

The i-score interactive sequencer

an intermedia sequencer for interactive scenarios authoring

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LaBRI, Blue Yeti, GMEA

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The problem

- ▶ A lot of tools for entirely fixed temporal content
→ traditional song-making.
- ▶ A lot of tools for fully interactive content
→ artistic installations.
- ▶ What goes in between ?

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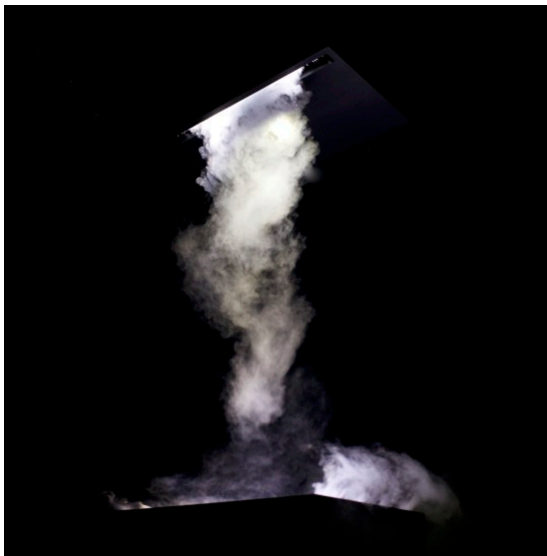
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→ traditional song-making.
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Futuroscope, France : the Sprinter



Credits : Blue Yeti

Tumbleweed



Credits : Les Baltazars

The software

The screenshot displays a software interface for creating and managing curves and automations. The interface is divided into several panels:

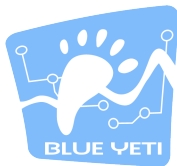
- Top Panel:** Contains menu items (File, Edit, Object, Play, Tool, View, Settings, About) and a toolbar with buttons for Interpolate states, Select and Move, Create, Move Slot, Sequence, Scale, Grow/Shrink, Keep Duration, Create Curves, and Undo Move a comment block.
- Left Panel (Devices):** A list of devices and their parameters. The 'OScDevice' is selected, showing parameters like 'focus', 'master', 'still', 'flash', 'imColor', 'soundOutLevel', 'trackLevel', 'soundLevelCapture', 'imColorG', 'imColorR', 'addColorB', 'addColorG', 'addColorR', 'backgroundColorB', 'backgroundColorG', 'backgroundColorR', 'alpha', 'scale', 'speed', 'TimeRecPosition', 'layerSetGroupB', 'layerSetGroupA', 'crossfader', 'layer', 'mediaSet', 'media', 'auto', 'transformer', 'on', 'type', 'particle', 'patch', 'thickness', 'subdivT', 'subdivX', 'soundInput...', 'dimapinAlp...', 'colorOn', 'soundInput...', 'resetLevel', 'dimappingL...', 'FillMode', 'shapeType', 'matrix', 'RipX/Y/Z', 'RipX/Y/Z', 'extrusionL...', 'depthScale', and 'depthScale'.
- Center Panel (demo):** A timeline view showing a sequence of events. A blue line represents a curve, and a red line represents a loop. Annotations include: 'This will trigger when a condition on remote parameters become true', 'Various elements can rejoin themselves', 'The full dots will send a cue (a list of OSC messages)', 'Boolean condition on remote parameters', 'A curve', 'Other curves', 'In sequence', 'Automation.1', 'top.8: OSCdevice/master', '3: OSCdevice/masde', 'A loop', and 'Loop pattern'.
- Right Panel (Inspector):** A panel for editing the selected object. It includes a 'Constraint' section, a 'Name' field (Other curves), a 'Label' field, a 'Full view' section with 'Start State' and 'End State' buttons, a 'Durations' section with 'Default Duration' (0.00 06.809) and 'Loop content' checkbox, a 'Processes' section with 'Add Process' button, a 'Processes' list (Automation.1, Automation.2, Automation.3, Automation.4, Automation.5), and a 'Display in new Slot' button.

Contributors, Companies, Agencies involved



LaBRI

www.labri.fr



Blue Yeti

www.blueyeti.fr



GMEA

www.gmea.net

le **cnam**

CNAM :

CEDRIC, ENJMIN

cedric.cnam.fr



ISTS

ists-avignon.com

ENSATT

ÉCOLE NATIONALE SUPÉRIEURE DES ARTS ET TECHNIQUES DU THÉÂTRE

ENSATT

ensatt.fr

Artists: Les Baltazars, Renaud Rubiano, Antoine Villeret...

What i-score is :

- ▶ A visual **programming language**
→ Conditions, loops, structuring, in a timeline
- ▶ Free software : **GPL v3** (UI) & LGPL v2.1 (Engine)
- ▶ Built in **C++** (Qt, CMake)
- ▶ Available on Linux / OS X / Windows
- ▶ Alpha-quality ☹

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What i-score is not :

- ▶ PureData (yet)
- ▶ Ableton Live (yet)
- ▶ Bug-free (yet ! 😊)

Does not operate on its own !

- ▶ It's a control center

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File Edit Object Play Tool View Settings About

Select and Release Create View Slot Sequence Scale Group/Link Keep Deviation: 1

Devices: **boids_choreography**

Timeline: 0:00.0 0:05.0 0:10.0 0:15.0 0:20.0 0:25.0 0:30.0 0:35.0 0:40.0 0:45.0 0:50.0 0:55.0 1:00.0 1:05.0 1:10.0 1:15.0 1:20.0 1:25.0 1:30.0 1:35.0 1:40.0 1:45.0 1:50.0 1:55.0

boids_choreography /

wait for a mouse click into Processing render window

loop until the flock size reaches 300 boids

Boid creation

wait for a low flock deviation to set cohesion to 0.5

increase cohesion

let the flock to spread all over the screen during 25 s

then reduce the distance between boids...

follow the mouse

mapping script

... and wait at least 10 s to start to follow the mouse while the click is not released

Automation 1: ProcessingRenderWindow

```

deviation: 1,000
alignement: 1,000
coll-mover: 1,000
dis-thr: 50,000
dis-thr: 70,000

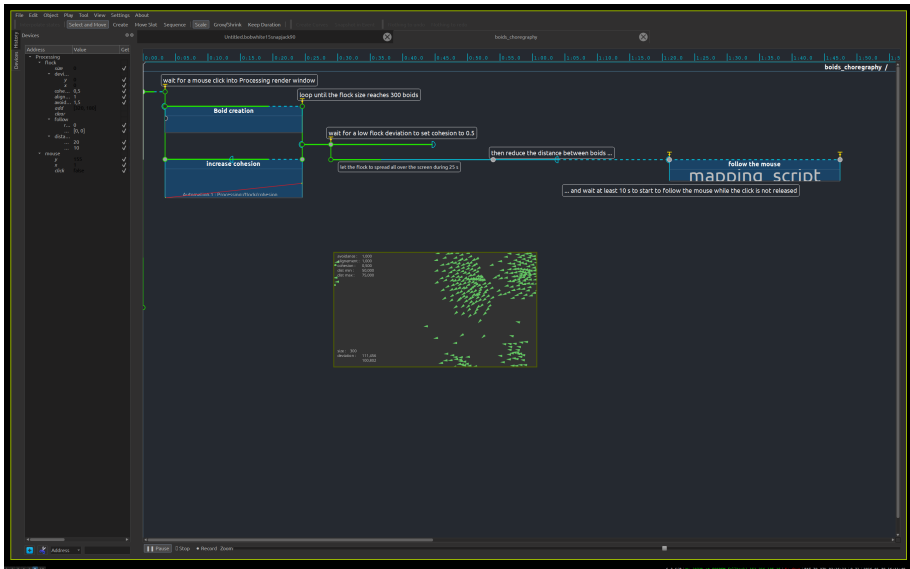
size: 0
deviation: 0,000

```

Play Step Record Zoom

9 / 20





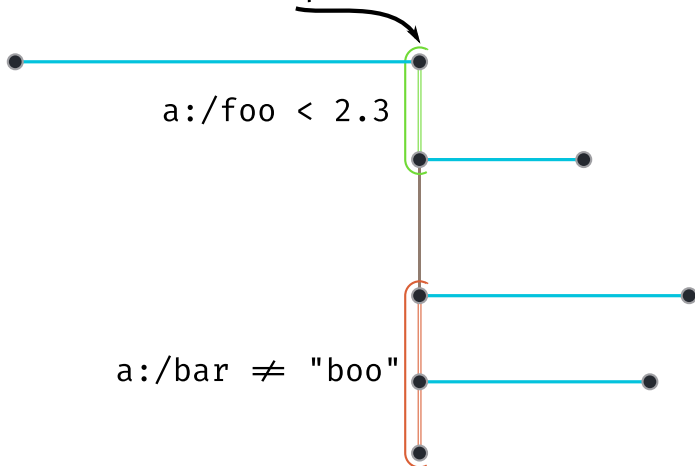
Inter-operability

- ▶ Compatible environments :
Max/MSP, **PureData**, Unity3D, **OpenFrameworks**,
Processing, **Jamoma**, Modul8, Millumin, Quartz
Composer, **Qt**...
- ▶ Anything that communicates over **OSC**.
- ▶ Extensibility via **plug-ins***

*API not stable until v 2.0

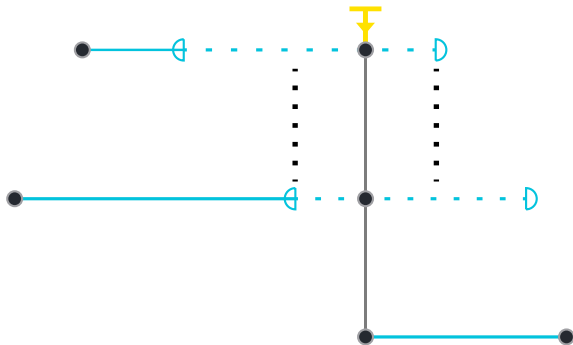
Conditions

Evaluated at this point in time

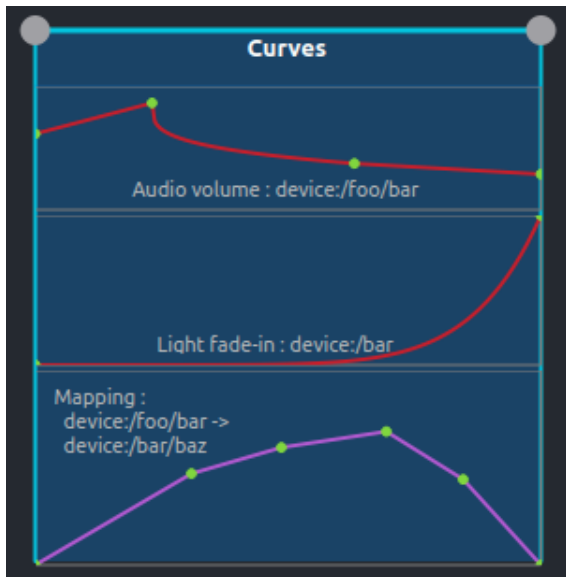


Triggering

Video:/pony/best = "Fluttershy"



Automations, mappings



Various kinds of curves

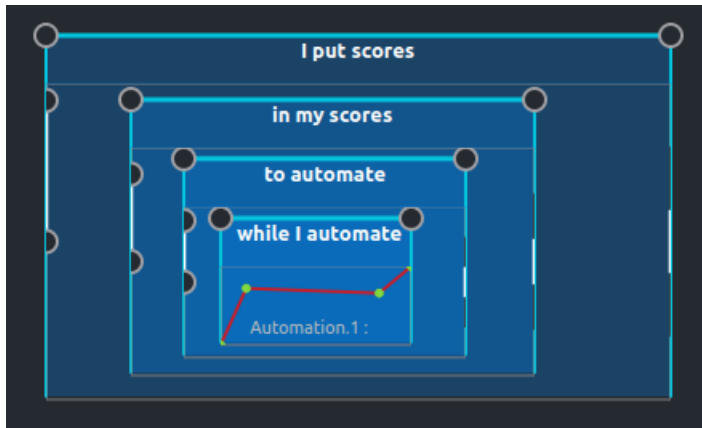
JavaScript

```
function(t) {  
    var obj = new Object;  
    obj["address"] = 'dev:/foo/bar';  
    obj["value"] = t + iscore.value('other:/baz');  
    return [ obj ];  
}
```

Will get called at each tick

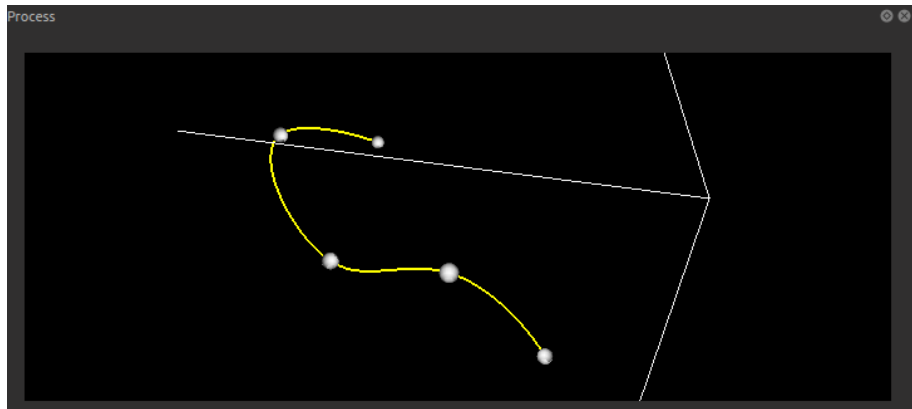
- ▶ Uses Qt's QJSEngine.
- ▶ For now API with a single function : fetch a remote value.

Hierarchy



Scenarios can be **nested** arbitrarily

WIP : Spatial automations



- ▶ **3d splines** that uses VTK. Can be used to create paths in space for instance.
- ▶ **Spatial mappings** to compute collisions, distances, etc. and performs actions according to the result of such computations.

Future : distribution ?

- ▶ Currently : multiple instances can work together at the editing stage.
- ▶ In progress : distributed execution.
- ▶ Example scenarios :
 - ▶ 100 phones controlling a parameter together.
 - ▶ Live backups if a computer dies during performance.
 - ▶ Offloading due to performance requirements.

Future : other features

- ▶ **MIDI, WebSockets** support
- ▶ Some level of **patching**, like Pd
- ▶ Complete **remote-control** abilities.
Currently : execution can be followed via a web page.
- ▶ Port execution engine to **FPGA**.
- ▶ Audio engine ?

Contributing

- ▶ **UX, UI** (mock-ups were done but not entirely implemented)
- ▶ **Documentation**, writing demo scenarios
- ▶ **Translations**
- ▶ Implement the **Minuit** protocol in your software with the OSSIA API
- ▶ Many "low-hanging fruit" TODOs
- ▶ Mobile devices ports :
 - ▶ **Android** : builds and run but requires adapted UI.
 - ▶ **Web port** : with PNaCl, runs but crashes. Will open the way to WebAssembly.
 - ▶ **iDevices** (many artists use them).

Links

- ▶ **Grab a release !**

`github.com/OSSIA/i-score/releases`

- ▶ **Protocols and implementations :**

`github.com/OSSIA`

- ▶ **Official website (not up-to-date) :**

`i-score.org`

Thanks ! Questions ?

Credits: 'simple' Beamer theme, Facundo Muñoz; Fira font