

# Ó, Ó, Menino, Ó

Music21

Original

TIV Euclidean 0.25

TIV Euclidean 0.5

TIV Euclidean 0.75

Original

TIV Cosine 0.25

TIV Cosine 0.5

TIV Cosine 0.75

The image displays a musical score for the piece 'Ó, Ó, Menino, Ó'. The score is presented in two systems, each containing four staves. The first system shows the original melody and its TIV (Tonal Interval Vector) processed versions using Euclidean metrics at 0.25, 0.5, and 0.75 thresholds. The second system shows the original melody and its TIV processed versions using Cosine metrics at 0.25, 0.5, and 0.75 thresholds. The original melody is in 3/4 time and consists of a sequence of notes: G4, A4, B4, C5, D5, E5, F5, G5, A5, B5, C6, D6, E6, F6, G6, A6, B6, C7, D7, E7, F7, G7, A7, B7, C8, D8, E8, F8, G8, A8, B8, C9, D9, E9, F9, G9, A9, B9, C10, D10, E10, F10, G10, A10, B10, C11, D11, E11, F11, G11, A11, B11, C12, D12, E12, F12, G12, A12, B12, C13, D13, E13, F13, G13, A13, B13, C14, D14, E14, F14, G14, A14, B14, C15, D15, E15, F15, G15, A15, B15, C16, D16, E16, F16, G16, A16, B16, C17, D17, E17, F17, G17, A17, B17, C18, D18, E18, F18, G18, A18, B18, C19, D19, E19, F19, G19, A19, B19, C20, D20, E20, F20, G20, A20, B20, C21, D21, E21, F21, G21, A21, B21, C22, D22, E22, F22, G22, A22, B22, C23, D23, E23, F23, G23, A23, B23, C24, D24, E24, F24, G24, A24, B24, C25, D25, E25, F25, G25, A25, B25, C26, D26, E26, F26, G26, A26, B26, C27, D27, E27, F27, G27, A27, B27, C28, D28, E28, F28, G28, A28, B28, C29, D29, E29, F29, G29, A29, B29, C30, D30, E30, F30, G30, A30, B30, C31, D31, E31, F31, G31, A31, B31, C32, 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8

Original

TIV Euclidean 0.25

TIV Euclidean 0.5

TIV Euclidean 0.75

Original

TIV Cosine 0.25

TIV Cosine 0.5

TIV Cosine 0.75

The image displays a musical score with eight staves, organized into two groups of four. Each group begins with an 'Original' melody, followed by three variations generated using TIV (Tonal Interval Vector) processing. The first group uses the Euclidean metric, and the second group uses the Cosine metric. Within each group, the TIV variations are shown at three different threshold levels: 0.25, 0.5, and 0.75. The 'Original' melody is a six-measure phrase in G major, starting with a half note G4, followed by quarter notes A4, B4, and C5, then a half note B4, and ending with quarter notes A4 and G4. The TIV variations show how the melody's structure is preserved or altered as the threshold changes, with lower thresholds (0.25) resulting in more sparse, rhythmic patterns and higher thresholds (0.75) resulting in patterns closer to the original melody.

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Original

TIV Euclidean 0.25

TIV Euclidean 0.5

TIV Euclidean 0.75

Original

TIV Cosine 0.25

TIV Cosine 0.5

TIV Cosine 0.75

The image displays a musical score with 15 measures. The first system contains four staves: 'Original', 'TIV Euclidean 0.25', 'TIV Euclidean 0.5', and 'TIV Euclidean 0.75'. The second system contains four staves: 'Original', 'TIV Cosine 0.25', 'TIV Cosine 0.5', and 'TIV Cosine 0.75'. The 'Original' staff in both systems shows a melody in G major (one sharp) with a 6/8 time signature. The TIV (Tonal Interval Vector) processed staves show the same melody with varying degrees of abstraction. The 'TIV Euclidean 0.25' staff is the most abstract, showing only the interval classes. The 'TIV Euclidean 0.5' and 'TIV Euclidean 0.75' staves show increasing detail. The 'TIV Cosine 0.25' staff is also abstract, but the 'TIV Cosine 0.5' and 'TIV Cosine 0.75' staves show more detail, with the 0.75 version being nearly identical to the original.

22

Original

TIV Euclidean 0.25

TIV Euclidean 0.5

TIV Euclidean 0.75

Original

TIV Cosine 0.25

TIV Cosine 0.5

TIV Cosine 0.75

The image displays a musical score with two systems of staves. Each system contains four staves. The first staff in each system is the 'Original' melody. The subsequent three staves show the results of TIV processing using different metrics and thresholds. The first system uses the Euclidean metric with thresholds of 0.25, 0.5, and 0.75. The second system uses the Cosine metric with the same thresholds. The notation includes treble clefs, a key signature of one sharp (F#), and a 4/4 time signature. The original melody consists of six measures. The TIV processed versions show how the interval structure is preserved or altered based on the threshold and metric used. For example, at a 0.25 threshold, many intervals are replaced by rests, while at a 0.75 threshold, more of the original interval structure is retained.

28

Original

TIV Euclidean 0.25

TIV Euclidean 0.5

TIV Euclidean 0.75

Original

TIV Cosine 0.25

TIV Cosine 0.5

TIV Cosine 0.75

The image displays a musical score for a melody in G major (one sharp) and 4/4 time. The score is divided into two systems, each starting at measure 28. The original melody is shown in the first staff of each system. The TIV (Tonal Interval Variance) processed versions are shown in the subsequent staves. The TIV versions are categorized by the metric used (Euclidean and Cosine) and the level of distortion (0.25, 0.5, and 0.75). The 0.25 level shows the most significant distortion, while the 0.75 level shows the least distortion, closely resembling the original melody.

# Ó, Ó, Menino, Ó

Music21

Original

Metric 0.25

Metric 0.5

Metric 0.75

9

Original

Metric 0.25

Metric 0.5

Metric 0.75

17

Original

Metric 0.25

Metric 0.5

Metric 0.75

24

Original

Metric 0.25

Metric 0.5

Metric 0.75

The image displays a musical score with four staves. The top staff, labeled 'Original', features a treble clef and a key signature of one sharp (F#). It contains a melody of eighth and quarter notes. The subsequent three staves, labeled 'Metric 0.25', 'Metric 0.5', and 'Metric 0.75', are in common time. The 'Metric 0.25' staff shows a sequence of quarter rests followed by quarter notes. The 'Metric 0.5' staff shows a sequence of quarter notes followed by quarter rests. The 'Metric 0.75' staff shows a sequence of quarter notes followed by quarter rests. The score is divided into six measures by vertical bar lines, ending with a double bar line.

# Ó, Ó, Menino, Ó

Music21

Original

Intervallic 0.25

Intervallic 0.5

Intervallic 0.75

8

Original

Intervallic 0.25

Intervallic 0.5

Intervallic 0.75

16

Original

Intervallic 0.25

Intervallic 0.5

Intervallic 0.75



22

Original

Intervallic 0.25

Intervallic 0.5

Intervallic 0.75

This block contains the musical notation for measures 22 through 28. It consists of four staves. The 'Original' staff shows a melody starting on a half note G4, followed by eighth notes A4, B4, and C5, then a quarter note B4, and finally a half note G4. The 'Intervallic 0.25' staff shows a half rest, followed by eighth notes G4 and A4, then a quarter rest, and finally a half note G4. The 'Intervallic 0.5' staff shows a half note G4, followed by quarter notes A4 and B4, then a quarter rest, and finally a half note G4. The 'Intervallic 0.75' staff shows a half note G4, followed by quarter notes A4 and B4, then a quarter rest, and finally a half note G4.

29

Original

Intervallic 0.25

Intervallic 0.5

Intervallic 0.75

This block contains the musical notation for measure 29. It consists of four staves. The 'Original' staff shows a half note G4, followed by a half note A4. The 'Intervallic 0.25' staff shows a half note G4, followed by a half rest. The 'Intervallic 0.5' staff shows a half note G4, followed by a half rest. The 'Intervallic 0.75' staff shows a half note G4, followed by a half rest.

# Ó, Ó, Menino, Ó

Music21

Original

All Euclidean 0.25

All Euclidean 0.5

All Euclidean 0.75

Original

All Cosine 0.25

All Cosine 0.5

All Cosine 0.75

The image displays a musical score for the piece 'Ó, Ó, Menino, Ó'. It consists of two systems of staves. The first system contains four staves: the original melody, followed by three generated versions using the 'All Euclidean' algorithm at similarity levels of 0.25, 0.5, and 0.75. The second system also contains four staves: the original melody, followed by three generated versions using the 'All Cosine' algorithm at similarity levels of 0.25, 0.5, and 0.75. All staves are in 3/2 time and use a treble clef. The original melody is written in G major (one sharp). The generated versions show varying degrees of similarity to the original, with 0.25 being the least similar and 0.75 being the most similar.

8

Original

All Euclidean 0.25

All Euclidean 0.5

All Euclidean 0.75

Original

All Cosine 0.25

All Cosine 0.5

All Cosine 0.75

15

Original

All Euclidean 0.25

All Euclidean 0.5

All Euclidean 0.75

Original

All Cosine 0.25

All Cosine 0.5

All Cosine 0.75

The image displays a musical score with two systems of staves. Each system contains seven staves. The first staff in each system is the 'Original' melody. The subsequent staves show reconstructions using different methods and parameters. The first system uses the 'All Euclidean' method with parameters 0.25, 0.5, and 0.75. The second system uses the 'All Cosine' method with parameters 0.25, 0.5, and 0.75. The notation is in treble clef with a key signature of one sharp (F#). The original melody starts with a whole note C4, followed by a series of eighth and quarter notes, including a sharp sign indicating F#. The reconstructions show varying degrees of approximation to the original melody, with the 0.75 parameter versions being closer to the original than the 0.25 versions.

21

Original

All Euclidean 0.25

All Euclidean 0.5

All Euclidean 0.75

Original

All Cosine 0.25

All Cosine 0.5

All Cosine 0.75

The image displays a musical score with two systems of staves. Each system contains seven staves. The first staff in each system is labeled 'Original' and shows a melody in G major (one sharp) with a treble clef. The melody consists of six measures: G4 (quarter), A4 (quarter), B4 (quarter), C#5 (quarter), B4-A4 (beamed eighth notes), G4 (half), and G4 (half). The subsequent six staves in each system show reconstructions of this melody using different methods and parameters. The 'All Euclidean' section includes parameters 0.25, 0.5, and 0.75. The 'All Cosine' section also includes parameters 0.25, 0.5, and 0.75. The reconstructions vary in their rhythmic and pitch accuracy relative to the original melody. For example, the 'All Euclidean 0.25' reconstruction uses many rests and single notes, while the 'All Cosine 0.75' reconstruction is very close to the original melody.

27

Original

All Euclidean 0.25

All Euclidean 0.5

All Euclidean 0.75

Original

All Cosine 0.25

All Cosine 0.5

All Cosine 0.75

The image displays a musical score with eight staves, each representing a different audio reconstruction method. The staves are grouped into two sets of four. The first set (staves 1-4) compares the 'Original' audio with 'All Euclidean' reconstructions at parameters 0.25, 0.5, and 0.75. The second set (staves 5-8) compares the 'Original' audio with 'All Cosine' reconstructions at the same parameters. Each staff begins with a treble clef and a key signature of one sharp (F#). The music consists of a sequence of notes: a quarter note (G4), a quarter note (A4), a quarter note (B4), a quarter note (C#5), a quarter note (B4), a quarter note (A4), a quarter note (G4), and a dotted half note (F#4). The 'Original' and 'All Euclidean 0.75' staves show the most accurate reconstruction of the original audio, while the 'All Euclidean 0.25' and 'All Cosine 0.25' staves show significant deviations, particularly in the timing and pitch of the notes.