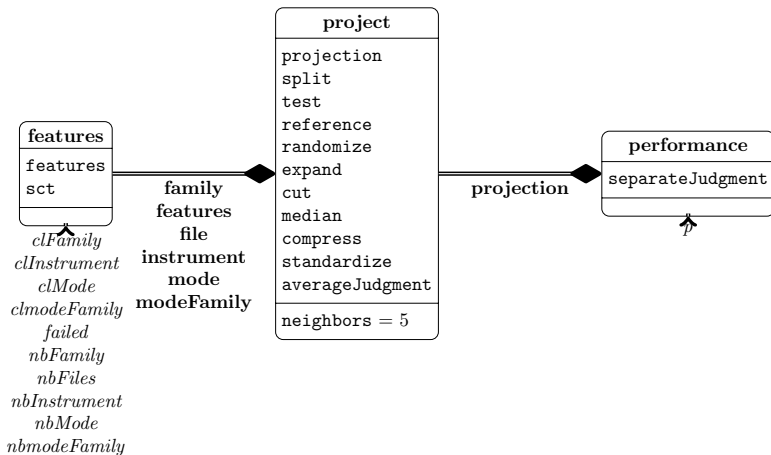# timbralSimilaritySolCSlides

Mathieu Lagrange

September 23, 2019

This is the report to document the expLanes project timbralSimilaritySol using LaTeX.

Factors flow graph

expand mfccs using monomials up to the dimensionality of the scattering

features	projection	expand	p (%)
mfcc	none	0	80.7 $\pm$7.5
mfcc	none	1180	79.6 $\pm$7.4
mfcc	lmnn	0	82.3 $\pm$7.1
mfcc	lmnn	1180	81.8 $\pm$7.0
scat	none		83.2 $\pm$7.0
scat	lmnn		93.0 $\pm$4.2
tfscat	none		92.9 $\pm$3.0
tfscat	lmnn		95.5 $\pm$2.6

randomize features to check effect of learning

features	projection	p (%)
mfcc	none	23.8 ±10.8
mfcc	lmnn	23.7 ±10.8
scat	none	23.9 ±10.8
scat	lmnn	23.8 ±10.9
tfscat	none	23.8 ±10.7
tfscat	lmnn	23.6 ±10.7

split dataset randomly 50 / 50 not preserving structure (0 train, 1 test)

features	projection	0	1
mfcc	none	80.6	80.662
mfcc	lmnn	82.3	82.255
scat	none	84.2	83.242
scat	lmnn	92.2	92.987
tfscat	none	93.1	92.929
tfscat	lmnn	96.5	95.539

compare performances on complete and split dataset
randomly 50 (50 test part, none complete)

features	projection	50	none
mfcc	none	80.7	85.069
mfcc	lmnn	82.3	86.306
scat	none	83.2	87.011
scat	lmnn	93.0	93.346
tfscat	none	92.9	96.063
tfscat	lmnn	95.5	98.038

lmnn vs lda

features	projection	separateJudgment	p (%)
mfcc	lmnn	0	86.50
mfcc	lda	1	83.89
scat	lmnn	0	95.51
scat	lda	1	81.84
tfscat	lmnn	0	**98.97**
tfscat	lda	1	81.20

consensus vs averaging

features	separateJudgment	averageJudgment	none
mfcc	0	0	86.3
mfcc	0	1	86.5
mfcc	1	0	86.2
scat	0	0	93.3
scat	0	1	95.5
scat	1	0	98.1
tfscat	0	0	98.0
tfscat	0	1	99.0
tfscat	1	0	99.5

split: none, reference: judgments, randomize: 0, expand: 0, cut: 1, median: 1, compress: 1, standardize: 1

fea	sepjud	pro	avejud	25	128	250	500	1000
mfcc	0	none	0	85.1	85.1	85.1	85.1	85.1
mfcc	0	lmnn	0	86.3	86.3	86.3	86.3	86.3
mfcc	0	lmnn	1	86.5	86.5	86.5	86.5	86.5
mfcc	1	lmnn	0	86.2	86.2	86.2	86.2	86.2
scat	0	none	0	86.4	86.7	86.8	87.0	87.0
scat	0	lmnn	0	91.6	91.3	91.8	92.8	93.3
scat	0	lmnn	1	93.2	94.1	94.7	94.5	95.5
scat	1	lmnn	0	95.2	96.7	97.2	97.7	98.1
tfscat	0	none	0	91.1	94.7	95.0	95.8	96.1
tfscat	0	lmnn	0	**96.2**	97.8	97.8	97.4	98.0
tfscat	0	lmnn	1	95.6	97.9	98.1	98.1	99.0
tfscat	1	lmnn	0	**96.9**	**98.8**	**98.9**	**99.1**	**99.5**

split: none, reference: judgments, randomize: 0, expand: 0, cut: 1, median: 1, compress: 1, standardize: 1