





















```

~/xmlMusicGen -- -zsh
Now playing: ('B2', 'D4')
Now playing: ('B2', 'D4', 'G2')
Now playing: ('D4', 'G2')
Now playing: ('E2', 'E4')
Now playing: ('E4', 'G2')
Now playing: ('E4', 'G2')
Now playing: ('A4', 'C5', 'F2', 'F4')
Now playing: ('A2', 'A4', 'C5', 'F4')
Now playing: ('A4', 'B2', 'C5')
Now playing: ('D3', 'F4')
Now playing: ('C5', 'D3', 'E3', 'E5', 'F4')
Now playing: ('C5', 'E3', 'E5')
Now playing: ('C5', 'E3', 'E5')
Now playing: ('C5', 'E3', 'E5')
Now playing: ('B4', 'D3', 'D5')
Now playing: ('B4', 'D3', 'D5')
Now playing: ('B4', 'D3', 'D5')
Now playing: ('B4', 'D3', 'D5')
Now playing: ('A4', 'C3', 'C5')
Now playing: ('A4', 'B2', 'B4', 'C3', 'C5', 'G4')
Now playing: ('B2', 'B4', 'G4')
Now playing: ('B2', 'B4', 'G4')
Now playing: ('A3', 'B3', 'D4', 'G3')
Now playing: ('B3', 'D4', 'F3', 'G3')
Now playing: ('B3', 'D4', 'F3', 'G3')
Now playing: ('A3', 'B3', 'D4', 'G3')
Now playing: ('A3', 'B3', 'D4', 'G3')
Now playing: ('A3', 'B3', 'D4', 'G3')
Now playing: ('A3', 'B3', 'D4', 'G3')
Now playing: ('B3', 'D4', 'F3', 'G3')
Now playing: ('B3', 'D4', 'F3', 'G3')
Now playing: ('B3', 'D4', 'F3', 'G3')
Now playing: ('B3', 'D4', 'F3', 'G3')
Now playing: ('B3', 'D3', 'D4', 'F3', 'G3')
Now playing: ('B3', 'D3', 'D4', 'G3')
Now playing: ('B3', 'D3', 'D4', 'G3')
Now playing: ('B3', 'D3', 'D4', 'F3', 'G3')
Now playing: ('B3', 'D4', 'F3', 'G3')
Now playing: ('B3', 'D4', 'F3', 'G3')
^CPlayback interrupted by user (Ctrl+C).
Fluidsynth resources cleaned up.
(fooMUSIC) ethansie@Ethans-MacBook-Pro xmlMusicGen % python3
3 matrixMusic.py extracted_mxl/moon.xml
First measure, grid of notes:
Now playing: ('C3', 'E5')
Now playing: ('E3', 'E5')
Now playing: ('E3', 'E5')
Now playing: ('E5', 'G3')
Now playing: ('D3', 'D5', 'G3')
Now playing: ('D3', 'D5')
Now playing: ('D3', 'D5')
Now playing: ('A4', 'C5', 'F2', 'F4')
Now playing: ('A4', 'C3', 'C5', 'F4')
Now playing: ('A4', 'C3', 'C5', 'F4')
Now playing: ('A2', 'A4', 'C3', 'C5', 'F4')
Now playing: ('A4', 'C3', 'C5', 'F4')
Now playing: ('A4', 'C3', 'C5', 'F3', 'F4')
Now playing: ('A4', 'C3', 'C5', 'F4')
^CPlayback interrupted by user (Ctrl+C).
Fluidsynth resources cleaned up.
(fooMUSIC) ethansie@Ethans-MacBook-Pro xmlMusicGen %

```

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readXML.py  xmlGenera...  matrixMusi...  requiremen...  refactored...  db.py  mxlConvert...  musicGen.py  log.txt  debug.py  forgetTest...

import xmlGenerate
import random
import numpy as np
import fluidsynth
import time

matrix = xmlGenerate.getMatrix()
chord_list = xmlGenerate.getChordList()
chord_index = xmlGenerate.getChordIndex()

# MATRIX MANIPULATION
# Higher = more entropy, lower = less change
# Emphasizes/Minimizes the existing row probability vectors
def scale_temperature(matrix, temperature=1.0):
    assert temperature > 0, "Temperature must be positive"
    log_matrix = np.log(matrix + 1e-9) # Avoid log(0)
    scaled = np.exp(log_matrix / temperature)
    scaled = np.maximum(scaled, 0)
    scaled /= scaled.sum(axis=1, keepdims=True)
    return scaled

def inject_noise(matrix, epsilon=0.01):
    noisy = matrix + epsilon * np.random.rand(*matrix.shape)
    noisy /= noisy.sum(axis=1, keepdims=True) # Renormalize rows
    return noisy

matrix = scale_temperature(matrix, 2.5)
# matrix = inject_noise(matrix, 0.001)

# ----- TRAJECTORY THROUGH THE ROW STOCHASTIC MATRIX -----
initial = random.choice(chord_list)
generated = [initial]

for _ in range(1000):
    i = chord_index[initial]
    probs = matrix[i]
    j = np.random.choice(len(chord_list), p=probs)

```

matrixMusic.py 107/45

LF UTF-8 Python main Fetch GitHub Git (1)

**Moon River  
(high temp)**