timbralSimilaritySolScatteringTechnique

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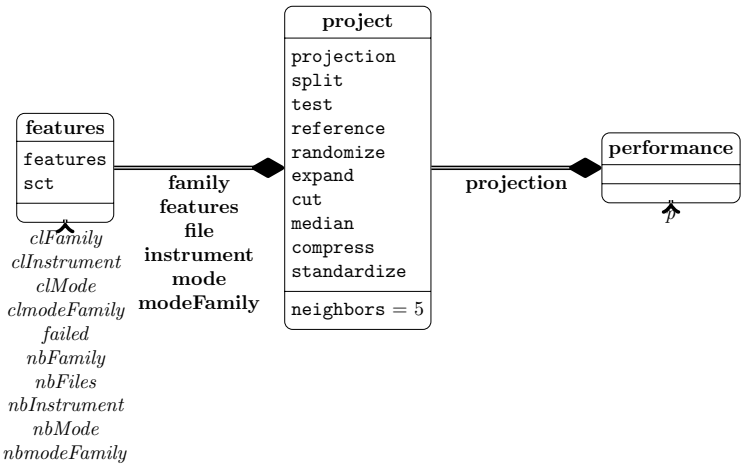

Figure 1: Factors flow graph for the experiment.

nbFiles	25444
nbFamily	16
nbInstrument	33
nbMode	469
nbmodeFamily	143

Table 1: Sol db

clFamily	1590 ±936
clInstrument	771 ±814
clMode	54 ±59
clmodeFamily	178 ±429

Table 2: Sol db

features	cut	standardize	p (%)
mfcc	0	0	85
mfcc	0	1	84
mfcc	1	0	88
mfcc	1	1	**89**
mel		0	53
mel		1	50

Table 3: Mel / mfcc: sct: 25, projection: none, split: none, reference: family, randomize: 0, expand: 0

features	cut	standardize	p (%)
mfcc	0	0	35
mfcc	0	1	32
mfcc	1	0	**46**
mfcc	1	1	45
mel		0	19
mel		1	19

Table 4: Mel / mfcc: sct: 25, projection: none, split: none, reference: modeFamily, randomize: 0, expand: 0

median	compress	standardize	p (%)
0	0	0	64
0	0	1	76
0	1	0	84
0	1	1	83
1	0	0	77
1	0	1	76
1	1	0	**89**
1	1	1	89

Table 5: Scattering: features: scat, sct: 25, projection: none, split: none, reference: family, randomize: 0

median	compress	standardize	p (%)
0	0	0	28
0	0	1	38
0	1	0	43
0	1	1	43
1	0	0	40
1	0	1	38
1	1	0	50
1	1	1	**50**

Table 6: Scattering: features: scat, sct: 25, projection: none, split: none, reference: modeFamily, randomize: 0

features	mfcc	scat
none	89	89
lmnn	90	98
lda	87	96

Table 7: Projection: sct: 25, split: none, reference: family, randomize: 0, expand: 0, cut: 1, median: 1, compress: 1, standardize: 1

features	mfcc	scat
none	45	50
lmnn	48	53
lda	50	52

Table 8: Projection: sct: 25, split: none, reference: modeFamily, randomize: 0, expand: 0, cut: 1, median: 1, compress: 1, standardize: 1

features	randomize	expand	none	lmnn	lda
mfcc	0	0	89	90	87
mfcc	0	494	88	91	89
mfcc	1	0	8	8	8
mfcc	1	494	8	9	9
scat	0		89	98	96
scat	1		8	9	9

Table 9: Control learning: sct: 25, split: none, reference: family, cut: 1, median: 1, compress: 1, standardize: 1

features	randomize	expand	none	lmnn	lda
mfcc	0	0	45	48	50
mfcc	0	494	43	49	49
mfcc	1	0	5	5	5
mfcc	1	494	5	4	5
scat	0		50	53	52
scat	1		5	4	5

Table 10: Control learning: sct: 25, split: none, reference: modeFamily, cut: 1, median: 1, compress: 1, standardize: 1

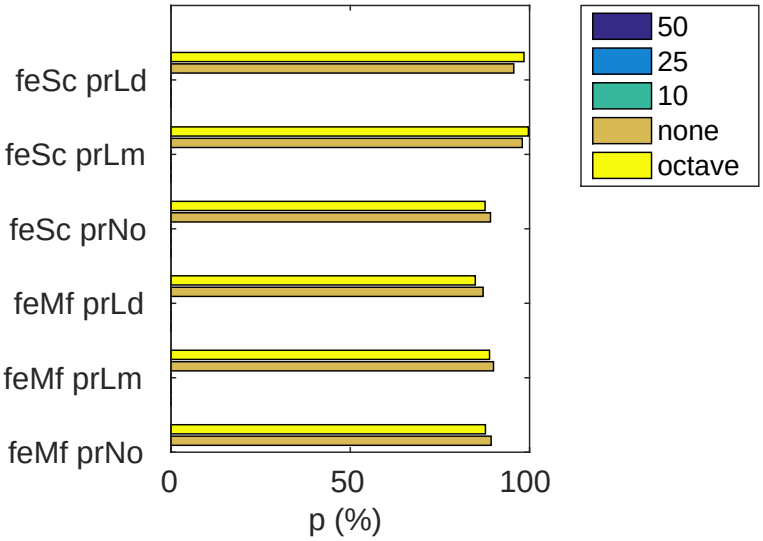

Figure 2: db splitting: sct: 25, reference: family, randomize: 0, expand: 0, cut: 1, median: 1, compress: 1, standardize: 1

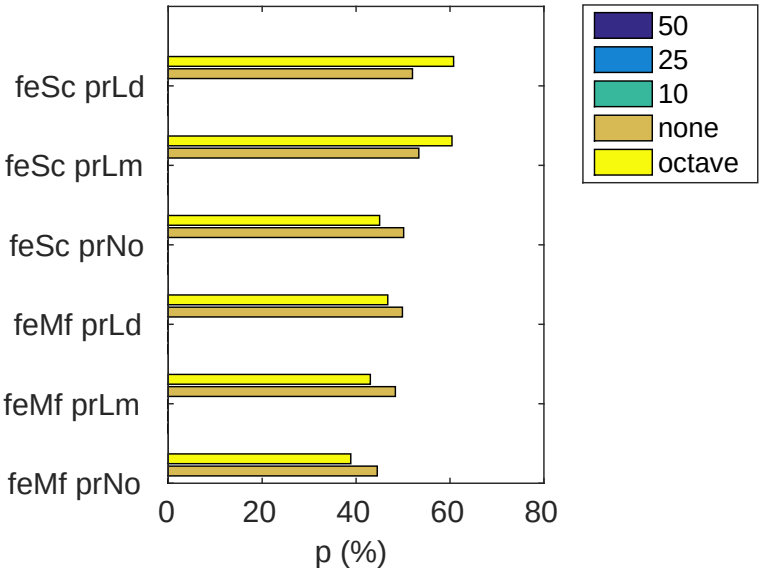

Figure 3: db splitting: sct: 25, reference: modeFamily, randomize: 0, expand: 0, cut: 1, median: 1, compress: 1, standardize: 1

References

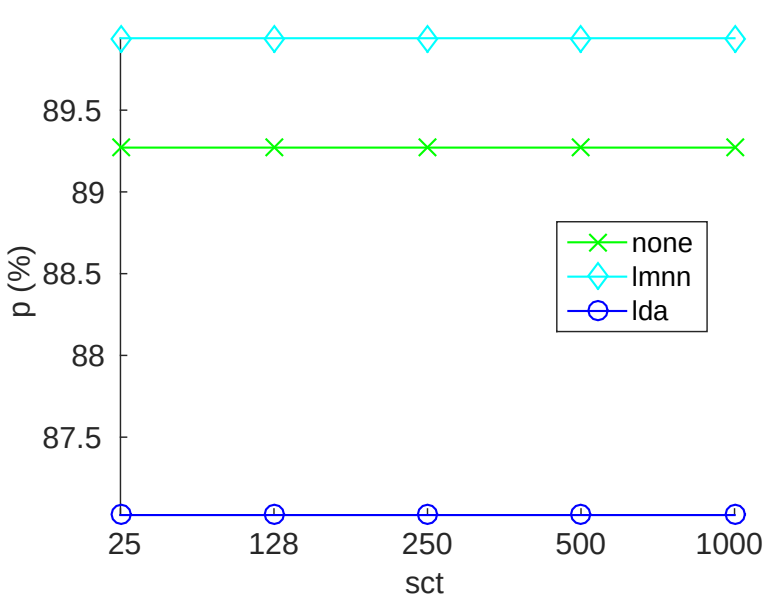

Figure 4: features: mfcc, reference: family, split: none, randomize: 0, expand: 0, cut: 1, standardize: 1

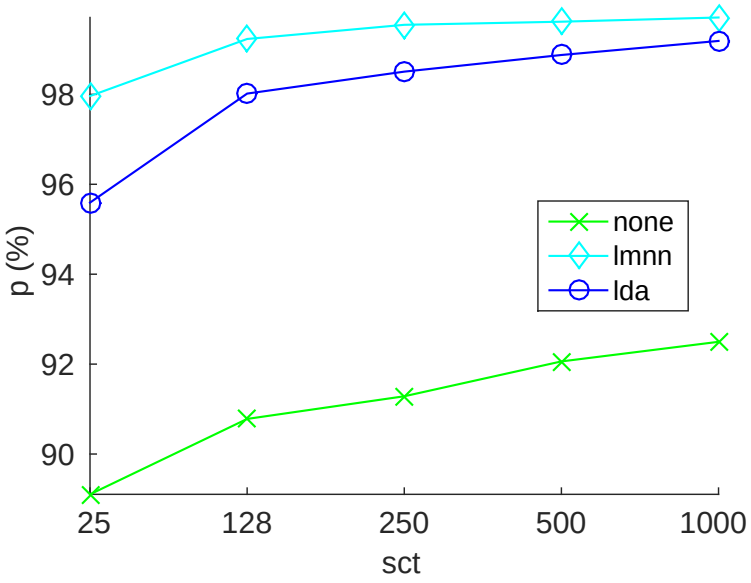

Figure 5: features: scat, reference: family, split: none, randomize: 0, median: 1, compress: 1, standardize: 1

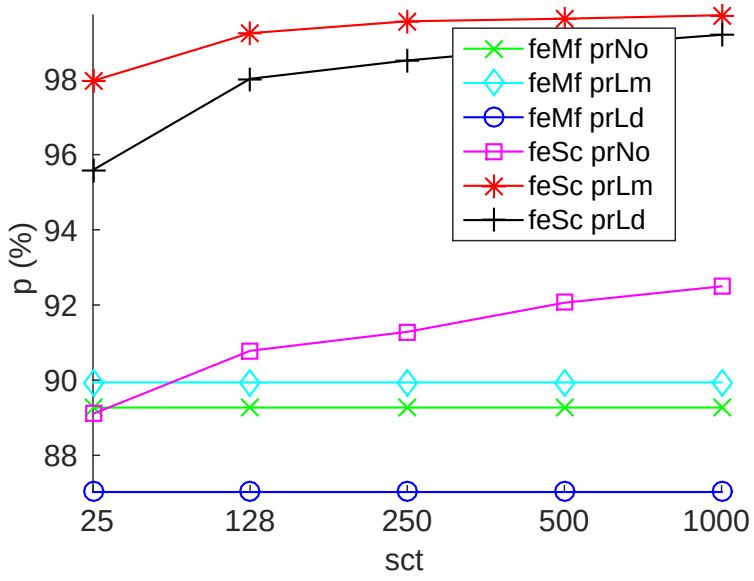

Figure 6: reference: family, split: none, randomize: 0, expand: 0, cut: 1, median: 1, compress: 1, standardize: 1

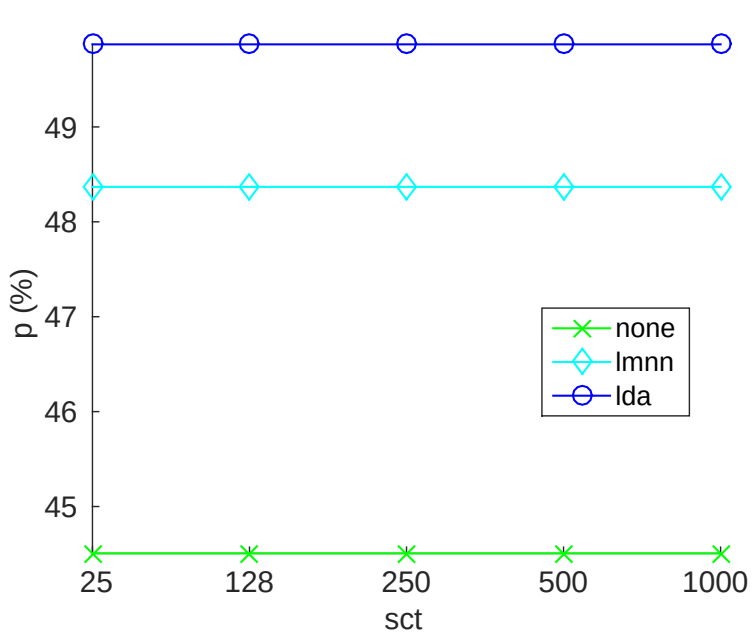

Figure 7: features: mfcc, reference: modeFamily, split: none, randomize: 0, expand: 0, cut: 1, standardize: 1

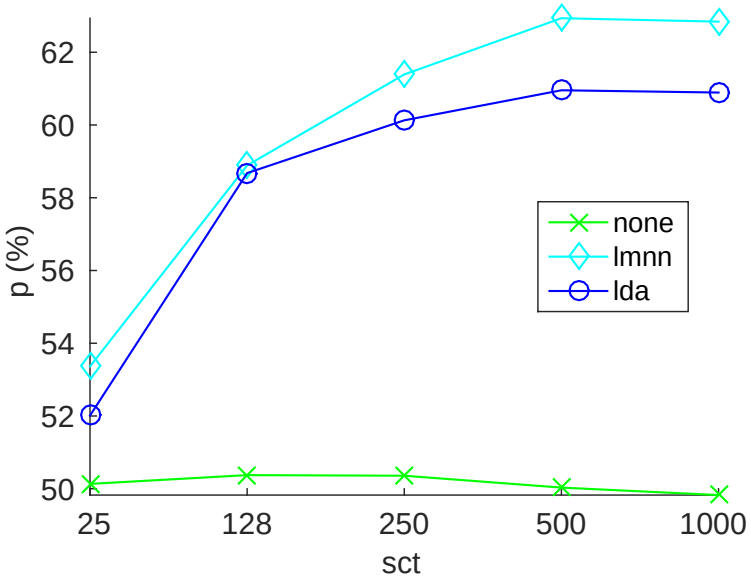

Figure 8: features: scat, reference: modeFamily, split: none, randomize: 0, median: 1, compress: 1, standardize: 1

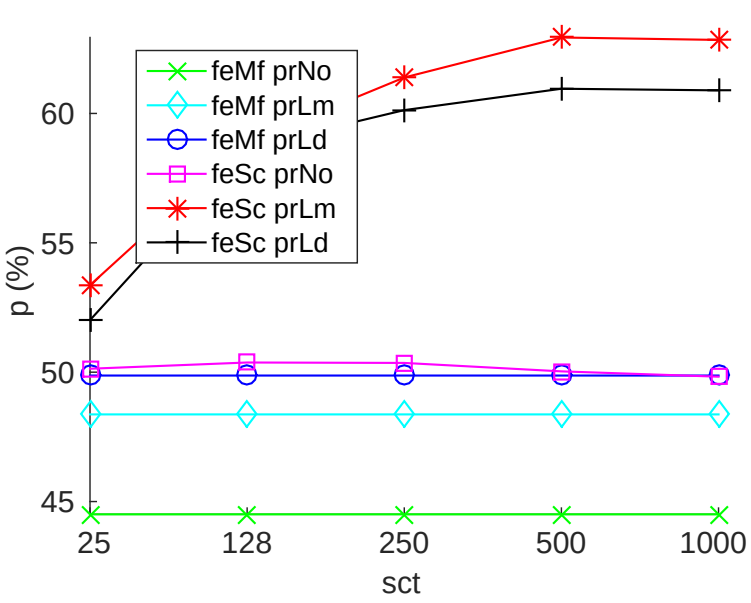

Figure 9: reference: modeFamily, split: none, randomize: 0, expand: 0, cut: 1, median: 1, compress: 1, standardize: 1

features	reference	sct	none	lmnn	lda
mfcc	family	25	89	90	87
mfcc	family	128	89	90	87
mfcc	family	250	89	90	87
mfcc	family	500	89	90	87
mfcc	family	1000	89	90	87
mfcc	modeFamily	25	45	48	50
mfcc	modeFamily	128	45	48	50
mfcc	modeFamily	250	45	48	50
mfcc	modeFamily	500	45	48	50
mfcc	modeFamily	1000	45	48	50
scat	family	25	89	98	96
scat	family	128	91	99	98
scat	family	250	91	100	99
scat	family	500	92	100	99
scat	family	1000	**92**	**100**	**99**
scat	modeFamily	25	50	53	52
scat	modeFamily	128	50	59	59
scat	modeFamily	250	50	61	60
scat	modeFamily	500	50	63	61
scat	modeFamily	1000	50	63	61

Table 11: split: none, randomize: 0, expand: 0, cut: 1, median: 1, compress: 1, standardize: 1