VMO-Score Documentation

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VMO_Score package

VMO_Score.segmentation (page 3)	Module implementing the segmentation of an audio file using the package VMO.
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VMO_Score.utils (page 7)	Module implementing some useful methods.

VMO_Score.segmentation

Module implementing the segmentation of an audio file using the package VMO.

Classes

Region (page 3)(min, max)	
Section (page 3)	Class representing a section of the segmentation
Segmentation (page 3)(audio_path)	Class representing a segmentation

class `VMO_Score.segmentation.`**`Region`**(*min*, *max*)

max
Alias for field number 1

min
Alias for field number 0

class `VMO_Score.segmentation.`**`Section`**
Class representing a section of the segmentation

class `VMO_Score.segmentation.`**`Segmentation`**(*audio_path*)

Class representing a segmentation

`generate`(*audio_path*, *sr=44100*, *hop_length=512*)

Segmentation of an audio recording using the Constant Q Transform (CQT)

Parameters

- **`audio_path`** (*str*) – A string representing the path of the audio file
- **`sr`** (*int*) – Sampling rate (default: 44100)
- **`hop_length`** (*int*) – Number of samples between successive CQT columns
- **`(default`** –

512.

`oracle`

VMO Oracle generated with the segmentation.

Returns Oracle

Return type VMO

`output_png`(*filename*)

Generate a PNG file of the segmentation

Parameters **`filename`** (*str*) – A string representing the path of the generated file

`save_oracle`(*filename*)

Save the oracle to disk

Parameters **`filename`** (*str*) – Filename to write the oracle

`segmentation`

List of sections generated by the segmentation.

Returns [Section]

VMO_Score.petri_net

Module implementing the methods for the construction of a petri net from a segmentation analysis.

Classes

PetriNet (page 5)([s, pnml])	Class that represents a Petri Net

Exceptions

ExpressionError (page 5)(arg)	Class representing an error raised during the conversion to Expressions.

exception `VMO_Score.petri_net.`**`ExpressionError`**(*arg*)

Class representing an error raised during the conversion to Expressions.

`args`

str – String representing the information of the error.

class `VMO_Score.petri_net.`**`PetriNet`**(*s=None*, *pnml=None*)

Class that represents a Petri Net

`data`

Dictionary representing the regions belonging to each place.

Returns Dictionary where keys are petri net places and values are their segmentation regions

Return type dict

`final_place`

Returns the final place of the Petri Net.

Returns id of the final place

Return type str

`from_pnml`(*filepath*)

Load a Petri Net from a PNML file

Parameters **`filepath`** (*str*) – Path of the PNML file

`from_segmentation`(*segmentation*)

Build a Petri Net representing the segmentation of an audio file.

Parameters **`segmentation`** (`Segmentation` (page 3)) – Segmentation

`initial_place`

Returns the initial place of the Petri Net

Returns id of the initial place

Return type str

`output_png`(*filename*)

Save the Petri Net as a PNG file

Parameters **`filename`** (*str*) – String representing the path of the output file

`pn`

Object representing the Petri Net model.

Returns the Petri net

Return type *PetriNet* (page 5)

`print_transitions`()

Print the information of the transitions of a Petri Net

Print the name, the minimum and maximum duration and the current time of all transitions of a Petri Net

`to_json`(*filename*)

Save the Petri Net to a json file readily by i-score

Parameters **`filename`** (*str*) – String representing the output file

to_pnml (*filename*)
Save the Petri Net as a PNML file

Parameters **filename** (*str*) – String representing the path of the output file

update_from_config (*filename*)
Update a Petri Net with a configuration file

Read a configuration file and update the transition parameters with the values specifies on it.

Parameters **filename** (*str*) – String representing the path of the configuration file

update_transition (*t_name*, *new_min*, *new_max*, *new_guard*)
Update a timed transition of a Petri Net

Update a timed transition with new minimum and maximum durations and a guard.

Parameters

- **t_name** (*str*) – Name of the transition to be changed
- **new_min** (*float*) – Minimum duration of the transition
- **new_max** (*float*) – Maximum duration of the transition
- **new_guard** (*Expression*) – Condition of the transition

VMO_Score.improviser

Module implementing methods for the off-line improvisation with an existing Petri net

Classes

Improviser (page 6)(pn, path_conf)	Class representing the off-line improviser
defaultdict	defaultdict(default_factory[, ...]) –> dict with default factory

class VMO_Score.improviser.**Improviser** (*pn*, *path_conf*)
Class representing the off-line improviser

add_action (*addr*, *value*)
Add a user action to the Petri Net.

Add a new token to the place that represents the actions sent by the environment,

Parameters

- **addr** (*str*) – String representing the OSC address of the message
- **value** (*str*) – String representing the OSC value of the message

current_time
float – the amount of time that has elapsed

delete_action (*addr*, *value*)
Remove a user action from the Petri Net

Remove a token from the place that represents the actions sent by the environment.

Parameters

- **addr** (*str*) – String representing the OSC address of the message
- **value** (*str*) – String representing the OSC value of the message

fire_transition(*t_name*)

Fire a transition

Take randomly a mode of an enabled transition and fire it

Parameters **t_name** (*str*) – Name of the transition to be fired

get_enabled_transitions()

Enabled transitions

Return a list of enabled transitions with the current marking

is_final_marking()

Return if the current state of the Petri Net is a final state

Returns The Petri Net is in a final state

Return type bool

make_step()

Make a step in a Petri Net

Take a logical step in the Petri Net. That is, an enabled transition is taken randomly and then it is fired.

next_time_unit()

Increment the global clock and the transition time by one time-unit

pn

PetriNet – the Petri net for improvisation

restart()

Restart to the initial marking of the Petri Net

VMO_Score.utils

Module implementing some useful methods.

Functions

generate_configuration (page 7)(filepath, pn)	Generate a configuration file for the Petri Net.
load_configuration (page 8)(filepath)	Load a configuration file.
load_shelve (page 8)(filepath, field)	Load a file into an object.
save_shelf (page 8)(filepath, field, obj)	Save an object into a file.

VMO_Score.utils.**generate_configuration**(*filepath*, *pn*)

Generate a configuration file for the Petri Net.

Parameters

- **filepath** (*str*) – String representing the path of the output
- **pn** (PetriNet (page 5)) – A Petri Net

VMO_Score.utils.**load_configuration**(*filepath*)

Load a configuration file.

Parameters **filepath** – String representing the path of the configuration file

Returns Dictionary representing the configuration file

Return type dict

VMO_Score.utils.**load_shelve**(*filepath*, *field*)

Load a file into an object.

Parameters

- **filepath** (*str*) – String representing the path of the file
- **field** (*str*) – identifier of the object

Returns Dictionary representing the object

Return type dict

VMO_Score.utils.**save_shelf**(*filepath*, *field*, *obj*)

Save an object into a file.

Parameters

- **filepath** (*str*) – Path of the file
- **field** (*str*) – Id of the object in the file
- **obj** (*object*) – Object to be saved

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