L_{0,3} \\ \cdot \left(L_{2,3} - L_{2,4}\right) \\ med(SC) \\ \hline \\ L_{2,1} \\ m_2 \\ L_{2,4} \\ med(P) \\ \sigma_0^2 \\ L_{3,2} \\ L_{0,2} \cdot L_{1,2} \\ N_{4,0.005} \\ L_{0,4} \cdot L_{2,4} \\ L_{0,4} \\ \cdot \left(L_{2,4} - L_{2,5}\right) \\ L_{1,3} \cdot L_{2,3} \\ std(SF) \\ \hline \\ L_{4,1} \\ m_4 \\ L_{3,1} \\ m_3 \\ \hline \\ \mathbb{E}(SFs) \\ \sigma_3^2 \\ \min(MFCC) \end{array}$	0.0056 0.0055 0.0055 0.0055 0.0055 0.0054 0.0053 0.0050 0.0049 0.0048 0.0047 0.0047
75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91	$\begin{array}{c} L_{0,3} \\ \cdot \left(L_{2,3} - L_{2,4}\right) \\ med(SC) \\ \hline \\ L_{2,1} \\ m_2 \\ L_{2,4} \\ med(P) \\ \sigma_0^2 \\ L_{3,2} \\ L_{0,2} \cdot L_{1,2} \\ N_{4,0.005} \\ L_{0,4} \cdot L_{2,4} \\ L_{0,4} \\ \cdot \left(L_{2,4} - L_{2,5}\right) \\ L_{1,3} \cdot L_{2,3} \\ std(SF) \\ \hline \\ L_{4,1} \\ m_4 \\ L_{3,1} \\ m_3 \\ \hline \\ \mathbb{E}(SFs) \\ \sigma_3^2 \\ \min(MFCC) \\ \hline \\ \mathbb{E}(SRO) \end{array}$	0.0056 0.0055 0.0055 0.0055 0.0055 0.0050 0.0050 0.0049 0.0048 0.0047 0.0047 0.0046 0.0046 0.0043
75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90	$\begin{array}{c} L_{0,3} \\ \cdot \left( L_{2,3} - L_{2,4} \right) \\ med(SC) \\ \hline \\ L_{2,1} \\ m_2 \\ L_{2,4} \\ med(P) \\ \hline \\ \sigma_0^2 \\ L_{3,2} \\ L_{0,2} \cdot L_{1,2} \\ N_{4,0.005} \\ L_{0,4} \cdot L_{2,4} \\ L_{0,4} \\ \cdot \left( L_{2,4} - L_{2,5} \right) \\ L_{1,3} \cdot L_{2,3} \\ std(SF) \\ \hline \\ L_{4,1} \\ m_4 \\ L_{3,1} \\ m_3 \\ \hline \\ \mathbb{E}(SFs) \\ \sigma_3^2 \\ \min(MFCC) \\ \hline \\ \mathbb{E}(SRO) \\ L_{0,4} \\ \end{array}$	0.0056 0.0055 0.0055 0.0055 0.0055 0.0054 0.0053 0.0050 0.0049 0.0048 0.0047 0.0047
75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93	$\begin{array}{c} L_{0,3} \\ \cdot \left(L_{2,3} - L_{2,4}\right) \\ med(SC) \\ \hline \\ L_{2,1} \\ m_2 \\ L_{2,4} \\ med(P) \\ \sigma_0^2 \\ L_{3,2} \\ L_{0,2} \cdot L_{1,2} \\ N_{4,0.005} \\ L_{0,4} \cdot L_{2,4} \\ L_{0,4} \\ \cdot \left(L_{2,4} - L_{2,5}\right) \\ L_{1,3} \cdot L_{2,3} \\ std(SF) \\ \hline \\ L_{4,1} \\ m_4 \\ L_{3,1} \\ m_3 \\ \hline \\ \mathbb{E}(SFs) \\ \sigma_3^2 \\ \min(MFCC) \\ \hline \\ \mathbb{E}(SRO) \\ L_{0,4} \\ \cdot \left(L_{1,4} - L_{1,5}\right) \end{array}$	0.0056 0.0055 0.0055 0.0055 0.0055 0.0050 0.0050 0.0049 0.0048 0.0047 0.0047 0.0046 0.0046 0.0043
75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91	$\begin{array}{c} L_{0,3} \\ \cdot \left(L_{2,3} - L_{2,4}\right) \\ med(SC) \\ \hline \\ \frac{L_{2,1}}{m_2} \\ L_{2,4} \\ med(P) \\ \hline \\ \sigma_0^2 \\ L_{3,2} \\ L_{0,2} \cdot L_{1,2} \\ N_{4,0.005} \\ L_{0,4} \cdot L_{2,4} \\ L_{0,4} \\ \cdot \left(L_{2,4} - L_{2,5}\right) \\ L_{1,3} \cdot L_{2,3} \\ std(SF) \\ \hline \\ \frac{L_{4,1}}{m_4} \\ L_{3,1} \\ m_3 \\ \hline \\ \mathbb{E}(SFs) \\ \sigma_3^2 \\ \min(MFCC) \\ \hline \\ \mathbb{E}(SRO) \\ L_{0,4} \\ \cdot \left(L_{1,4} - L_{1,5}\right) \\ L_{0,1} \end{array}$	0.0056 0.0055 0.0055 0.0055 0.0055 0.0050 0.0050 0.0049 0.0048 0.0047 0.0047 0.0046 0.0046 0.0043
75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93	$\begin{array}{c} L_{0,3} \\ \cdot \left(L_{2,3} - L_{2,4}\right) \\ med(SC) \\ \hline \\ \frac{L_{2,1}}{m_2} \\ L_{2,4} \\ med(P) \\ \hline \\ \sigma_0^2 \\ L_{3,2} \\ L_{0,2} \cdot L_{1,2} \\ N_{4,0.005} \\ L_{0,4} \cdot L_{2,4} \\ L_{0,4} \\ \cdot \left(L_{2,4} - L_{2,5}\right) \\ L_{1,3} \cdot L_{2,3} \\ std(SF) \\ \hline \\ \frac{L_{4,1}}{m_4} \\ L_{3,1} \\ m_3 \\ \hline \\ \mathbb{E}(SFs) \\ \sigma_3^2 \\ \min(MFCC) \\ \hline \\ \mathbb{E}(SRO) \\ L_{0,4} \\ \cdot \left(L_{1,4} - L_{1,5}\right) \\ \hline \\ L_{0,4} \\ \cdot \left(L_{1,4} - L_{1,5}\right) \\ \hline \\ L_{0,1} \\  L_{$	0.0056 0.0055 0.0055 0.0055 0.0055 0.0054 0.0050 0.0050 0.0049 0.0048 0.0047 0.0047 0.0046 0.0046 0.0046 0.0043 0.0042
75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93	$\begin{array}{c} L_{0,3} \\ \cdot \left(L_{2,3} - L_{2,4}\right) \\ med(SC) \\ \hline \\ \frac{L_{2,1}}{m_2} \\ L_{2,4} \\ med(P) \\ \hline \\ \sigma_0^2 \\ L_{3,2} \\ L_{0,2} \cdot L_{1,2} \\ N_{4,0.005} \\ L_{0,4} \cdot L_{2,4} \\ L_{0,4} \\ \cdot \left(L_{2,4} - L_{2,5}\right) \\ L_{1,3} \cdot L_{2,3} \\ std(SF) \\ \hline \\ \frac{L_{4,1}}{m_4} \\ L_{3,1} \\ m_3 \\ \hline \\ \mathbb{E}(SFs) \\ \sigma_3^2 \\ \min(MFCC) \\ \hline \\ \mathbb{E}(SRO) \\ L_{0,4} \\ \cdot \left(L_{1,4} - L_{1,5}\right) \\ L_{0,1} \end{array}$	0.0056 0.0055 0.0055 0.0055 0.0055 0.0050 0.0050 0.0049 0.0048 0.0047 0.0047 0.0046 0.0046 0.0043

97	med(SFs)	0.0039
98	std(SC)	0.0036
99	$L_{0.6}$	0.0032
	$\cdot (L_{2,6} - L_{2,7})$	
100	$L_{0,6} \cdot L_{2,6}$	0.0031
101	$L_{1,4}$	0.0031
100	$\cdot (L_{2,4} - L_{2,5})$	0.0004
102	$L_{0,5} \\ \cdot \left( L_{2,5} - L_{2,6} \right)$	0.0031
103	med(ZCR)	0.0030
104	$L_{0,4} \cdot L_{1,4}$	0.0030
105	$L_{0,5}$	0.0028
103	$(L_{1,5} - L_{1,6})$	0.0028
106	$L_{3,1}$	0.0028
	$ \mathcal{L}_3 $	
107	max(SC)	0.0027
108	$L_{0,5} \cdot L_{1,5}$	0.0027
109	min(SC)	0.0027
110	$L_{1,5}$	0.0026
	$\cdot \left(L_{2,5}-L_{2,6}\right)$	
111	$\sigma_4^2 \ L_{0,1}$	0.0026
112	$L_{0,1}$	0.0024
	$m_0$	
113	min(SRO)	0.0024
114	$L_{1,4} \cdot L_{2,4}$	0.0021
115	$L_{1,6}$	0.0019
	$\cdot \left(L_{2,6}-L_{2,7}\right)$	
116	max(SRO)	0.0015
117	$L_{0,6} \cdot L_{1,6}$	0.0014
118	$L_{0,6}$	0.0014
119	$\cdot \left(L_{1,6} - L_{1,7}\right)$	0.0006
119	$rac{L_{4,1}}{ \mathcal{L}_4 }$	0.0006
120	min(ZCR)	0.0003
	( - ")	

## **Topological Features**

 $\mathbb{E}-\mathsf{Mean}$ 

std – Standard Deviation

med – Median

SF – Spectral Flux

STE – Short Time Energy

P – Pitch

ZCR – Zero Crossing Rate

MFCC – Mel-frequency cepstral coefficients

SRO – Spectral Roll-Off

SC – Spectral Centroid

SFs – Spectral Flatness

DWTE – DWT Energy

DWTW – DWT Waveform length