

Here we explain the meaning of each parameter in the configuration file config.py, so that you can modify it more clearly.

We will try to cover all the current parameters, but we will focus on the more important ones.

screen\_size: screen size (width, height)

background\_image: background image file path

background\_size: the size of the background image

piano\_image: piano image file path

piano\_size: piano image size

message\_color: font color for chord display, formatted as (R, G, B, A)

fonts\_size: font size

label1\_place: text position of the currently played note name

label2\_place: text position of the chord name

label3\_place: text position of the status of the midi file being played

label\_anchor\_x: horizontal alignment of the text

label\_anchor\_y: vertical alignment of the text

fonts: font name

bold: whether to bold the text

notes\_image: the path to the image of the notes in note point mode

notes\_resize\_num: the scaling size of the note points

go\_back\_image: Returns the button's image file path

go\_back\_place: Returns the image location of the button

self\_play\_image: the image file path of the computer keyboard's play button

self\_play\_place: The location of the computer keyboard play button image

self\_midi\_image: the image file path of the midi keyboard play button

self\_midi\_place: The location of the midi keyboard play button image

play\_midi\_image: the image file path of the play midi file button

play\_midi\_place: the image location of the play midi file button

key\_settings: The dictionary for the 88 keys of your computer keyboard. Please note that all the files in the sound path must contain the keys you have set to

reverse\_key\_settings: dictionary of the 88 keys for the computer keyboard

mode: This is what I used to set before I wrote the UI of this software, whether it was a computer keyboard, a midi keyboard or a midi file, but now this parameter is not used 2333

self\_device: It is also used to set the computer keyboard or midi keyboard before writing the UI, but now it is not used

midi\_device\_id: This parameter is to access the midi device (such as midi keyboard), midi device corresponding to the id, generally speaking, only access to the midi keyboard, not open the arranger software

It is 1 when only the midi keyboard is plugged in, 2 when the sequencer software and loopMIDI are on, and 1 when only the sequencer software and loopMIDI are on without the midi keyboard.

The following are the keyboard shortcut settings for playing midi files

pause\_key: the key to pause

repeat\_key: key to repeat playback

unpause\_key: key to continue (while paused)

exit\_key: key to exit the program

pause\_key\_clear\_notes: whether to clear the display of all notes currently playing when paused

show\_key: whether or not to show the names of the computer keyboard keys when playing on the computer keyboard

musicsheet: This parameter is also used when the UI is not written yet, when playing midi files, this parameter can put the musicpy language code, the program will play automatically, now

This parameter is also not used anymore

path: This is also the parameter used to set the path of the midi file, but now that the UI can select the file, this parameter is useless.

These two parameters are used to set the position of the track where the midi file is to be played

track\_ind

track

bpm: the parameter used to set the speed of the track (BPM), but now that I have written the UI, this parameter is useless

play\_interval: used to set a certain part of the track to play, now I wrote the UI and it's useless

#The next few are pygame's audio initialization parameters, which basically don't need to be moved. The larger the maximum\_channels, the less problems will occur when playing multiple notes at the same time

frequency = 44100

size = -16

channel = 1

buffer = 1024

maximum\_channels: the maximum number of channels to play notes

global\_volume: the total volume, maximum is 1, minimum is 0

delay: whether to give a certain delay after playing a note

delay\_time: the delay time (in seconds)

touch\_interval: the interval in seconds between the end of a tone and its replay when the same tone is played continuously

delay\_only\_read\_current: when the tone is played while delayed (the tone is not pressed)

The chord judgment does not include these tones that are still delayed, only the ones that are currently being pressed

sound\_format: the file format of the sound source (file extension)

sound\_path: the file path of the sound source

show\_delay\_time: the delay time of the notes when playing the midi file

These are the parameters of the musical logic algorithm for chord determination, and the default settings are the most widely applicable, if I want to explain what they mean.

If I were to explain what they mean, I'd probably need to understand my algorithm first, so I'll explain this part later when I introduce the algorithm

`detect_mode = 'chord'`

`inv_num = False`

`rootpitch = 5`

`change_from_first = True`

`original_first = True`

`same_note_special = False`

`whole_detect = True`

`return_from_chord = False`

`two_show_interval = True`

`poly_chord_first = False` (When this parameter is set to True, the

(When this parameter is set to True, it will be used as a compound chord for music theory in advance in case of very complex chords, and the chord judgment will be much faster)

`show_change_pitch`: Up or down modulation of the whole song when playing midi files (positive n is up by n semitones, negative n is down by n semitones)

`show_modulation = [original_scale, transposed_scale]` Transpose the whole song when playing a midi file

`config_enable`: whether to enable function keys when playing on computer keyboard

config\_key: The key position of the function keys, which can be used with other keys for different functions

volume\_up: The key that is used with the function keys to raise the total volume

volume\_down: the key that is used with the function key to lower the volume

volume\_change\_unit: the volume of the total volume that changes each time

change\_delay: The key used with the function key to change the delay or not

change\_read\_current: The key used with the function key to change whether only the currently pressed chord is judged

change\_pause\_key\_clear\_notes: key used with a function key to change whether the display of the currently played note is cleared when paused

note\_place: The position of all keys on the piano from left to right in note point mode

load\_sound: whether to load the sound source and play it when playing (set to False when using with the host)

show\_chord: whether the chord is analyzed in real time by the music logic

These are the names of the intervals and the corresponding chromatic numbers

perfect\_unison = 0

minor\_second = 1

augmented\_unison = 1

major\_second = 2

diminished\_third = 2

minor\_third = 3

augmented\_second = 3

major\_third = 4

diminished\_fourth = 4

perfect\_fourth = 5

augmented\_third = 5

diminished\_fifth = 6

augmented\_fourth = 6

perfect\_fifth = 7

diminished\_sixth = 7

minor\_sixth = 8

augmented\_fifth = 8

major\_sixth = 9

diminished\_seventh = 9

minor\_seventh = 10

augmented\_sixth = 10

major\_seventh = 11

diminished\_octave = 11

perfect\_octave = 12

octave = 12

augmented\_seventh = 12

These are the parameters of the algorithm I wrote to separate the major melodies of a tune

melody\_tol = minor\_seventh

chord\_tol = major\_sixth

These are some parameters in note bar mode

note\_mode: selects the note display mode, currently there are three modes available: note point and note bar (ascending) and note bar (descending, only available in midi file mode).

The corresponding modes are 'dots' and 'bars' and 'bars drop' respectively.

bar\_width: the width of the note bar

bar\_height: the length of the note bar

bar\_color: the color of the bar

bar\_y: the vertical coordinate of the bar

bar\_offset\_x: the pixel value of the horizontal coordinate of the note bar that deviates from the note point position

bar\_opacity: the transparency of the note bar, from 0 to 255, from fully transparent to fully opaque



opacity\_change\_by\_velocity: if or not the transparency changes with keystroke force.

The lighter the keypress, the more transparent the note bar is, the heavier the keypress, the more opaque the note bar is

color\_mode: the color mode of the note bar, currently there are two modes to choose from, monochrome and random.

These correspond to 'normal' and 'rainbow' respectively (in fact, you can fill in other text that is not normal)

bar\_steps: the number of pixels the note bar moves up each time

bar\_unit: the length of the note bar in units for calculating the relative length when playing midi files

bar\_hold\_increase: The number of pixels that the note bar lengthens each time a key is held down (or a computer key is held down)

bars\_drop\_interval: in note bar (drop) mode, how long it takes for the bar to drop from the top of the screen to the specified position, in seconds

bars\_drop\_place: the specified position (height) that the note bar will drop to in note drop mode

adjust\_ratio: A parameter that adjusts the accuracy of the bar drop to the specified position, generally not needed

Other parameters

get\_off\_drums: If True, in midi file playback mode, if you choose to merge all tracks, the drum tracks will be removed after the midi file is read, (if any) to avoid demo chords being scrambled by drum notes.

sort\_invisible: if True, the sorting will not be shown in the demo chords (e.g. "Fmaj7 sort as [2,3,1,4]" will become "Fmaj7")

`play_as_midi`: Play the midi file without loading the source, and play the midi file directly inside the software (with the source that comes with the midi), the advantage is that midi files with more notes load much faster, and the playback will not lag when there are many notes playing at the same time and the chord type is complex. Set to True to enter this mode.

`draw_piano_keys`: set to True to enter the draw piano mode, (according to the parameters and the structure of the piano 88 keys to draw the piano keyboard, replacing the previous piano picture) In the draw piano mode, the corresponding keys will light up when the midi keyboard is played or the computer keyboard is played, including when the midi file is played in drop note mode, the notes will also light up when they land on the keys . The piano is drawn directly according to the structure of the piano's 88 keys, and the black and white keys are drawn according to settable parameters, and the color of each key can be changed. Underneath the drawing of the 88 keys there is a black background image, which is mainly used to show the gaps between the piano keys (for filling). You can turn off note mode (`note_mode` can be set to a value other than dots, bars, bars drop) and just turn on draw piano mode, the corresponding piano key will be lit up when playing and the current note will be lit up when playing the midi file. It is also possible to use any of the note modes and turn on draw piano mode.

`white_key_width`: the width of the piano's white keys (horizontal length)

`white_key_height`: the height of the piano's white keys (vertical length)

`white_key_interval`: the distance between every two white keys of the piano

`white_key_y`: height position of the white keys of the piano

`white_keys_number`: the number of white keys of the piano

`white_key_start_x`: the horizontal position of the first white key of the piano

`white_key_color`: the color of the piano's white keys

`black_key_width`: the width (horizontal length) of the piano's black keys

`black_key_height`: the height of the piano's black key (vertical length)

`black_key_y`: the height position of the piano's black key

`black_key_first_x`: horizontal position of the first black key of the piano

`black_key_start_x`: horizontal position of the second black key of the piano

`black_key_color`: the color of the piano's black keys

`black_keys_set`: the relative interval between each black key in each group, except for the first black key, which is set individually, in groups of 5 (the first interval is usually 0, which means that the first black key starts from the leftmost relative position in the current group)

`black_keys_set_interval`: the interval between every two black keysets

`black_keys_set_num`: the number of black keysets

`piano_background_image`: the background image under the piano (for filling the gap)

Ideal Piano can read a text file with a composition analysis in a specific format, showing the transposition, subordinate chords, borrowed chords, etc. in the demo midi file mode according to the current bar, writing a composition analysis txt file and displaying the corresponding composition analysis in the current bar in real time. The default file is musical analysis.txt.

The format of the composition analysis file is

Number of bars1

Composition analysis content1

Number of bars 2

Composition analysis content 2

Number of bars 3

Composition Analysis 3

...

The number of bars here starts with bar 1, and the number of bars is a number, either an integer or a decimal. The composition analysis content is the content you want to display when you reach the specified number of bars. The software will parse the composition analysis file format and find the position of the first note up to the current number of bars, and then display the corresponding composition content when it reaches the corresponding note position during the demo.

Currently, in addition to this format, it also supports displaying the tonicity, so that you can display the current tonicity at any position, and if the tune has a transposition, you can write the tonicity statement before the beginning bar of the transposition. The syntax is (here is an example)

key: Tone 1 (you can write anything you want here, such as A major, A major, etc.)

Number of bars 1

Composition analysis content 1

Number of bars 2

Composition analysis content 2

Number of bars 3

Composition analysis 3

key: key 2 (you can write a new key when the tune is transposed)

Number of bars n

Composition analysis content n

Number of bars x

Composition analysis content x

Number of bars y

Composition analysis content y

...

(The phrase indicating the tonality must be separated from the measure statement by one line, and a measure statement must be adjacent to the corresponding composition analysis statement on the top and bottom of the line, together called a measure block. (Multiple lines can be written within a composition analysis statement, but there must not be a completely empty line in between))

(The number of bars supports both absolute bar position and relative bar position syntax, absolute bar position is a number, which can be an integer or a decimal, relative bar position syntax is + relative bar length, for example, +1 means the position of the next bar relative to the previous position, +1/2 means the position of the next one-half bar relative to the previous position, relative bar position supports integers, decimals and fractions.)

In order to be able to quickly enter a large number of compositional analysis statements, especially when analyzing a piece with complex chord progressions, I myself generally write the latest 4-5 chords and divide them into 4-5 bar blocks, putting an arrow in front of the chord when each bar block is played to one of the chords, with different compositional techniques explained below according to the actual situation, such as +1

Emaj9(omit 3) | D#m7 | DM7 | → C#11(omit 3)

IVM9            iii7           bIIIM7    V11 (F# major)

You can use the editor from [music analysis batch language](#), generate music analysis sentences using the batch syntax provided in README.

Using this batch syntax I have designed, you can input a large amount of music analysis contents very quickly and concisely, and the syntax itself is very comfortable for non-programmers. You can also use this special batch statement as a small programming language to write chord function analysis, which I think is still very good :D

Related parameters:

show\_music\_analysis: whether to turn on the display of the composition analysis content

music\_analysis\_file: the file path of the composition analysis file to be read

music\_analysis\_place: set the position of the composition content to be displayed

key\_header: the beginning of the tune (this parameter shows the beginning of the tune, e.g. "current tune:")

music\_analysis\_width: the width of the music analysis text label

music\_analysis\_fonts\_size: the font size of the music analysis text

The color of the note bar can also be assigned differently depending on the track and instrument.

Related parameters.

use\_track\_colors: whether to use different colors for different tracks and instruments

tracks\_colors: A list of colors for different tracks and instruments, RGB parameter

use\_default\_tracks\_colors: whether to use the colors of the set tracks, or use randomly generated colors for different tracks

pitch\_range: a tuple of 2 strings which represent pitch, when reading MIDI files, filter the notes which pitch is between these 2 pitches, in order to avoid the pitch of notes exceed the pitch range set by the piano.

use\_soundfont: whether to use SoundFont files to play MIDI file or not

sf2\_path: the file path of the SoundFont files