

Certificat Extins - Parametrii MIR extinși

pentru

align.mp3

Seria PG Nr. 000001

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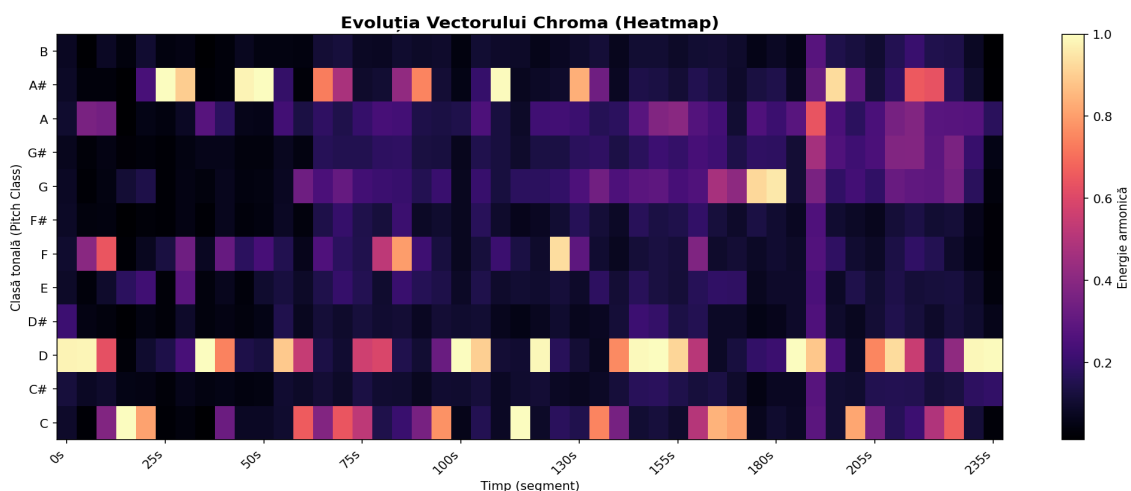
creat la cererea Melodii pentru SYNQ - Pozitron Grup

Acest document completează certificatul standard cu parametrii tehnici detaliați (toți cei 13 coeficienți MFCC și vectorul chroma complet pe 12 clase tonale) care nu încap într-un tabel de rezumat, destinați analizei tehnice aprofundate.

Informații Generale

Durată	243.5 secunde
Rată de eșantionare	22050 Hz
Segmente totale	48
Durată segment	5.0 secunde

Heatmap Chroma



Tabel MFCC (Coeficienți Cepstrali Mel) - Medie pe Segment

Start	End	MFCC1	MFCC2	MFCC3	MFCC4	MFCC5	MFCC6	MFCC7	MFCC8	MFCC9	MFCC10	MFCC11	MFCC12	MFCC13
0.00	5.00	-579.7	107.2	63.7	25.6	3.1	-6.2	-10.2	-13.6	-15.3	-13.1	-8.8	-6.8	-8.7
5.00	10.00	-449.5	186.4	110.5	41.2	4.4	-6.0	-9.9	-15.8	-19.0	-14.7	-7.5	-5.3	-10.1
10.00	15.00	-486.1	171.8	107.8	46.8	11.5	0.4	-1.4	-3.4	-5.4	-5.0	-3.7	-5.1	-10.4
15.00	20.00	-440.7	179.3	116.1	57.6	23.5	11.1	8.1	7.5	7.7	8.4	7.8	4.4	-1.1
20.00	25.00	-414.7	131.1	96.7	58.9	28.4	11.2	5.6	6.3	8.3	8.9	7.4	4.4	-0.1
25.00	30.00	-404.6	162.1	116.9	68.1	31.8	13.2	7.5	7.3	8.0	8.5	8.7	8.2	6.2
30.00	35.00	-427.1	155.3	102.6	55.3	27.5	13.8	6.4	1.9	1.3	3.8	6.3	6.7	4.9
35.00	40.00	-426.3	174.4	114.1	57.4	24.6	13.5	10.8	8.4	6.3	5.8	4.7	0.4	-5.5
40.00	45.00	-410.2	115.7	88.8	58.1	31.4	13.8	4.9	2.0	2.1	2.6	1.9	-1.0	-5.5
45.00	50.00	-393.1	167.8	114.2	61.9	28.8	15.1	10.9	7.9	5.0	4.4	6.4	8.1	6.7
50.00	55.00	-425.5	180.5	107.2	48.6	19.4	7.9	4.8	3.5	3.3	6.4	12.5	15.7	11.4
55.00	60.00	-352.8	172.8	114.0	56.0	18.2	1.4	-3.1	-2.9	-0.4	4.1	9.1	11.4	10.3
60.00	65.00	-441.6	194.1	105.4	39.7	12.8	3.4	0.0	-0.9	-2.3	-2.0	3.8	9.6	5.5
65.00	70.00	-371.8	157.6	104.1	52.9	21.4	7.7	2.6	-1.9	-4.8	-1.5	7.4	15.2	16.9
70.00	75.00	-355.0	171.6	106.6	48.4	18.8	11.7	11.3	8.1	3.8	4.4	10.2	14.7	12.6
165.00	170.00	-325.2	170.6	87.5	23.4	16.4	6.9	17.7	6.6	-0.1	-3.1	5.3	10.2	5.1
170.00	175.00	-323.4	173.8	82.9	23.7	16.9	-0.9	10.6	3.8	-1.2	-4.2	6.2	16.1	14.1
175.00	180.00	-310.0	185.2	85.7	27.3	24.6	2.5	11.4	6.6	1.8	-5.4	7.8	21.6	18.3
180.00	185.00	-315.8	177.3	77.8	22.8	21.1	-0.9	3.7	2.8	4.6	3.7	18.6	29.7	22.7
185.00	190.00	-321.3	184.8	85.5	20.3	20.4	1.2	8.2	4.8	5.0	-1.4	9.0	17.3	10.6
190.00	195.00	-341.4	167.7	81.3	20.3	9.5	2.1	8.8	6.1	2.9	-1.3	4.4	7.0	1.1
195.00	200.00	-312.8	174.3	71.4	27.8	30.2	10.4	14.8	5.7	-3.8	-4.4	9.2	20.3	17.4
200.00	205.00	-317.4	183.7	75.0	21.8	24.7	3.1	6.8	1.8	0.6	5.0	22.1	27.5	9.4
205.00	210.00	-316.7	187.3	87.1	22.8	18.5	4.3	11.3	3.8	-0.1	-1.9	5.6	13.9	11.9
210.00	215.00	-320.3	173.2	92.0	34.4	23.6	6.1	12.2	5.7	5.1	4.2	7.6	6.9	0.1
215.00	220.00	-323.1	177.9	91.1	28.9	21.3	8.0	11.4	2.4	2.2	5.0	11.8	15.2	9.5
220.00	225.00	-304.0	185.1	68.8	14.0	18.5	2.2	4.5	6.0	12.5	12.2	12.5	14.3	10.2
225.00	230.00	-322.3	175.2	71.0	14.5	13.8	17.4	25.8	20.1	3.5	-11.4	-4.8	16.4	21.4
230.00	235.00	-331.5	169.6	88.7	27.7	20.8	18.3	24.5	12.1	-2.8	-9.5	3.2	20.9	19.4
235.00	240.00	-456.4	161.3	87.5	36.7	20.3	19.5	20.3	15.7	5.4	1.1	11.2	24.7	25.0

Tabel Chroma Vector Complet per Segment

Start	End	C	C#	D	D#	E	F	F#	G	G#	A	A#	B
0.00	5.00	0.09	0.12	0.98	0.21	0.09	0.10	0.08	0.08	0.07	0.10	0.08	0.08
5.00	10.00	0.02	0.08	0.98	0.05	0.03	0.40	0.04	0.02	0.03	0.36	0.03	0.02
10.00	15.00	0.38	0.09	0.63	0.04	0.09	0.64	0.04	0.04	0.05	0.35	0.03	0.08
15.00	20.00	1.00	0.05	0.03	0.02	0.18	0.02	0.01	0.11	0.02	0.01	0.01	0.04
20.00	25.00	0.81	0.05	0.10	0.04	0.22	0.07	0.03	0.14	0.03	0.05	0.24	0.10
25.00	30.00	0.02	0.03	0.14	0.03	0.03	0.13	0.02	0.02	0.02	0.04	1.00	0.04
30.00	35.00	0.04	0.06	0.24	0.09	0.28	0.33	0.05	0.05	0.04	0.08	0.90	0.05

Start	End	C	C#	D	D#	E	F	F#	G	G#	A	A#	B
35.00	40.00	0.01	0.05	1.00	0.04	0.04	0.07	0.02	0.04	0.06	0.27	0.02	0.01
40.00	45.00	0.33	0.05	0.74	0.05	0.07	0.31	0.07	0.07	0.06	0.18	0.03	0.03
45.00	50.00	0.08	0.04	0.14	0.04	0.03	0.18	0.03	0.04	0.04	0.06	0.98	0.07
50.00	55.00	0.08	0.05	0.13	0.05	0.10	0.24	0.04	0.05	0.04	0.06	1.00	0.05
55.00	60.00	0.10	0.10	0.89	0.15	0.13	0.15	0.08	0.08	0.07	0.22	0.20	0.05
60.00	65.00	0.66	0.09	0.54	0.07	0.09	0.06	0.04	0.33	0.05	0.13	0.03	0.04
65.00	70.00	0.38	0.11	0.14	0.11	0.14	0.26	0.14	0.25	0.16	0.19	0.73	0.11
70.00	75.00	0.64	0.09	0.10	0.09	0.20	0.18	0.20	0.31	0.15	0.15	0.48	0.12
165.00	170.00	0.84	0.13	0.08	0.08	0.19	0.09	0.12	0.47	0.22	0.23	0.12	0.11
170.00	175.00	0.81	0.09	0.13	0.08	0.18	0.11	0.09	0.41	0.14	0.11	0.09	0.09
175.00	180.00	0.07	0.05	0.19	0.05	0.07	0.09	0.13	0.92	0.18	0.26	0.13	0.06
180.00	185.00	0.10	0.07	0.21	0.06	0.09	0.10	0.10	0.95	0.18	0.21	0.14	0.08
185.00	190.00	0.08	0.08	1.00	0.09	0.09	0.09	0.08	0.11	0.11	0.28	0.08	0.06
190.00	195.00	0.29	0.28	0.89	0.26	0.25	0.26	0.26	0.36	0.47	0.64	0.32	0.27
195.00	200.00	0.11	0.11	0.25	0.09	0.08	0.18	0.10	0.19	0.26	0.25	0.93	0.14
200.00	205.00	0.82	0.10	0.08	0.07	0.14	0.10	0.08	0.23	0.22	0.17	0.29	0.12
205.00	210.00	0.35	0.15	0.75	0.11	0.11	0.08	0.07	0.19	0.25	0.25	0.12	0.10
210.00	215.00	0.16	0.16	0.93	0.15	0.14	0.14	0.12	0.32	0.38	0.35	0.18	0.16
215.00	220.00	0.22	0.15	0.55	0.12	0.12	0.19	0.14	0.30	0.39	0.38	0.66	0.21
220.00	225.00	0.49	0.12	0.15	0.09	0.12	0.16	0.11	0.29	0.29	0.28	0.64	0.15
225.00	230.00	0.66	0.13	0.42	0.12	0.12	0.09	0.11	0.35	0.37	0.28	0.17	0.14
230.00	235.00	0.11	0.18	0.99	0.10	0.09	0.06	0.06	0.17	0.20	0.27	0.10	0.08
235.00	240.00	0.03	0.19	0.99	0.06	0.04	0.03	0.03	0.04	0.05	0.17	0.02	0.01

Definiții

MFCC (Coeficienți Cepstrali Mel)

MFCC (Mel-Frequency Cepstral Coefficients / Coeficienți Cepstrali pe Scală Mel) - Amprentă timbrală standard folosită în MIR (Music Information Retrieval) și recunoaștere vocală. Fiecare din cei 13 coeficienți descrie un aspect diferit al formei spectrului sonor pe o scală adaptată percepției umane (scala Mel): MFCC1 reflectă în general energia globală, iar coeficienții următori detalii spectrale din ce în ce mai fine.

Referințe: Davis, S. & Mermelstein, P. (1980). *Comparison of parametric representations for monosyllabic word recognition. IEEE Trans. ASSP.*

Chroma Vector (Vector chroma)

Vectorul chroma complet (12 valori, una per clasă de înălțime C, C#, D...B) reprezintă distribuția energiei armonice a piesei pe toate cele 12 note, indiferent de octavă. Valorile mari indică notele dominante într-un segment; acest vector stă la baza detectării tonalității (key) și a forței tonale.

Referințe: Peeters, G. (2004). *A large set of audio features for sound description. IRCAM.*

Analiza a fost realizată cu ajutorul programelor construite prin utilizarea AI Claude, DeepSeek, Kimi, Perplexity, Grok, Qwen.

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