Immersive experiences:

what Pharo users do!

http://stephane.ducasse.free.fr
http://www.pharo.org
http://consortium.pharo.org

Berger Levrault

Inria
INVENTEURS DU MONDE NUMÉRIQUE

Lifeware

ENSTA Bretagne

THALES

ZWEIDENKER

Yesplan
Let's make it happen

Lam RESEARCH

esug
EUROPEAN SMALLTALK USER GROUP

GEMTALK SYSTEMS

SPESENFUCHS

projector software

feenk

netstyle.ch

osoco
osoco software company

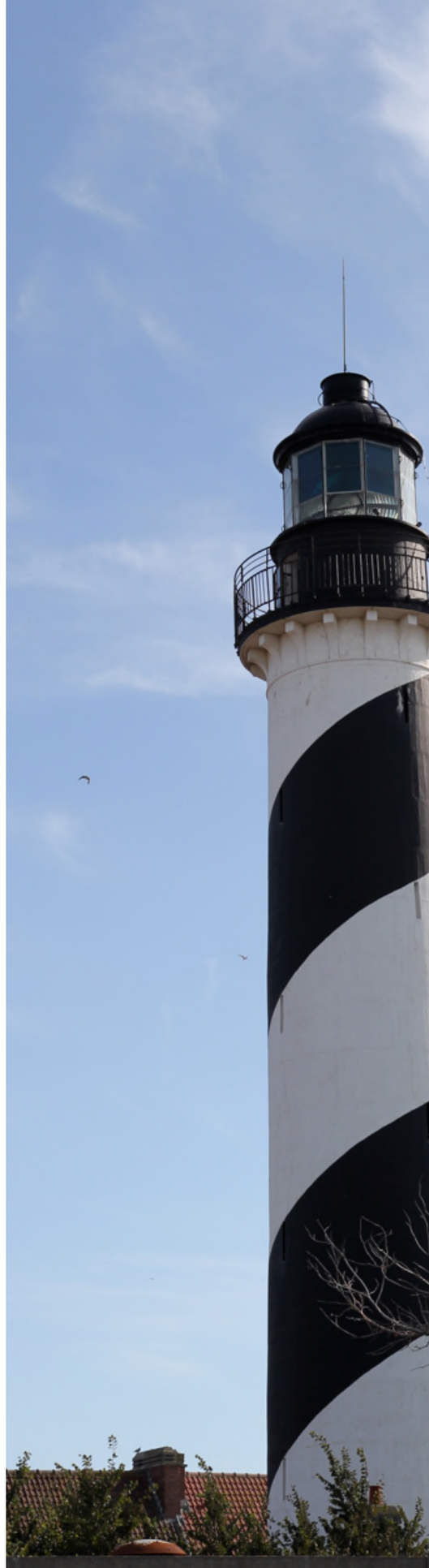
inspired!

SRA GROUP

telna

Université de Lille

FINWORKS
INFORMATION TECHNOLOGY SOLUTIONS



Thanks
for all your ideas,
projects, and energy

Collected from YouTube and Github

Platforms

https://github.com/polymathorg

PolyMathOrg

Overview | Repositories 7 | Projects 1 | Packages | Teams 1 | People 7 | Insights | Settings

PolyMath Organization

Pinned

Customize pins

PolyMath Public
Scientific Computing with Pharo
Smalltalk ☆ 170 40

DataFrame Public
DataFrame in Pharo - tabular data structures for data analysis
Smalltalk ☆ 77 28

Repositories

Find a repository... | Type | Language | Sort | New

DataFrame Public
DataFrame in Pharo - tabular data structures for data analysis
Smalltalk ☆ 77 MIT 28 34 3 Updated on Feb 19

PolyMath Public
Scientific Computing with Pharo
Smalltalk ☆ 170 MIT 40 56 0 Updated on Jun 9, 2024

random-numbers Public
Project to provide different random number generators for the Pharo programming language
Smalltalk ☆ 0 MIT 1 5 0 Updated on Jun 1, 2023

ČVUT ČESKÉ VYSOKÉ UČENÍ TECHNICKÉ V PRAZE

FAKULTA INFORMAČNÍCH TECHNOLOGIÍ ČVUT V PRAZE

CENTRE FOR CONCEPTUAL MODELLING AND IMPLEMENTATION

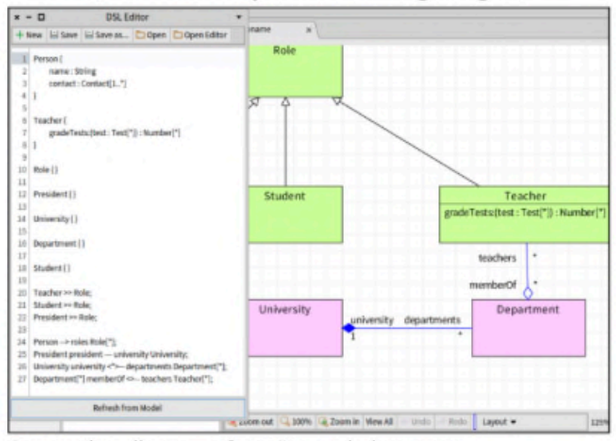
Pharo

OpenPonk

Modelling Platform

Conceptual modeling platform for teaching, research, industry

DSL Support
(domain specific language)

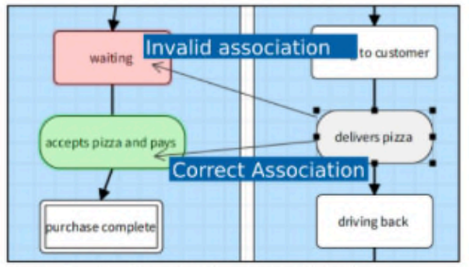


Generating diagrams for DSLs and vice versa
Some DSLs are part of OpenPonk,
but you can create your own.

OpenPonk goals

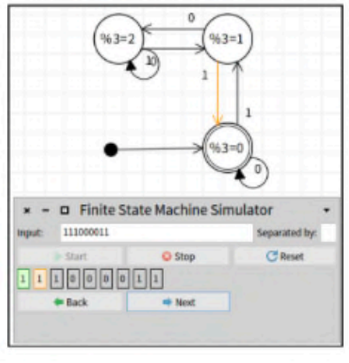
- Intuitive creation and interaction with models
- Support for existing and custom notations
- Extensibility for custom scenarios
- Open platform (MIT license)

Model validations



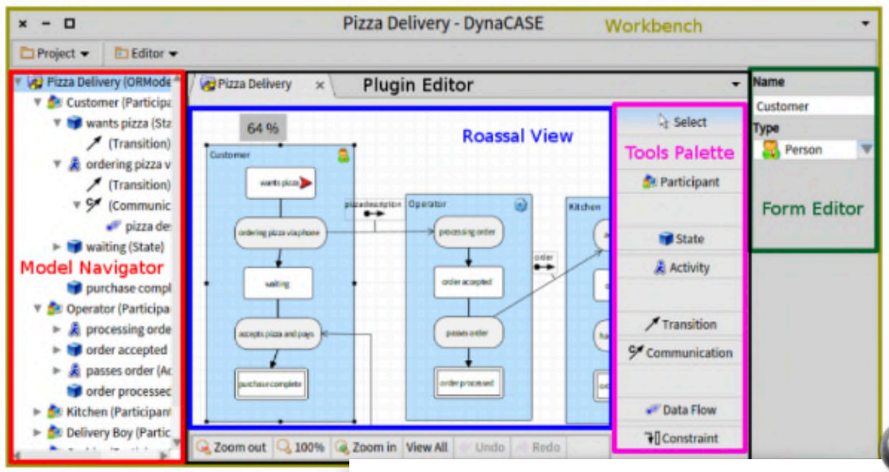
OpenPonk offers basic rule validation
during the creation process.
Complex validations are available for some notations.

Simulation and Visualization

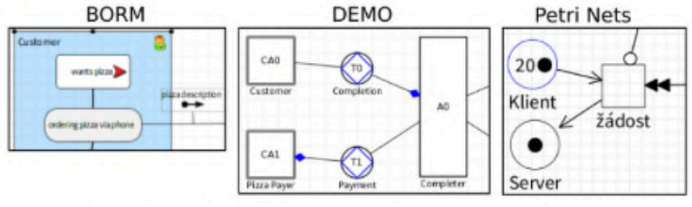


Step-by-step model simulation
and progress visualization.

Petri nets and State Automata
simulation is available.

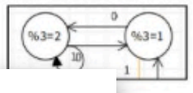


Support for common and custom notations



UML class diagrams and
structural OntoUML

Finite State Automata



notation

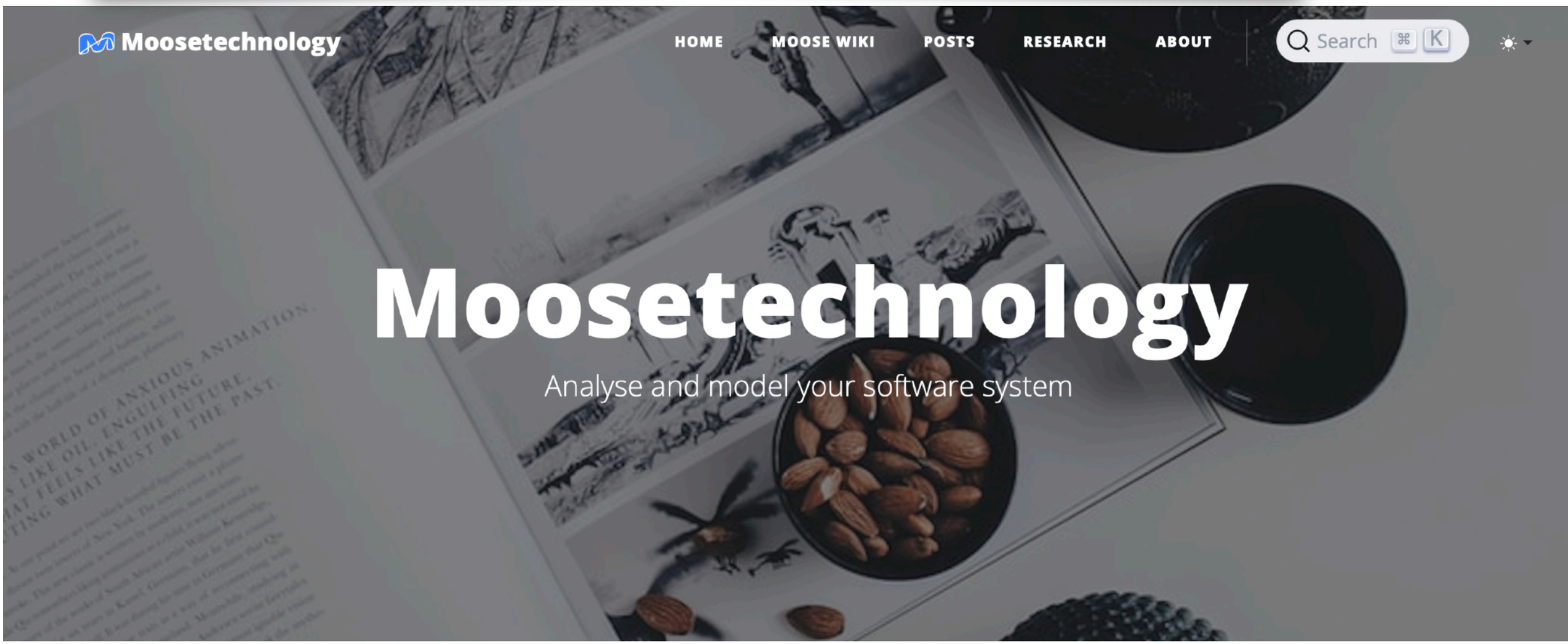
https://openponk.org/

openponk.org

If you are interested

t.cvut.cz

Sophisticated software analysis platform



Moose is a platform for software analysis.

It allows to re esent software system in a model, to query, manipulate, transform, visualize

r BSD/MIT.

https://modularmoose.org/

Cormas
Ressources naturelles et simulations multi-agents
Cirad • Web des SAVOIRS

https://cormas.cirad.fr/

Démarche Logiciel Applications Bibliographie Formation Réseaux Modèles

Bienvenue sur le site de Cormas

CORMAS = COmmon-pool Resources and Multi- Agent Simulations

Cormas est une plateforme de modélisation multi-agent (ABM) dédiée à la modélisation des relations entre les sociétés et leur environnement.

Cormas est destinée à faciliter la conception d'ABM, ainsi que le suivi et l'analyse des simulations. La plateforme est basée sur l'environnement de programmation VisualWorks qui permet de développer des modèles en Smalltalk.

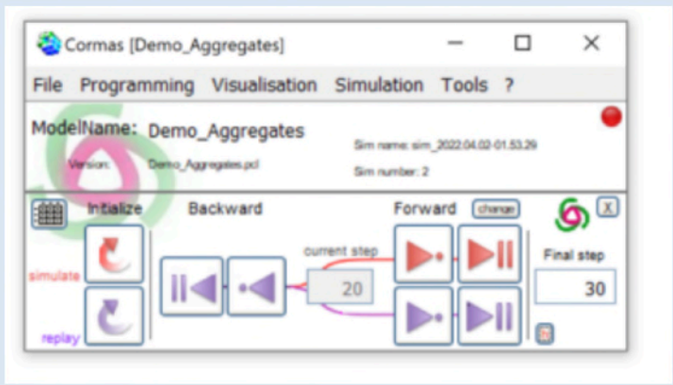
Cormas est un framework à partir duquel, par spécialisation et raffinement, les utilisateurs peuvent créer des entités spécifiques pour leur propre modèle.

cormas
COmmon pool Resources and Multi-Agent Simulations

Le logiciel Cormas, libre de droits (licence MIT), peut être téléchargé.

Découvrez la dernière version sortie en 2024.

Vous pouvez aussi consulter des exemples de modèles et des éléments de bibliographie

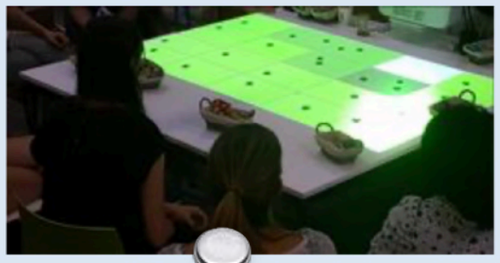


Interface principale de Cormas

- Pharo

Une nouvelle version de Cormas sous Pharo est en développement. Visiter le site

Nous proposons la démarche ComMod (Companion Modelling)

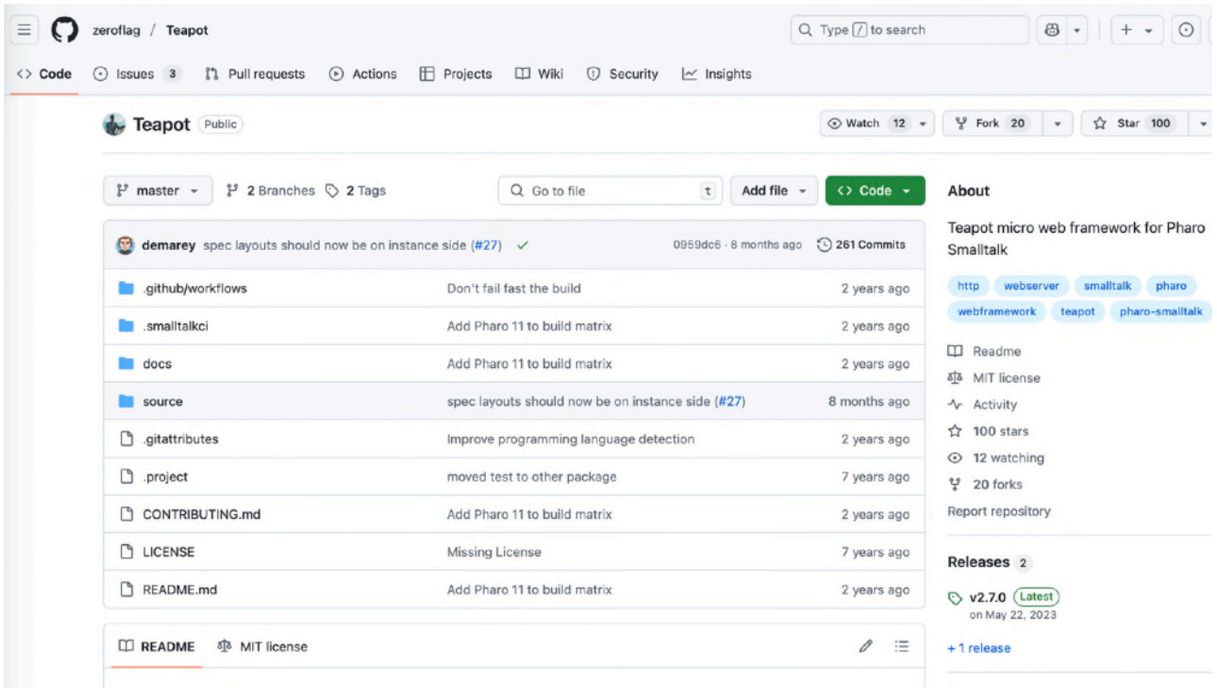


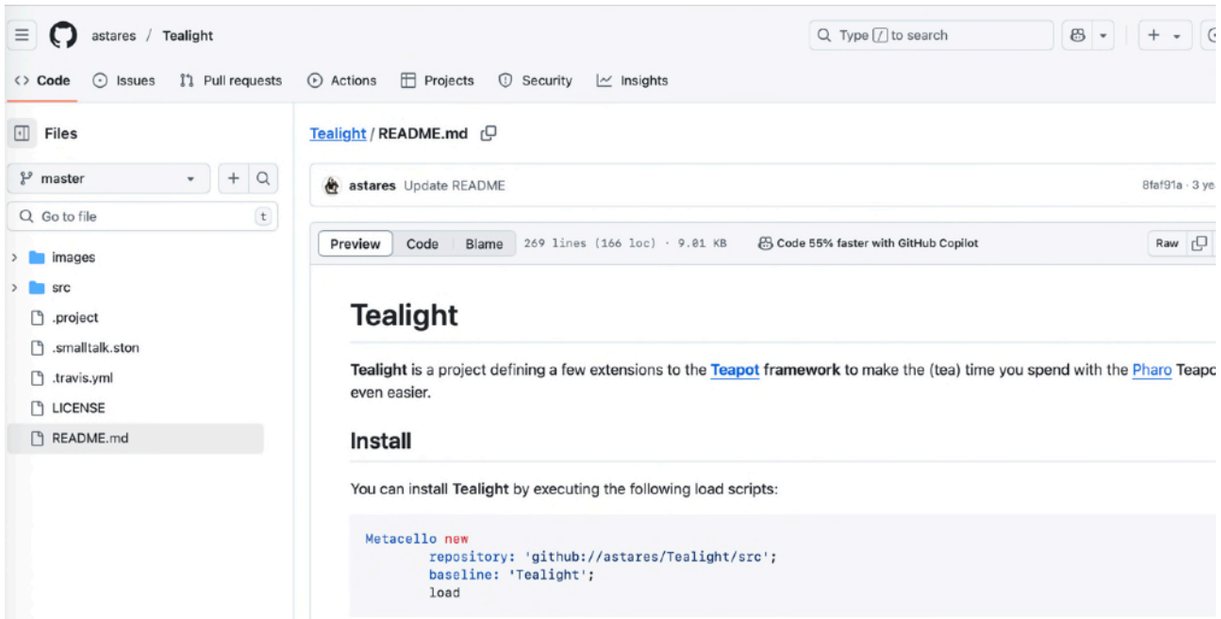
Session de RoHel CN 2021 avec Cormas

Multi-agent simulation

A random selection of small, large, and huge projects

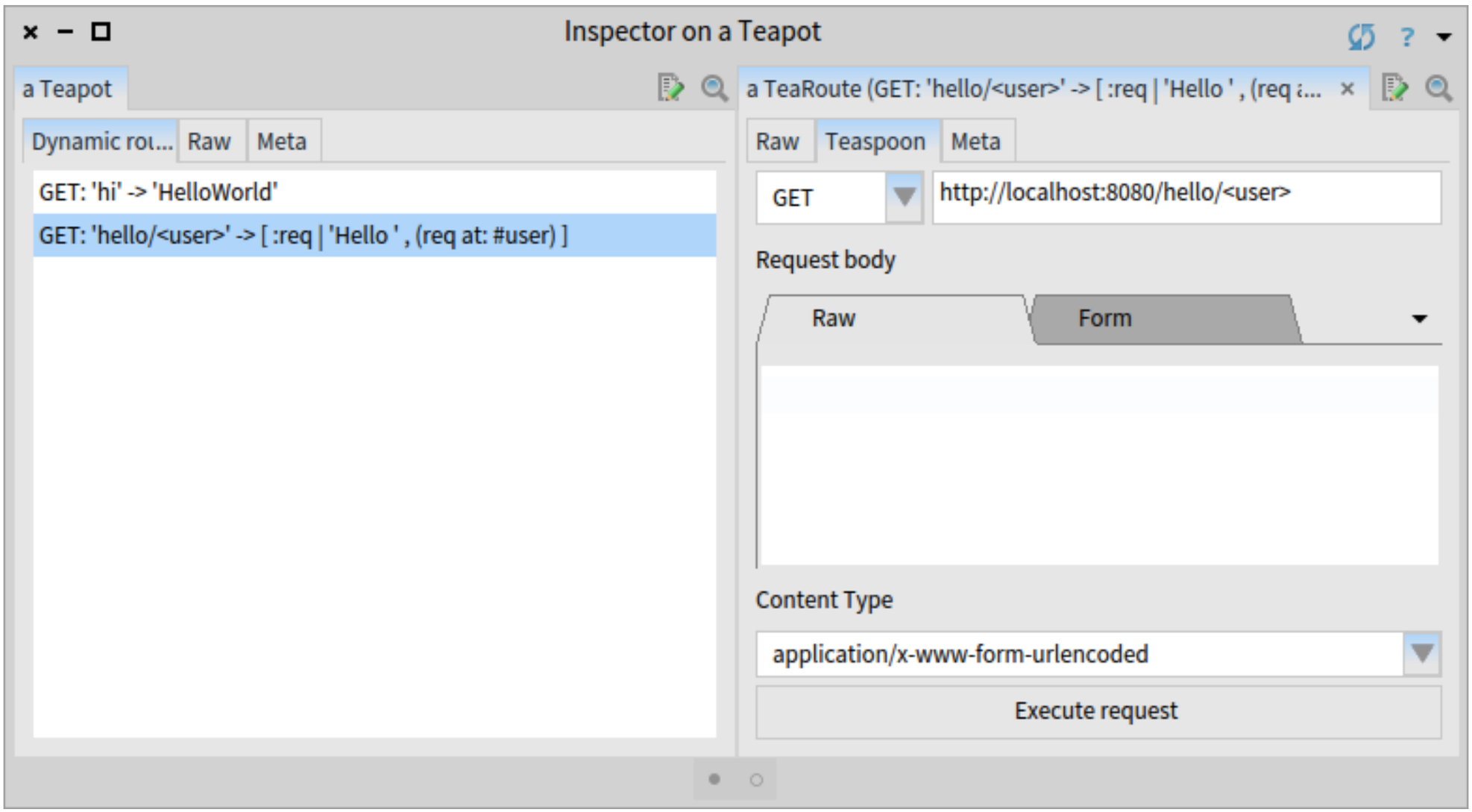
Teapot and Tealight





- Building rest servers in a couple of lines
- https://github.com/demarey/pharo-rest-tutorial

Live roots in your inspector

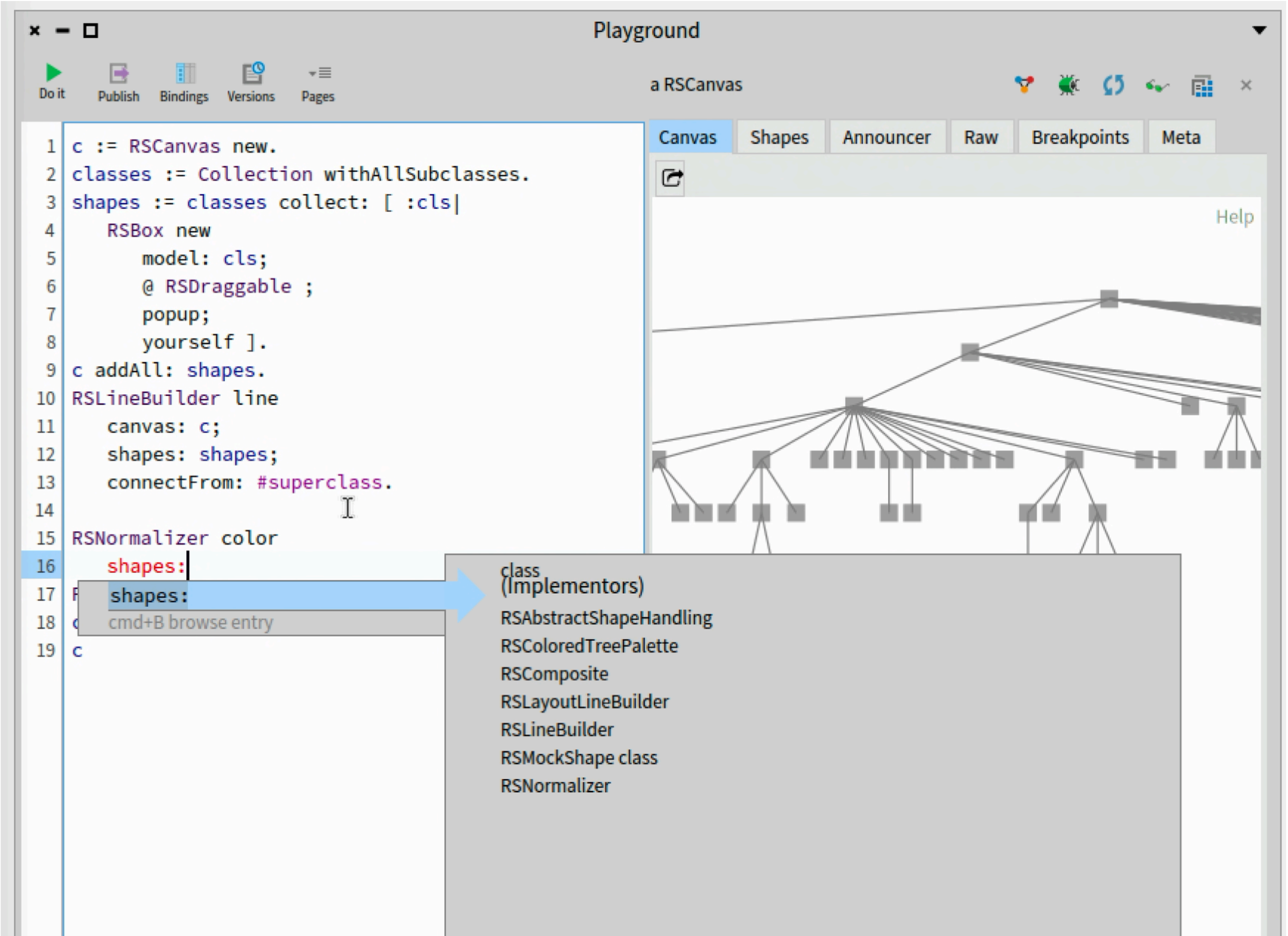


Roassal 3

- Amazing visual engine
- More than 10 years of development

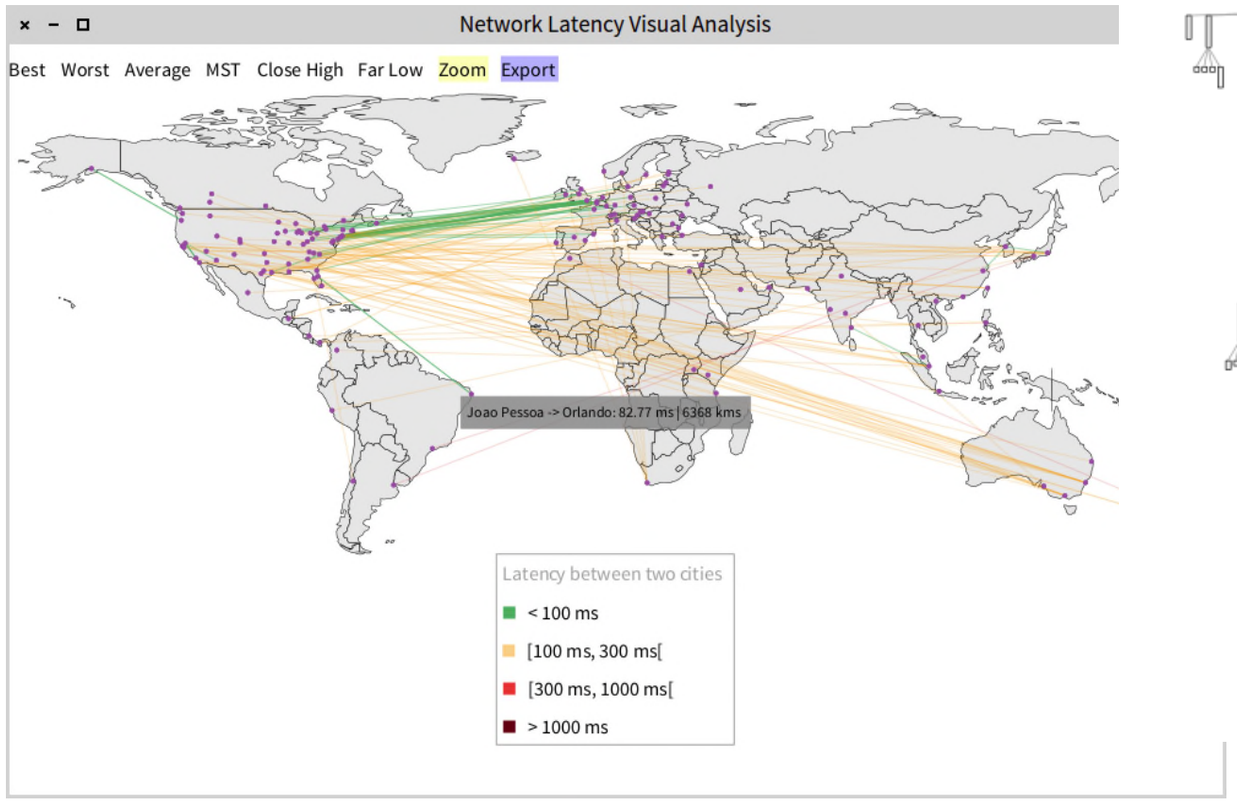
- Some more links
  - https://www.youtube.com/watch?v=0h84-NZbfOg
  - https://www.youtube.com/watch?v=-Pk4q5oMdLo
  - https://www.youtube.com/watch?v=awPyBLWTTvk
  - https://www.youtube.com/watch?v=R2rLr7Z1b8Y
- Roassal 2 videos
  - https://www.youtube.com/watch?v=iXUZiFtnxK8
  -

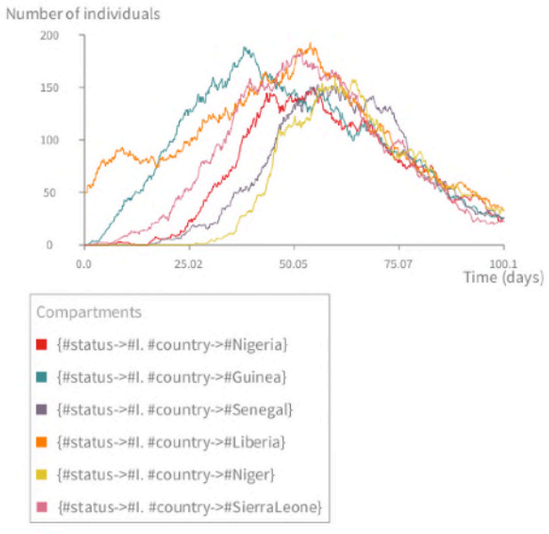
A simple example

- 

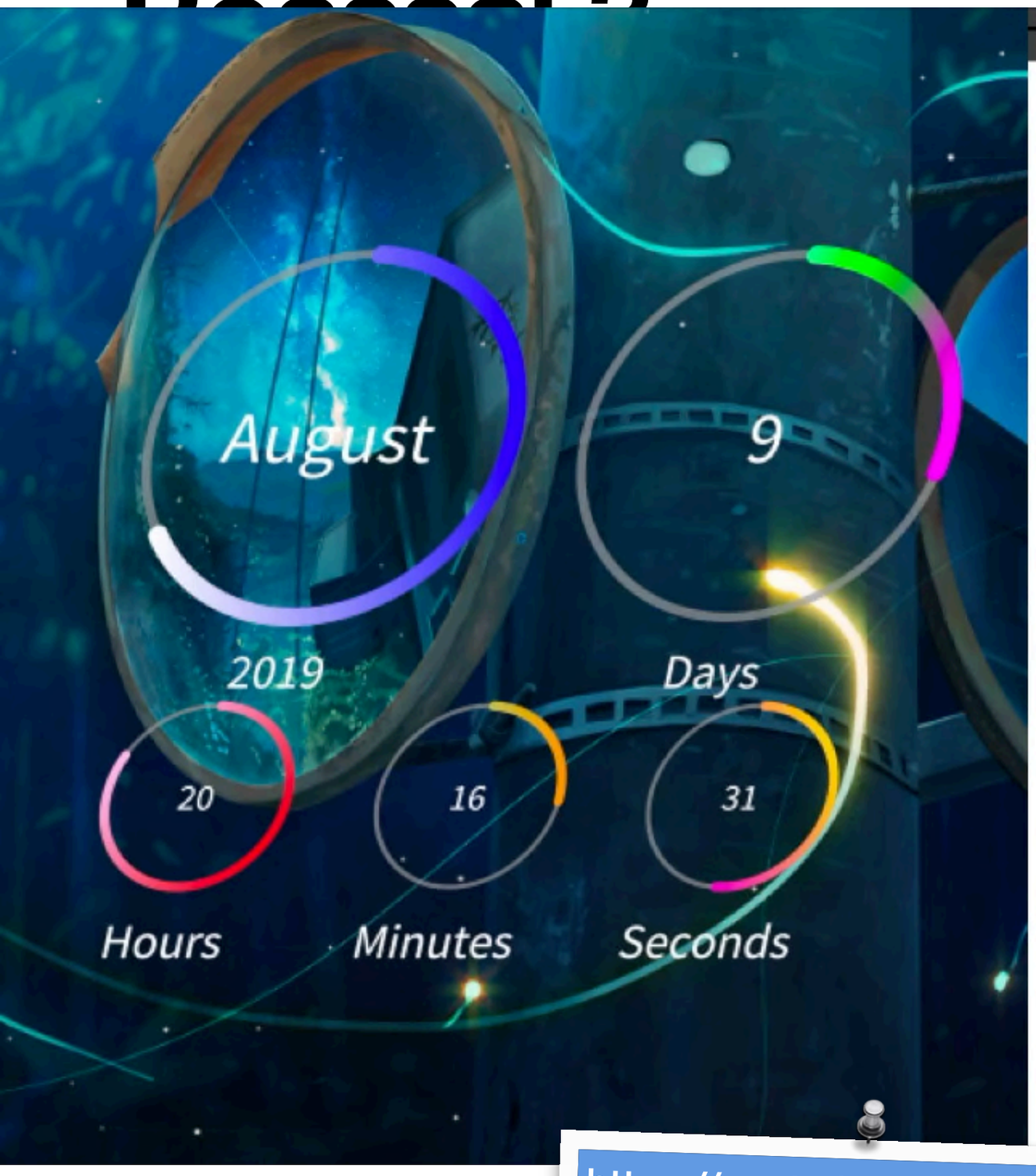
-

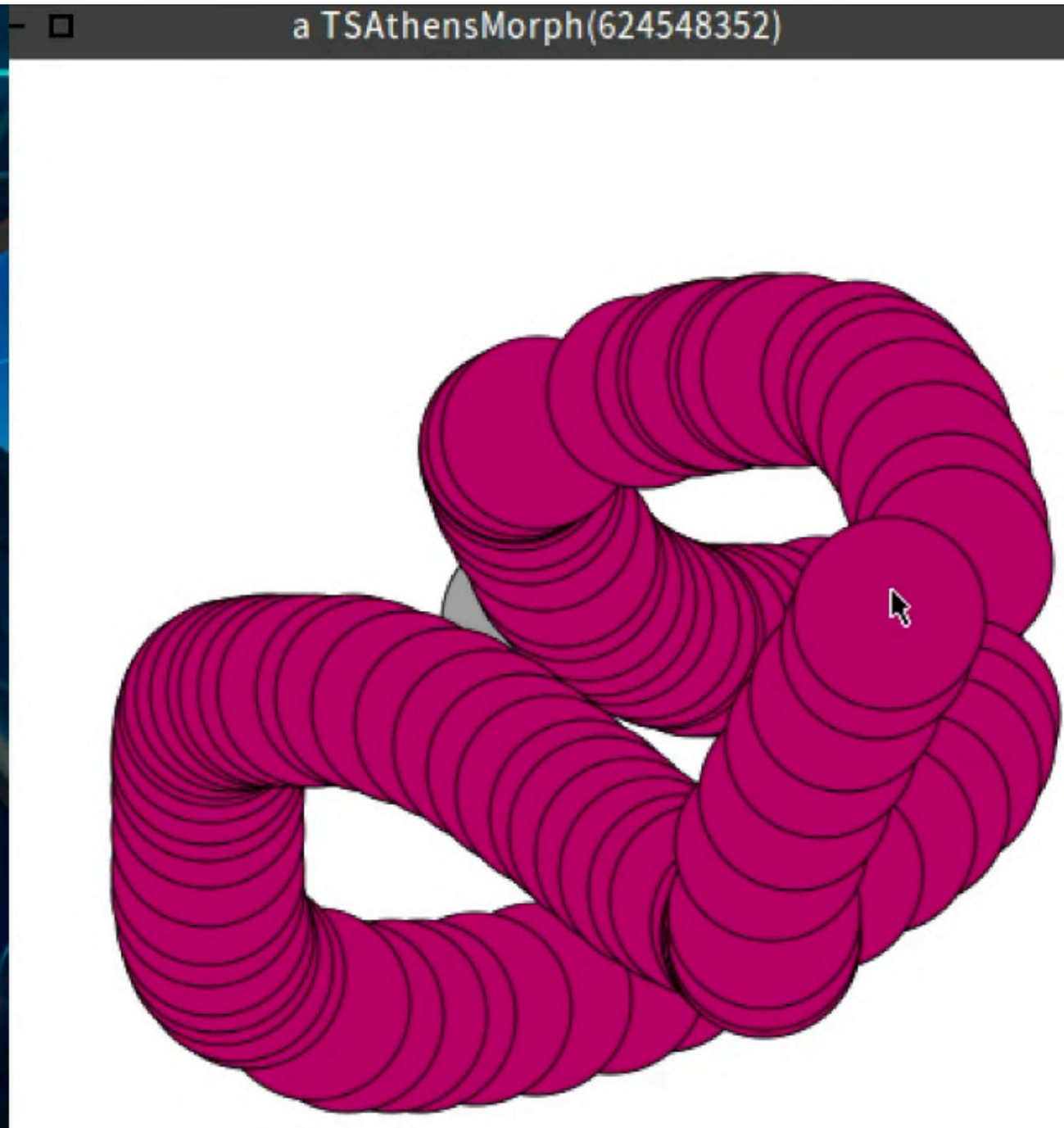
Scripting visualization





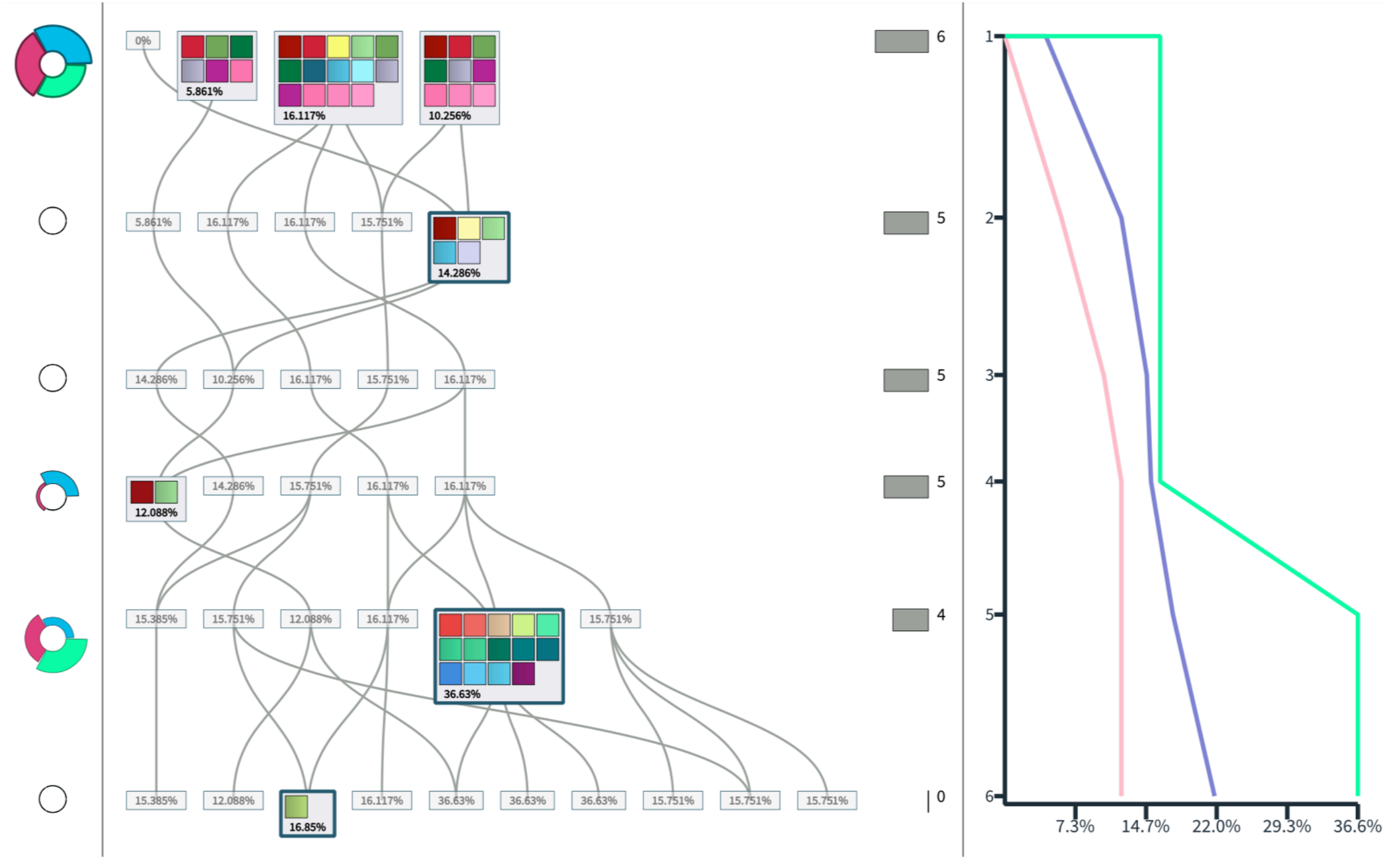
Reveal 2





https://youtu.be/R2rLr7Z1b8Y

Execution of IA generating tests



Example of data visualization

@ work

- We can extract information from data
- We build tools to navigate, understand and take decisions based on this enhanced data

Building analysis tools with Roassal:

the case of the European Football Leagues

Authors:
Milton Mamani
Sebastian Jordan

Powered by

https://pharo.org/
https://github.com/akevalion/Football
consortium-adm@pharo.org

July 2022

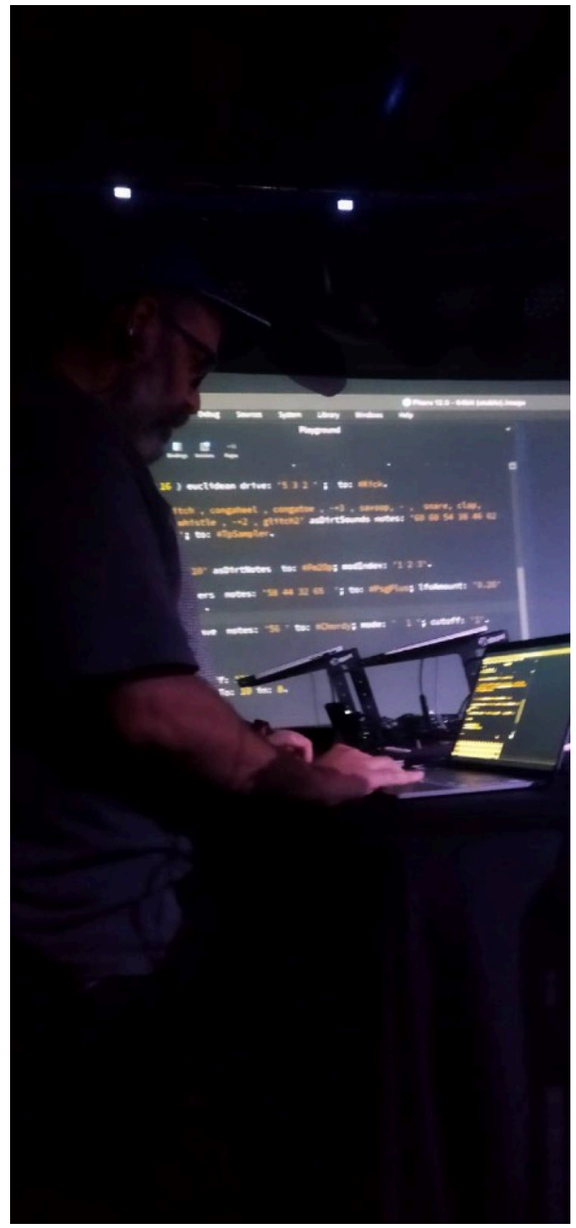
https://www.youtube.com/watch?v=LOn9jVGa83c

Live Music

D. Cipriano - DJ lucretio

- Live performance
- https://www.youtube.com/watch?v=4lhoYmI_ivs
- https://www.youtube.com/watch?v=S2Dff90aYDI
- Coypu and Phausto: Pharo live music
- https://github.com/lucretiomsp

ESUG 2024 https://www.youtube.com/watch?v=zP1GVVrydOs



Pharo 11.0 - 64bit (work in progress).image

Pharo Browse Debug Sources System Library Windows Help

Playground

Do it Publish Bindings Versions Pages

```
p := Performance uniqueInstance .
p performer: PerformerKyma new.

p freq: 138 bpm.

'9090' hexBeat to:  #kick.
'0202' hexBeat to: #Snare.
16 upbeats to: #ch.
'0002' hexBeat to: #oh.

16 rests, 8 banda to: #timbale.


4 breves  notes: #(36 40 ); to: #Wobble.
'62/16 , 64/16 , 65/16, 67/16 ' asDirtNotes to: #Pad.

p solo: #Pad.


p playFor: 256 bars.

f := VerticalFaderForKyma newWithAddress: 'WobbleLFOFreq' range: #(0.3 10).
f openInWindow

p stop.
```

Line: 2:1

PharoMusic.image

Pharo Browse Debug Sources System Library Windows Help

Playground

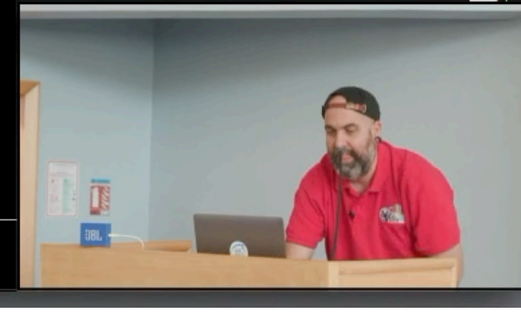
Do it Publish Bindings Versions Pages

```
p := Performance uniqueInstance .
p performer: PerformerSuperDirt new .
p freq: 155 bpm.
p muteAll.
'sd' once.
'rekall' once.

'bd:3 ~ ~ ~ sd:2 ~ ~ ~ bd:3 d~ bd:4 ~ sd:2 ~ ~ rim ~'  forDirt to: #rhythm.

16 semiquavers sound: 'supergong' dirtNotes: #( 3 4 0) to: #synpop.
16 semiquavers sound: 'sd' dirtNotes: #(0 3 7 4 9) to: #snare.
4 breves sound: 'superhoover'; chords: 'f#-minor a-minor7 f#-minorsharp5 g-sus4'; to:
#hoover; gain: 0.89.
#(7 16) euclidean arpeggiate: 'f#-minor a-minor5 f#-major'; to: 'supersquare'.

" vertical fader to control the performance speed"
v6 := VerticalFaderFreq new.
v6 openInWindow.
```



Inspector on a Diction... Playground Playground Playground Playground


ICPianoKeyboard
Mixer
51
y Label
x Label
ICDarkKnob
0
0.000
100
ICLightKnob
0
0.000
100
ICDarkKnob2
0
0.000
100
ICDarkKnob3
0
0.000
100
ICDarkKnob4
0
0.000
100
ICDarkKnob5
0
0.000
100
ICDialKnob
0
0.000
100
ICSimpleKnob
0
0.000
100

Live equipment :)

PharoThings_ a demo about low level board model.mp4

Inspector on a PotRemoteBoard (a RpiBoardBRev1 in #[169 254 0 2]:40423)

a PotRemoteBoard (a RpiBoardBRev1 in #[169 254 0 2]:40423)

P1 | Devices | Raw | Meta

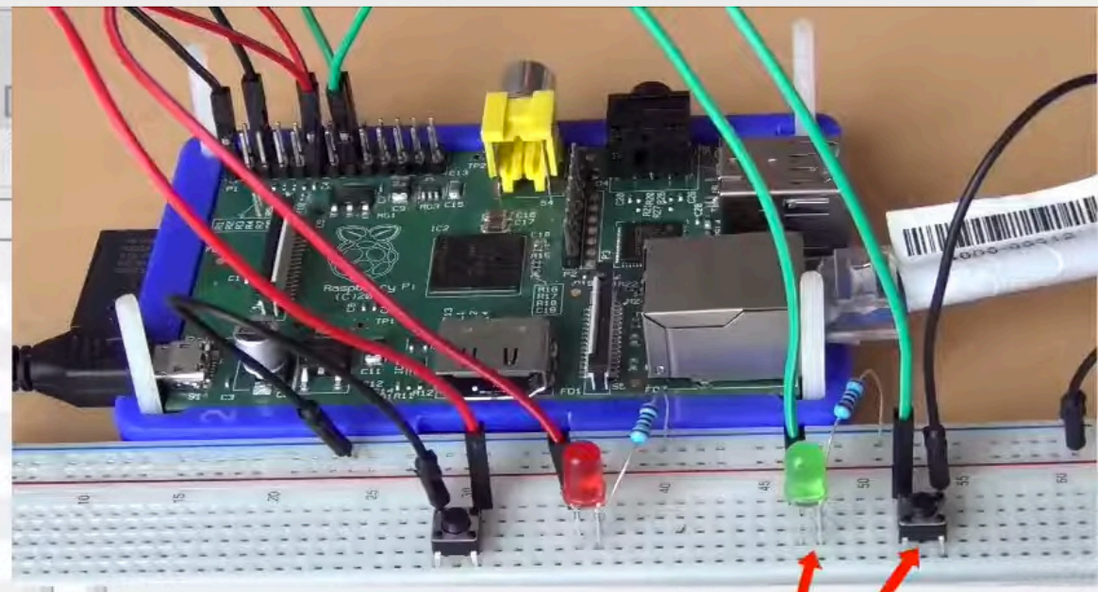
Id	Value	Name	Pin#	Pin#	Name	Value	Id
			1	2	5v		
			3	4	5v		
		SCL (I2C)	5	6	Ground (0v)		
			7	8	SerialPortTXD		14
		Ground (0v)	9	10	SerialPortRXD		15
17		GPIO0	11	12	GPIO1		18
21		GPIO2	13	14	Ground (0v)		
22	in	GPIO3	15	16	GPIO4	out	23
		3.3v	17	18	GPIO5		24
10		MOSI (SPI)	19	20	Ground (0v)		
9		MISO (SPI)	21	22	GPIO6		25
11		SCLK (SPI)	23	24	CE (SPI)		8
		Ground (0v)	25	26	CE (SPI)		7

Pin table shows live pin state

```
ledGreen beDigitalOutput.
ledGreen value: 1.
ledGreen value: 0.

button := gpio3.
button beDigitalInput. "button"
button enablePullDownResis
button value.

buttonProcess := [ [100 mi
   ledGreen value: (button value=1) asBit
      ] repeat
    ] forkNamed: 'button'.
buttonProcess terminate.
buttonProcess isTerminated.
```



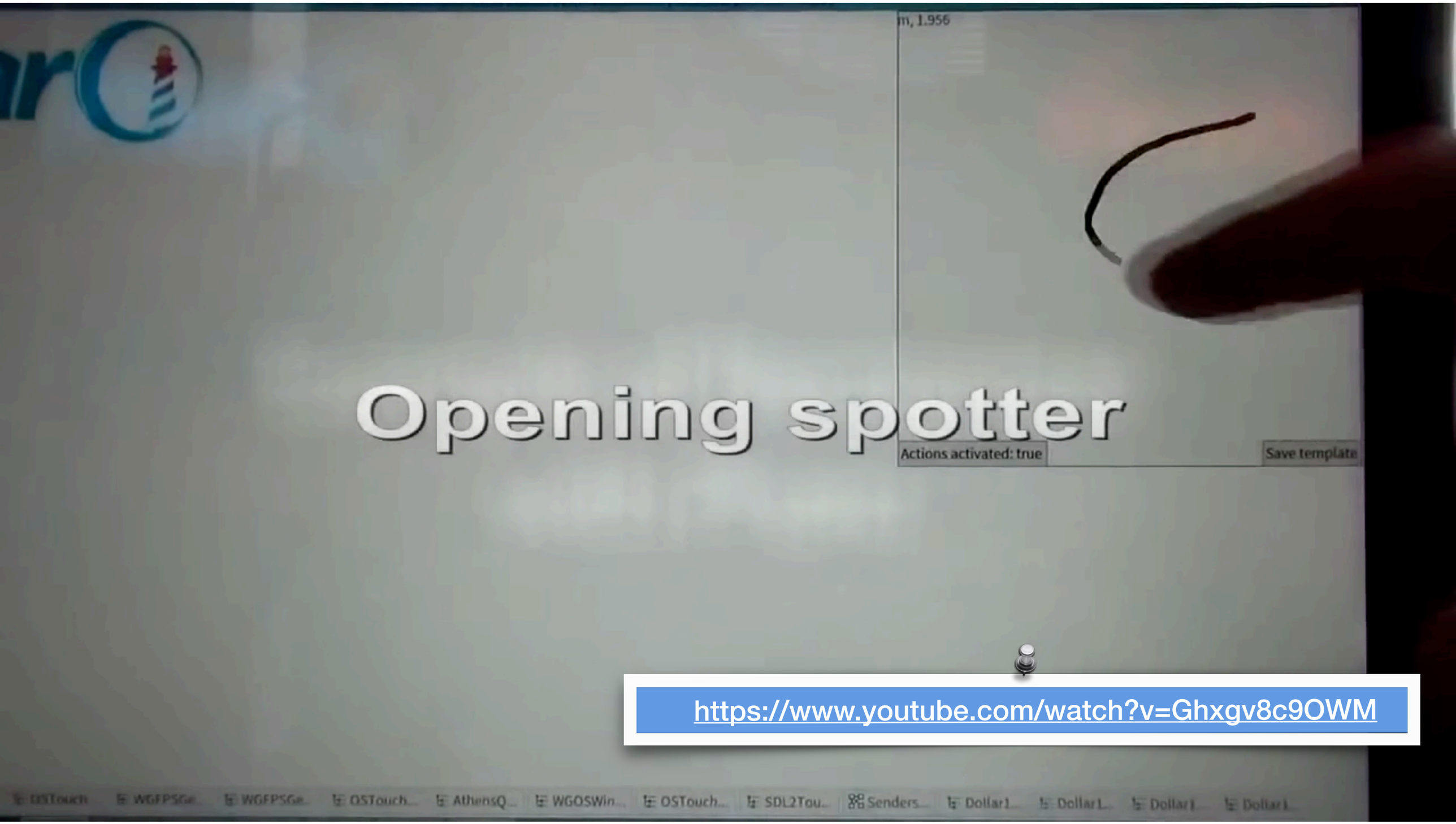
Now when the button is pressed the green led is on

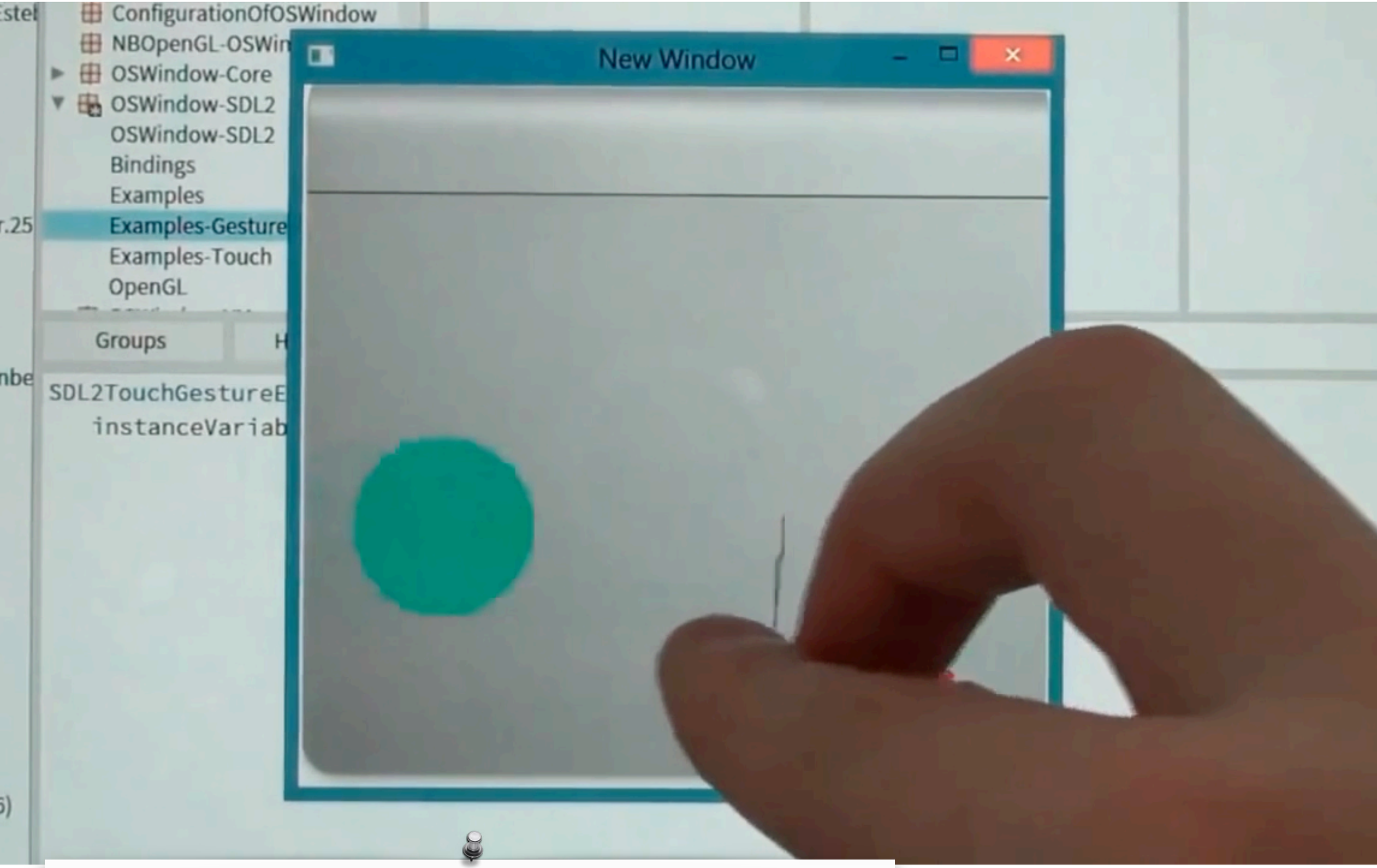
https://www.youtube.com/watch?v=iKmcvKw3M4k

Pharo

Live Interaction

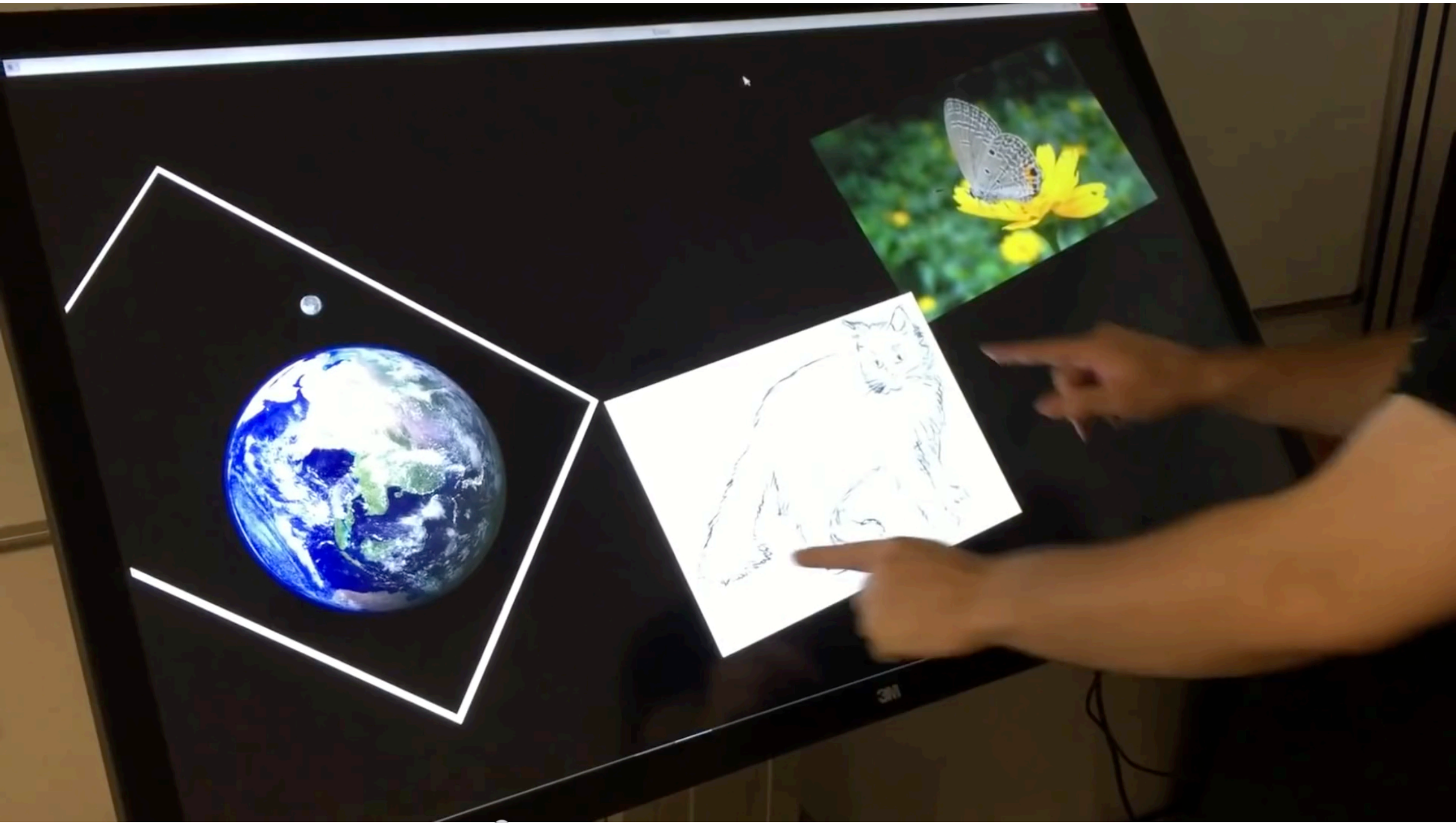
Gesture Recognition





https://www.youtube.com/watch?v=eNrbH8A5nyY

https://www.youtube.com/watch?v=0sIX3YbO-XY



https://www.youtube.com/watch?v=ksyoGItedVg

Live 3D and VR

https://www.youtube.com/watch?v=b4nNtN7XBi8

Virtual Reality Live at Thales with Pharo

P. Laborde
E. Lepors
M. Ouddane

/home/ronie/projects/woden/woden.image

Pharo Tools System Debugging Windows Help

Playground

a FileReference (/home/roni...

Items Raw Breakpoints Meta

Name	Size
..	0 B
DamagedHelmet.glb	3.77 MB
README.md	567 B

```
1 "/home/ronie/projects/woden/pharo-local/iceberg/ronsaldo/woden/core-assets/models/glTF-Samples/DamagedHelmet"
2 self
```

a FileReference (/home/roni...

3D Model View Contents Raw Breakpoints Meta

```
1 "/home/ronie/projects/woden/pharo-local/iceberg/ronsaldo/woden/core-assets/models/glTF-Samples/DamagedHelmet/DamagedHelmet.glb"
2 self
```

```
1 "a RWGroup"
2 self
```

Playground

RWExample class>>threeCubesAndLightWithShadowsAndPhysics

WDASceneExamples class>>example05DangerousPool

WDAExamples !
WDASceneExamples !
WDASampleSceneModel !
WDA3DModelViewerModel !

class side
as yet unclassified
example models
examples
examples procedural
world menu

example02TextureCube
example03Floor
example04Pool
example04ProceduralSky
example05DangerousPool
example06MeshGrid
example07SmallTerrain
example08MediumTerrain
example09Island
example10ParticleSystem
exampleModelBalloon
exampleModelBunny
exampleModelCube
exampleModelDamagedHelmet

Filter...

Scoped View | Flat Hier. | Inst. side Class side | Methods Vars | Class refs. Implementors Senders

WDASceneExam example05Dang UML-Class Class side meth

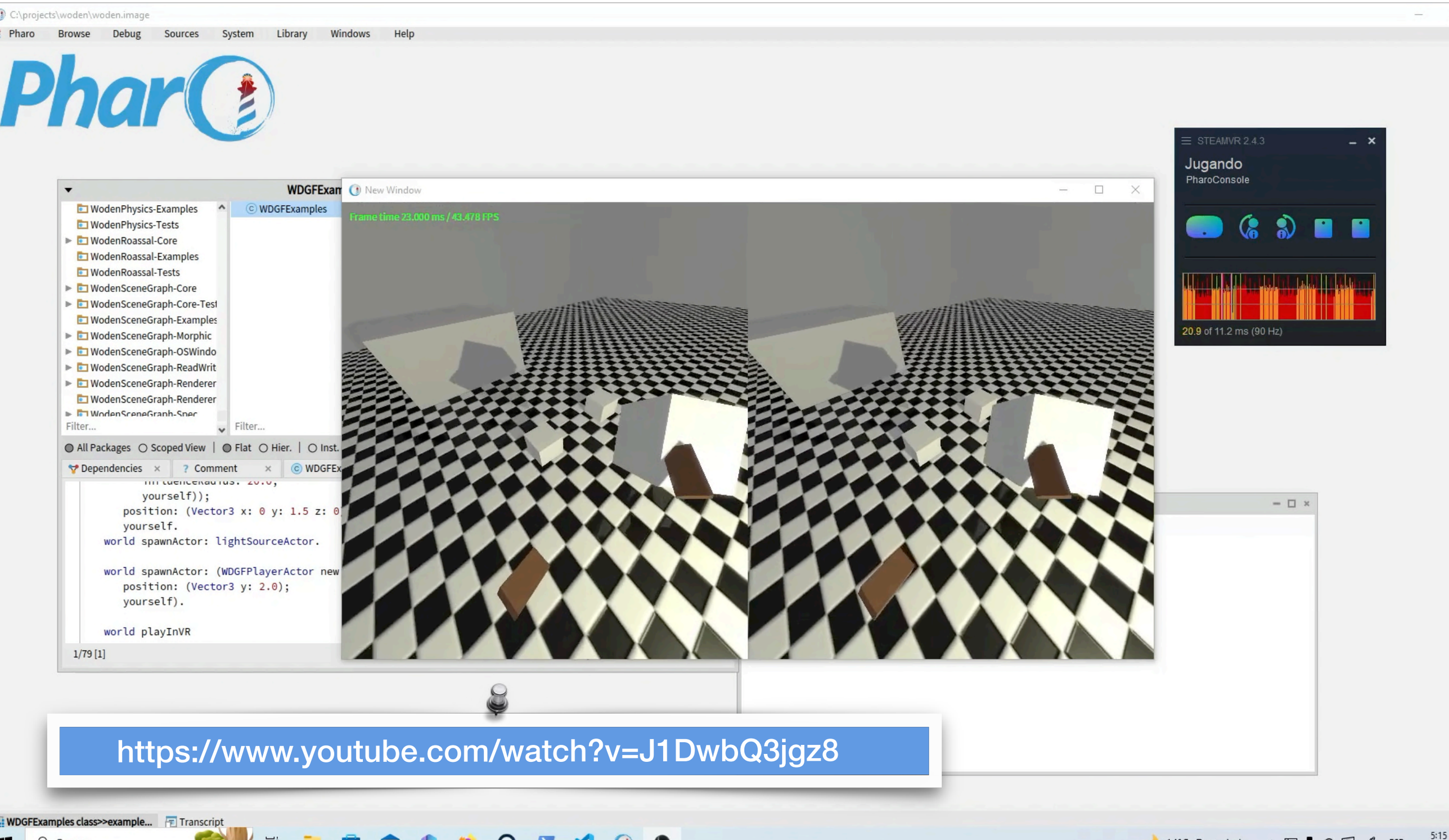
```
5DangerousPool
el scene camera engine skyTexture sunLight view foxModel fox foxAnimationState walkAnimation a
Time foxScale movementTime animationDilationFactor |
 := WDASampleSceneModel new.
scene := model newScene.
camera := model camera.
camera
   toneMappingOperator: #filmic;
   farDistance: 100.0;
   translateToX: 0.0 y: 1.0 z: -4.0.
```

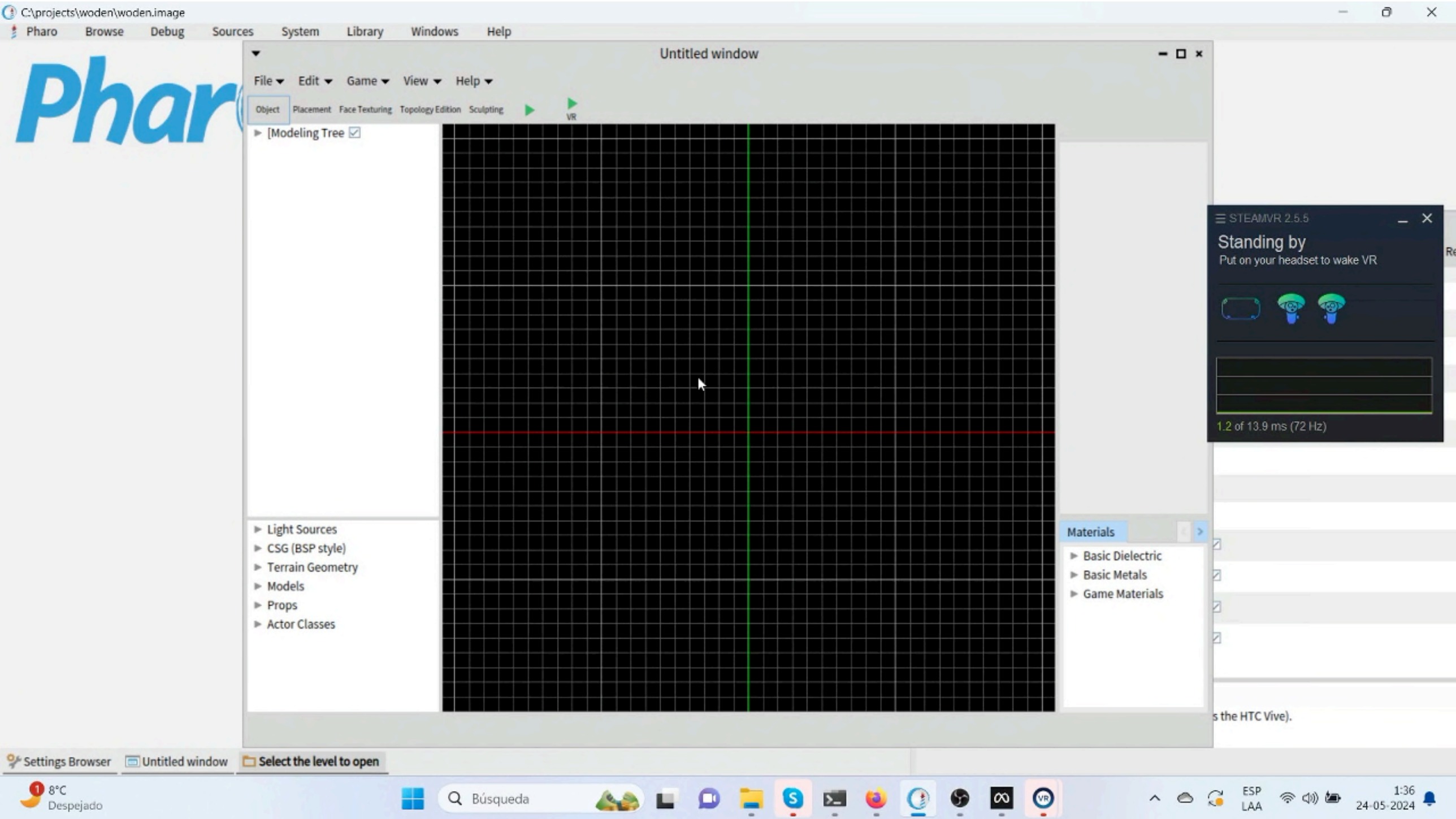
1/74 [1] examples extension F +L W

Long methods ?

Playground WDASceneExamp... Playground RWExample cla... Playground Playground Playground WodenEsug2019...

/home/ronie/proj... New Window

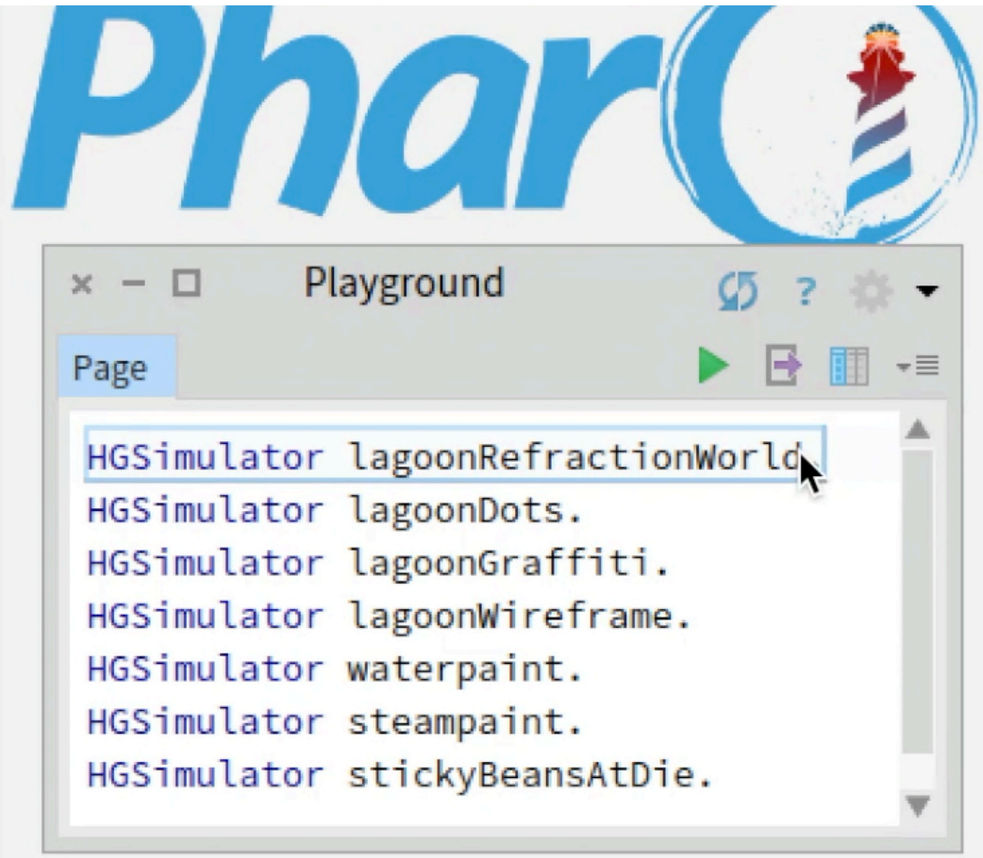

C:\projects\woden\woden.image
Pharo Browse Debug Sources System Library Windows Help
WodenPhysics-Examples
WodenPhysics-Tests
WodenRoassal-Core
WodenRoassal-Examples
WodenRoassal-Tests
WodenSceneGraph-Core
WodenSceneGraph-Core-Test
WodenSceneGraph-Examples
WodenSceneGraph-Morphic
WodenSceneGraph-OSWindo
WodenSceneGraph-ReadWrit
WodenSceneGraph-Renderer
WodenSceneGraph-Renderer
Filter...
WDGFExamples
Filter...
All Packages Scoped View Flat Hier. Inst.
Dependencies Comment
yourself));
position: (Vector3 x: 0 y: 1.5 z: 0
yourself.
world spawnActor: lightSourceActor.
world spawnActor: (WDGFPlayerActor new
position: (Vector3 y: 2.0);
yourself).
world playInVR
1/79 [1]
New Window
Frame time 23.000 ms / 43.478 FPS
STEAMVR 2.4.3
Jugando
PharoConsole
20.9 of 11.2 ms (90 Hz)
https://www.youtube.com/watch?v=J1DwbQ3jgz8
WDGFExamples class>>example...
Transcript
Buscar
14°C Despejado
ESP
5:15
21-03-2

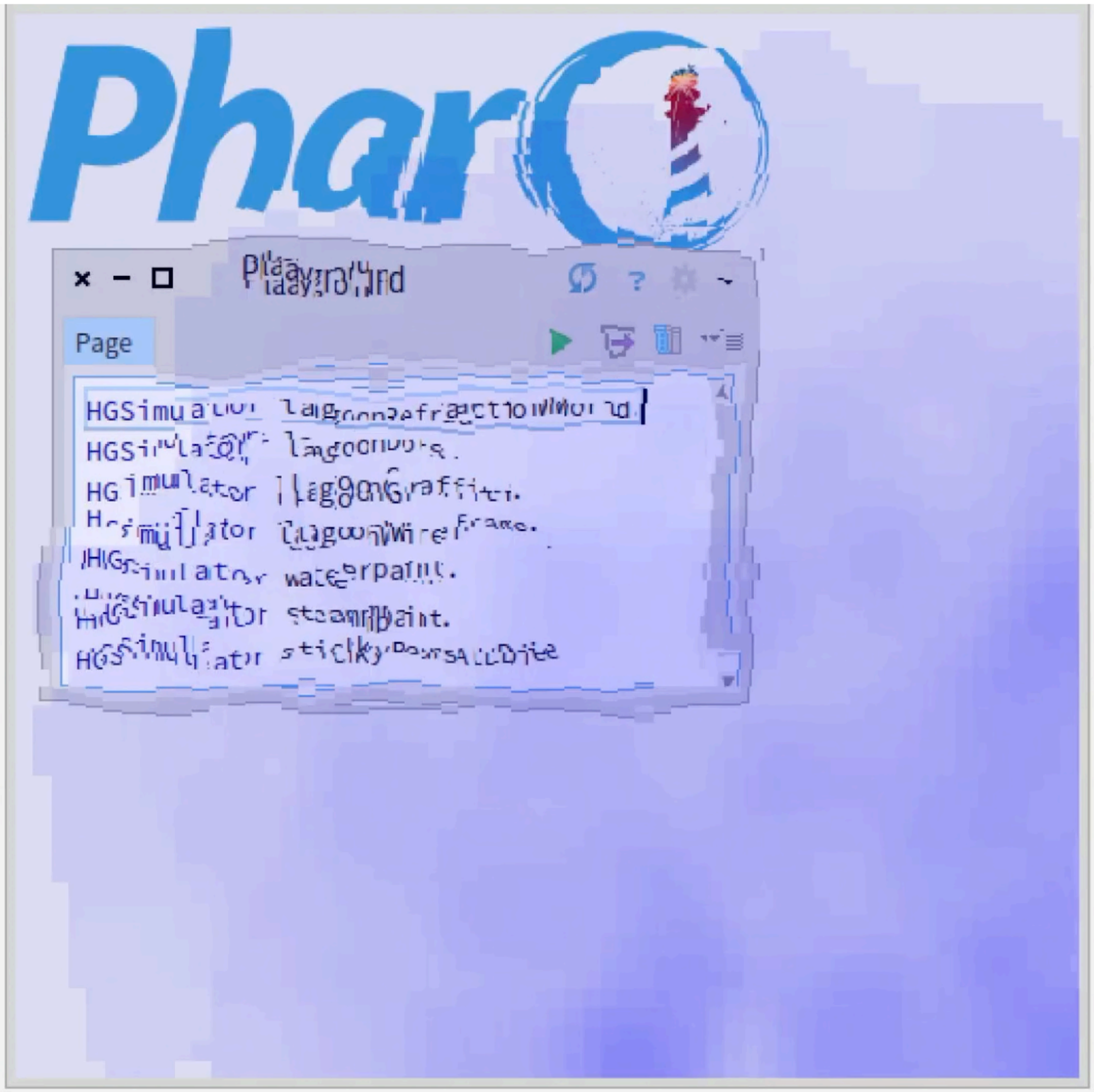


https://www.youtube.com/watch?v=glo7LSLvSG8

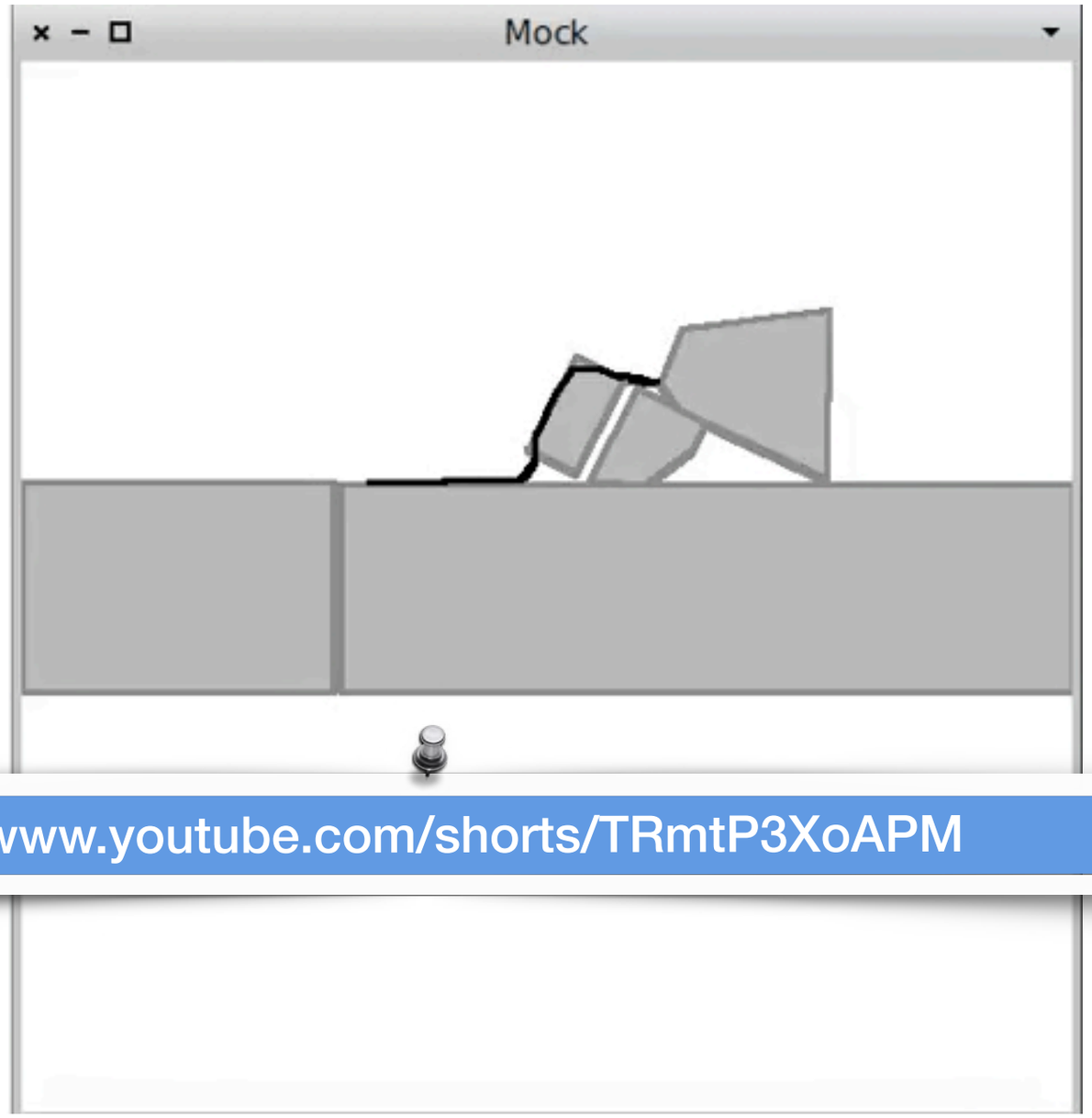
Honey Ginger particule system

https://github.com/tomooda/HoneyGinger

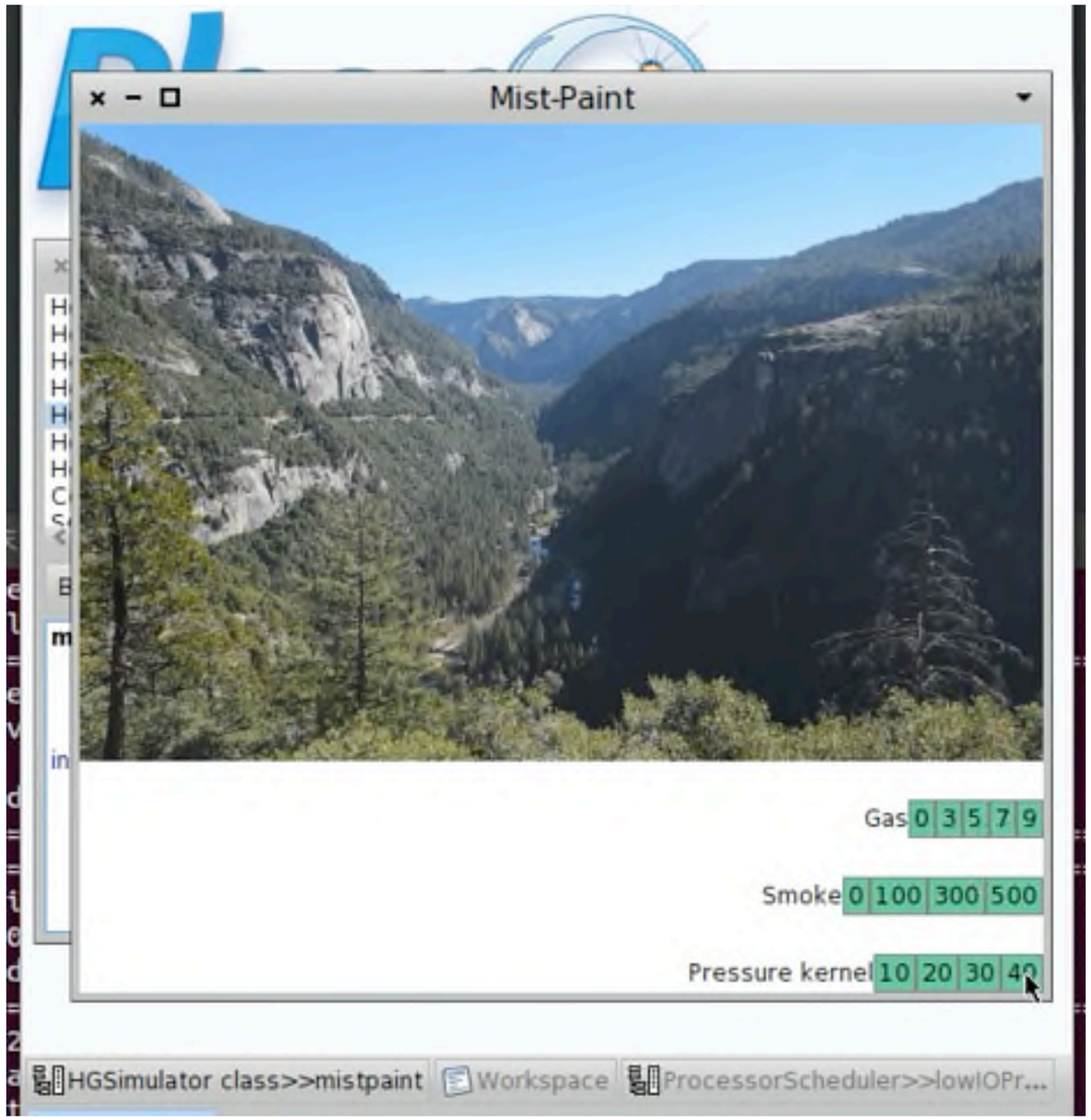




https://www.youtube.com/watch?v=eYuhlixBaPI

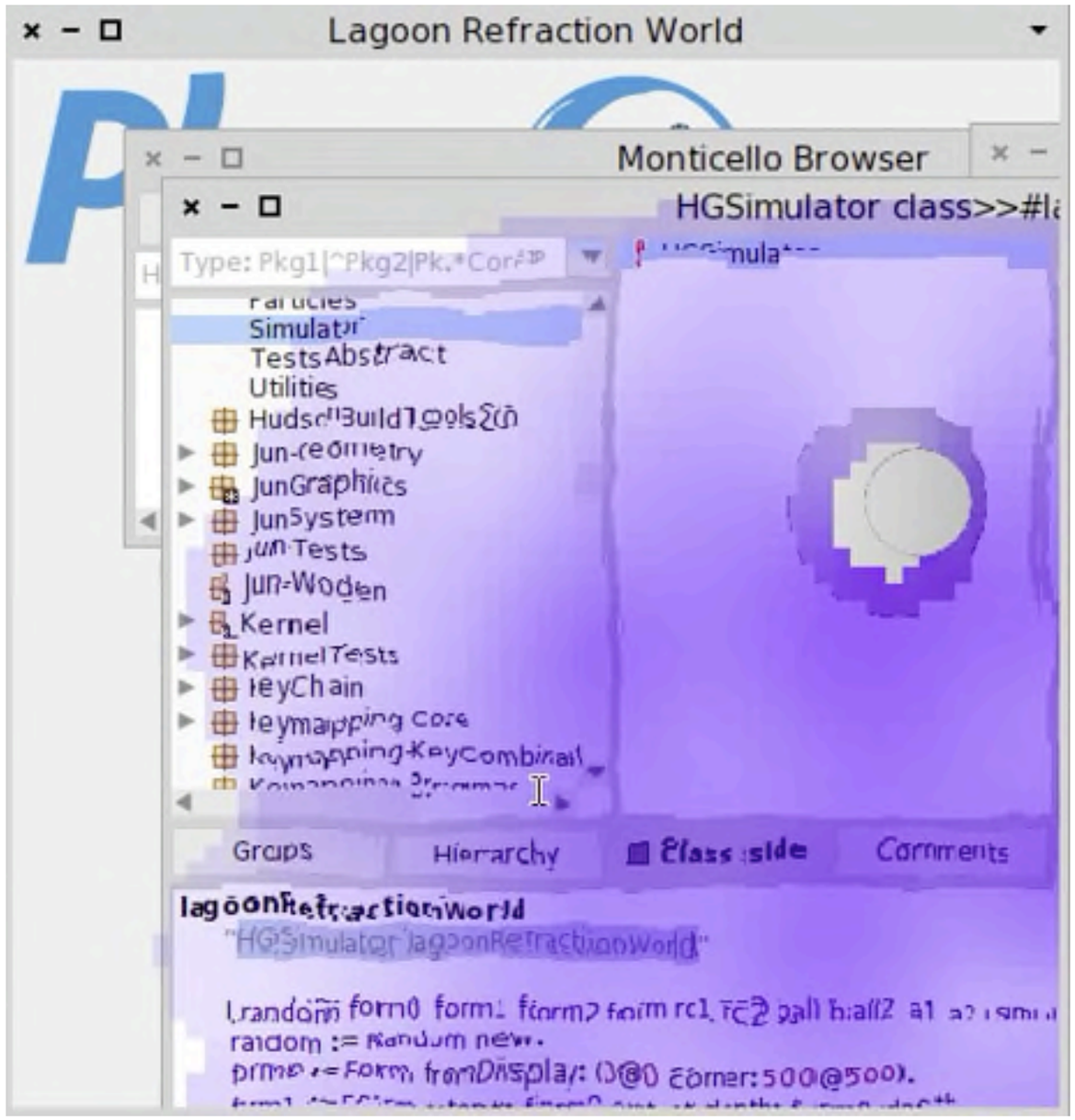


https://www.youtube.com/shorts/TRmtP3XoAPM


Mist-Paint
Gas 0 3 5 7 9
Smoke 0 100 300 500
Pressure kernel 10 20 30 40
HGSimulator class>>mistpaint
Workspace
ProcessorScheduler>>lowIOPr...

Mixing 2D and 3D with Honey Ginger particule system

https://www.youtube.com/watch?v=Wq6APgF1ZHc



Cavrois - Windowing manager

- You place your tools
- You snapshot them
- When you open new tools they get to the place

System Library Windows Help

Playground

Bindings Versions Pages

Session

+L

Repositories

Fetch all Settings Add

Projects System

Repositories Status Branch

Filter...

Current image

Current image

AI-Algorithms-Graph
AI-Algorithms-Graph-Compo
AI-Algorithms-Graph-Tests
AST-Core
AST-Core-Tests
Announcements-Core
Announcements-Core-Tests
Athens-Balloon
Athens-Cairo
Athens-Cairo-Tests
Athens-Core
Athens-Core-Tests

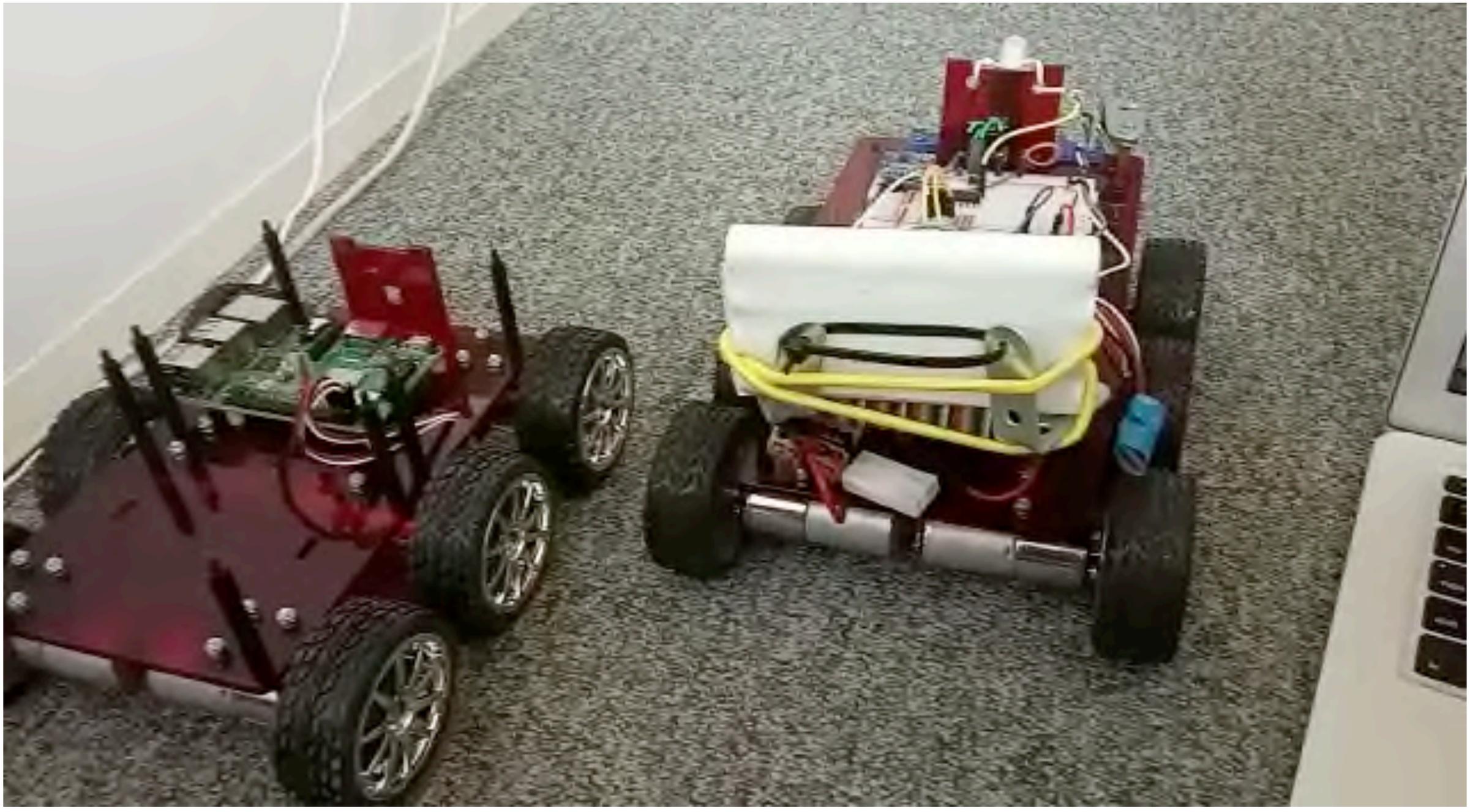
Filter... Filter...

All Packages Scoped View Projects

New class

```
Object << #MyClass
   slots: {};
   package: ''
```

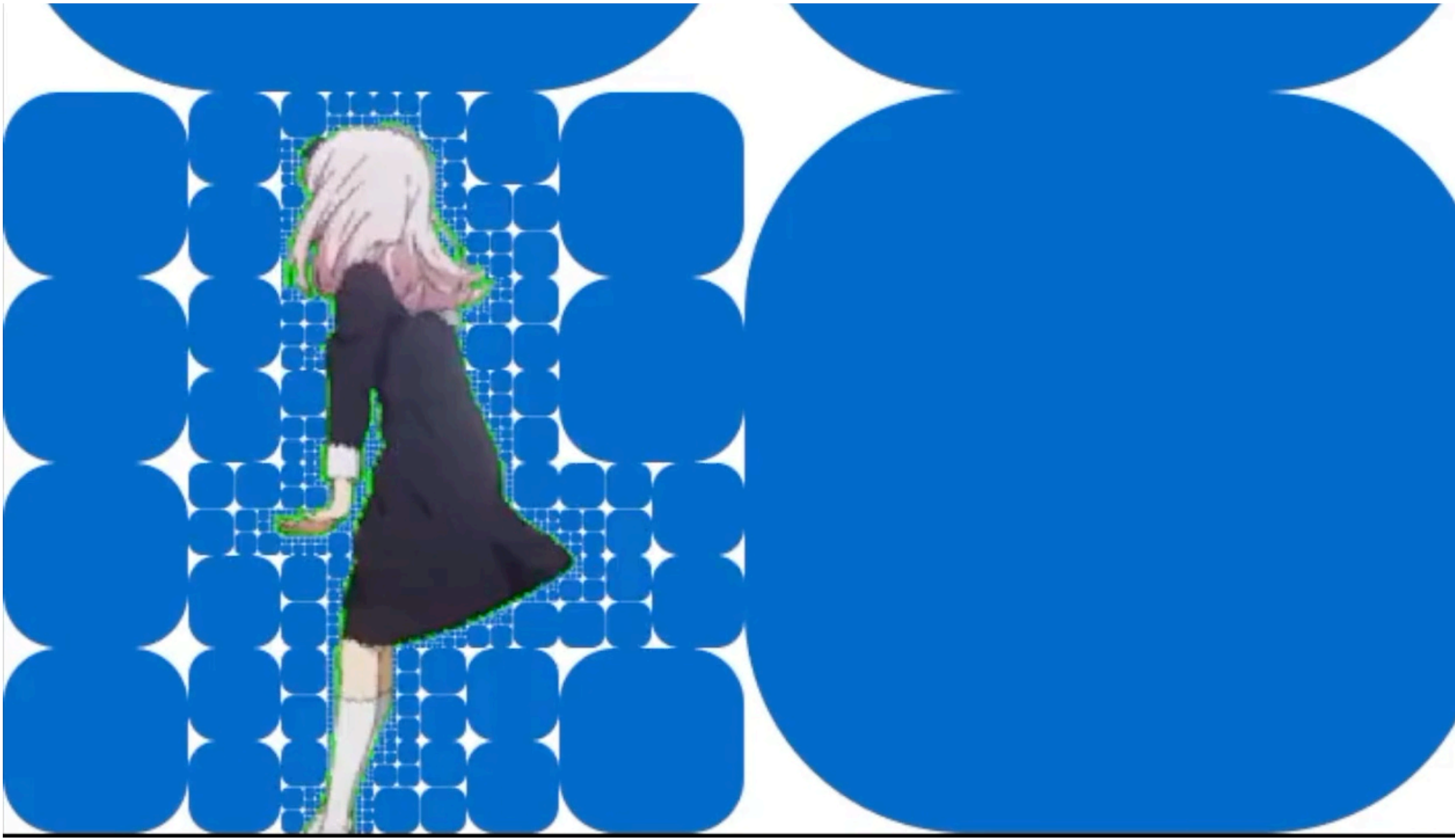
Current image

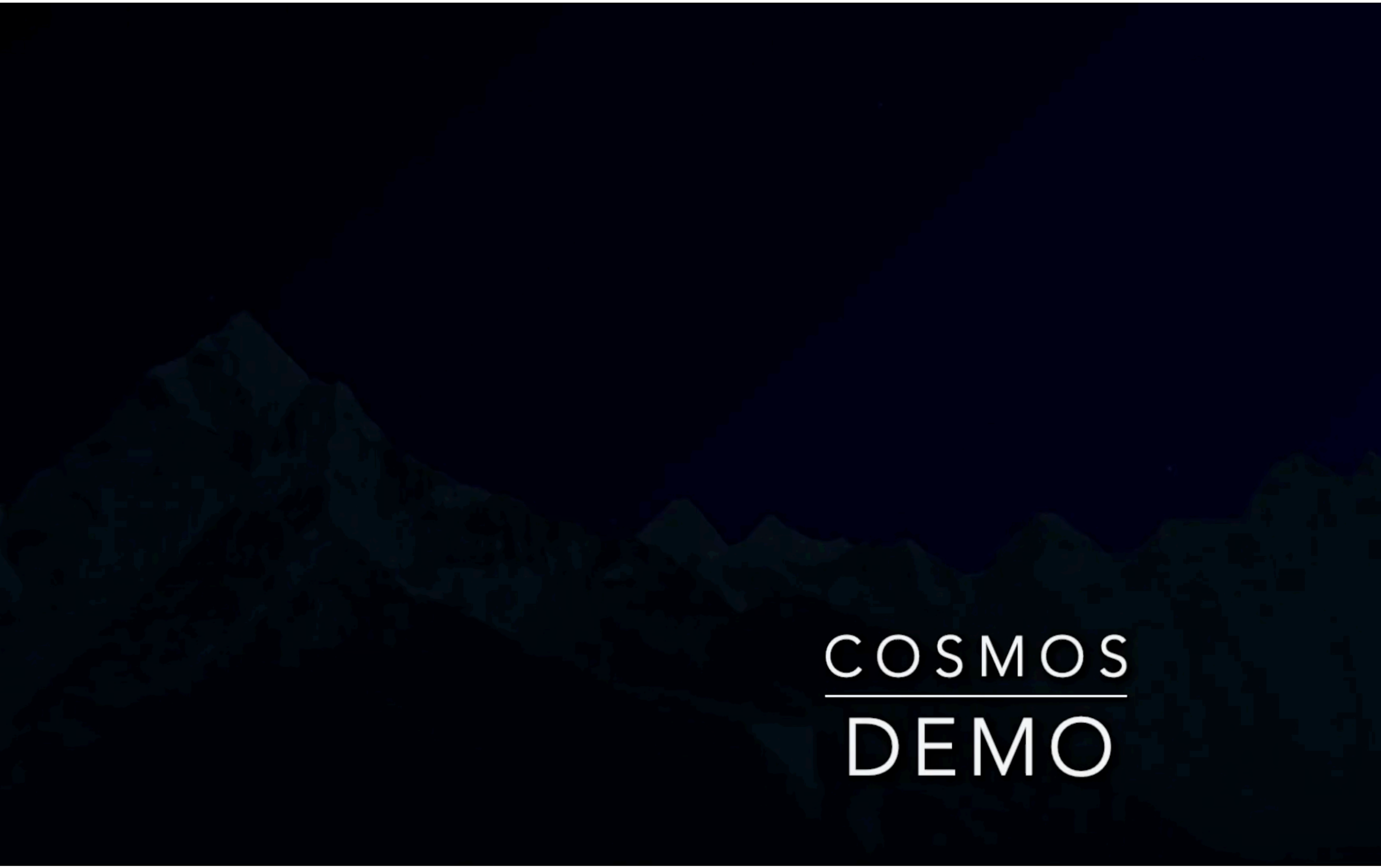


Art and Roassal

- Random - [Random](https://www.youtube.com/watch?v=R2rLr7Z1b8Y)
- Cosmos - [Cosmos](https://youtu.be/02erVntwIo8)
- Hex - [Hex](https://youtu.be/HpQD5QKmzTc)
- Miku - [Miku](https://youtu.be/_aZPZzSZ8XQ)
- Quadtree - [QuadTree](https://youtu.be/H8zedVWw5UA)
- Noises - [Noises](https://youtu.be/wKMFSNOmtNg)
- Eclipse - [Eclipse](https://youtu.be/6wHL0GtlJc8)

https://www.youtube.com/watch?v=H8zedVWw5UA

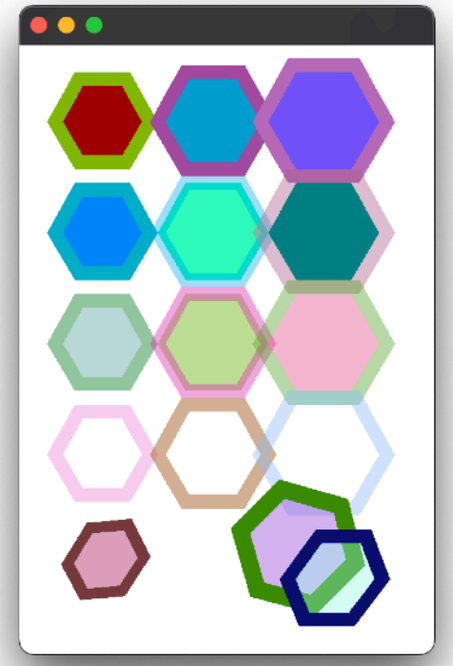



COSMOS
DEMO

Bloc: Modern Graphic Stack

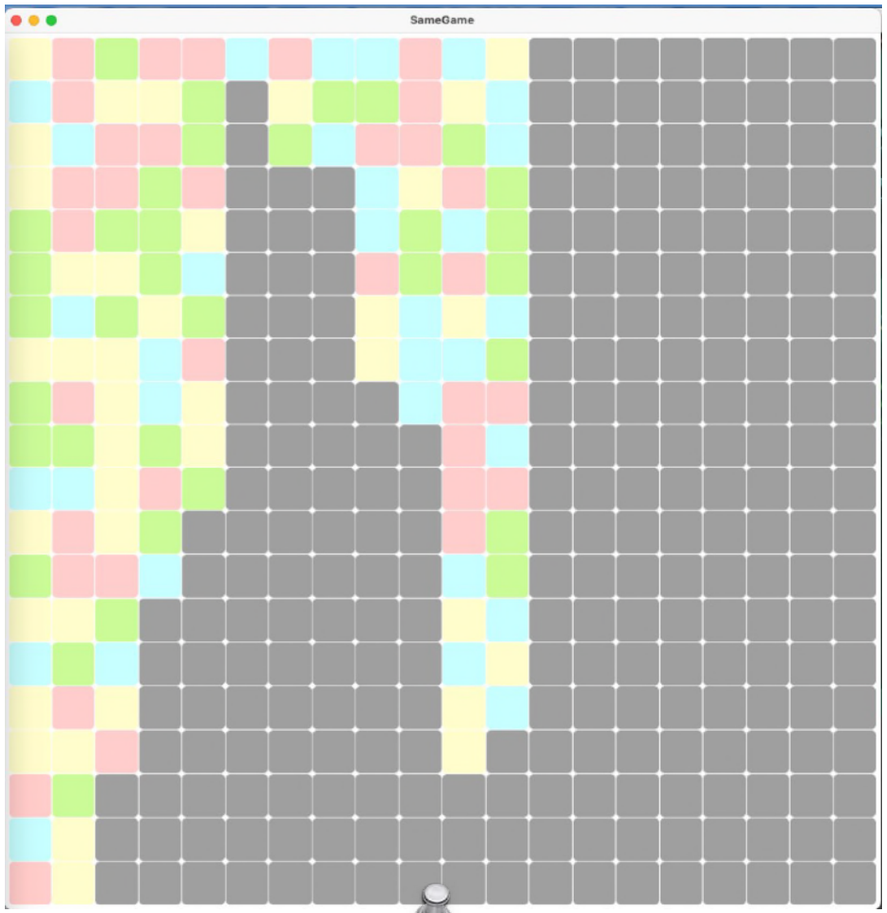
- Coming to Pharo 14
- http://github.com/Pharo-graphics/Bloc

https://www.youtube.com/watch?v=H8zedVWw5UA



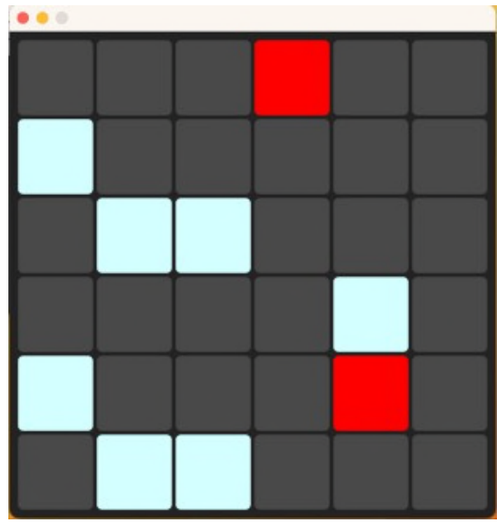
Games in Bloc

SameGame

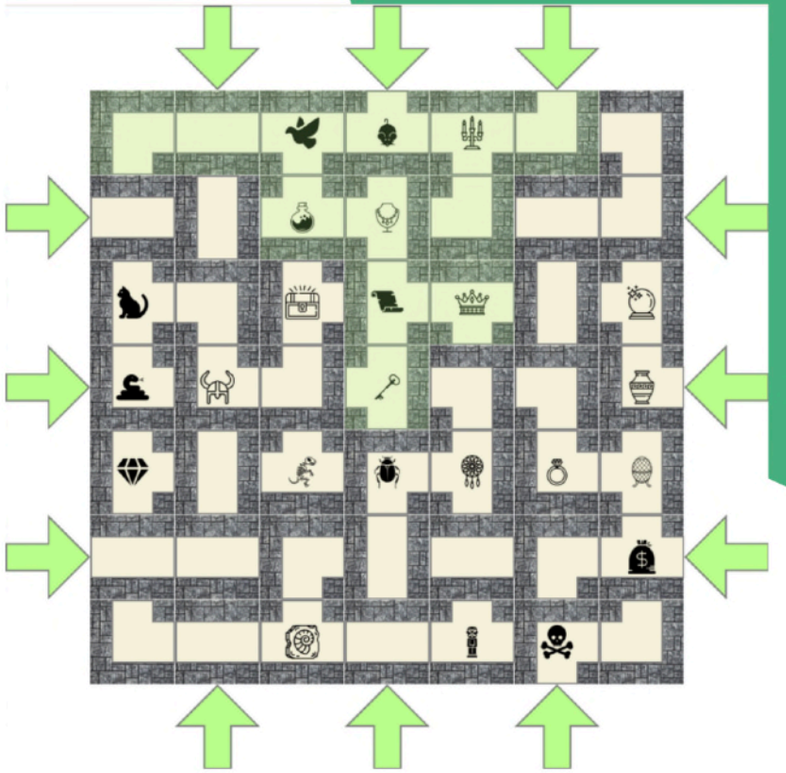


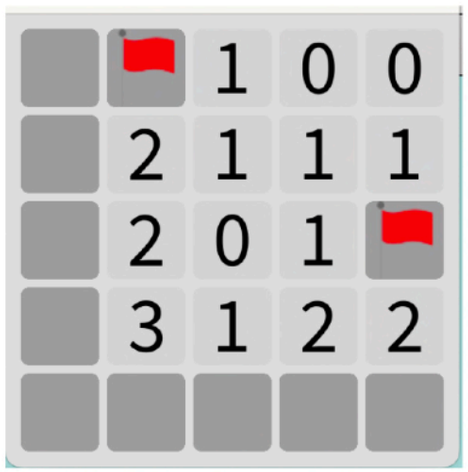
https://www.youtube.com/watch?v=H8zedVWw5UA

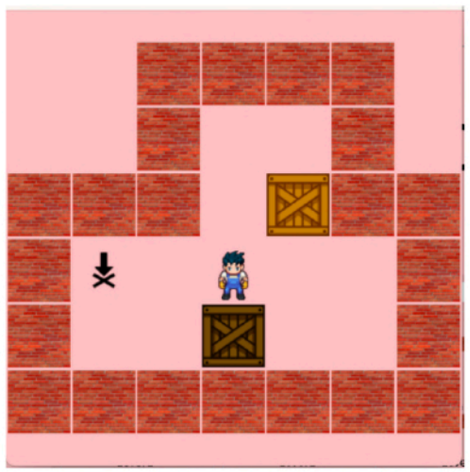
Takuzu

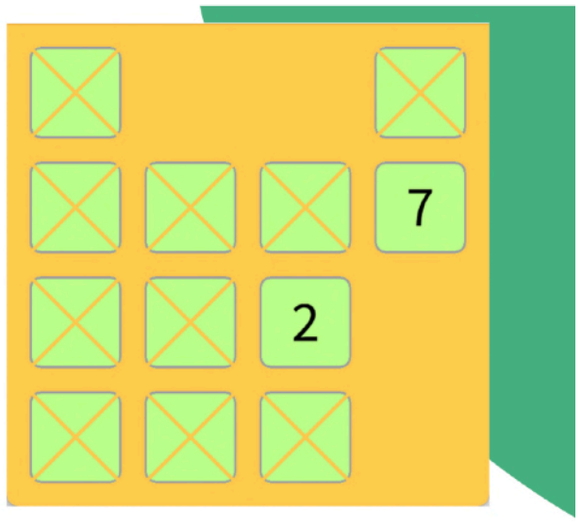


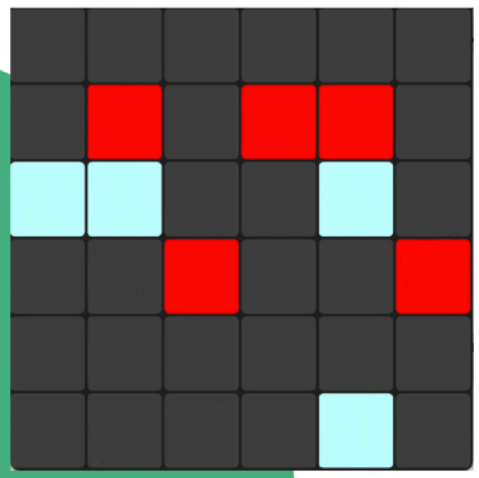

A
B
C
D

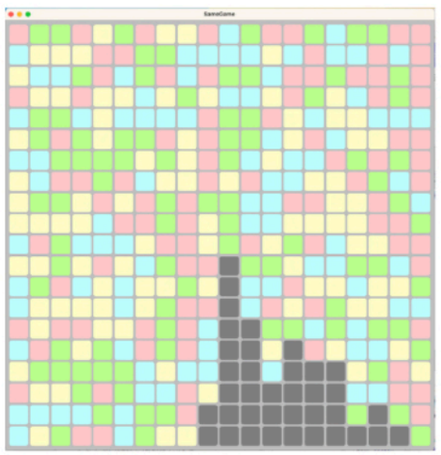



1 0 0
2 1 1 1
2 0 1
3 1 2 2

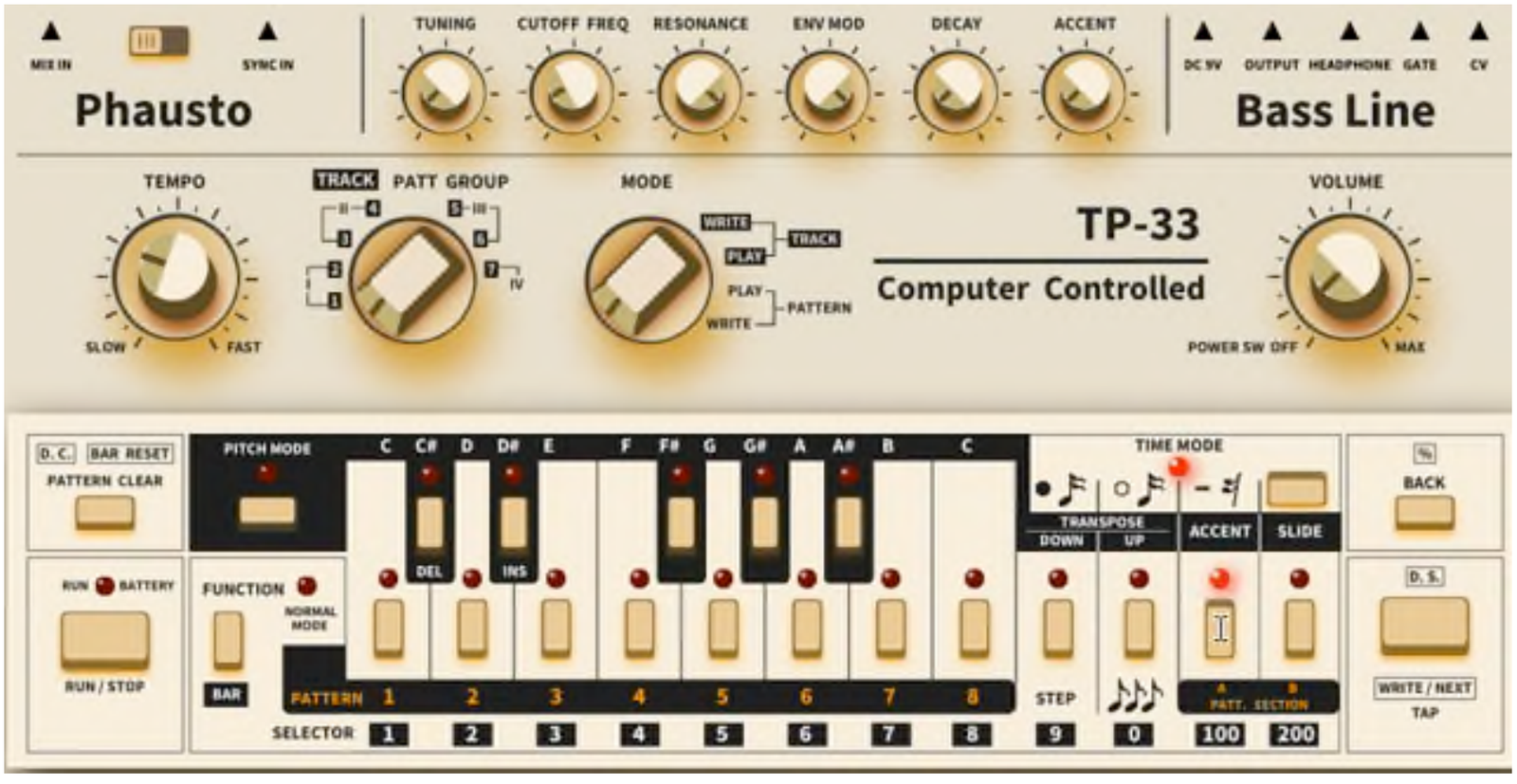



7
2





Musical instruments



Isometric-based sale simulator

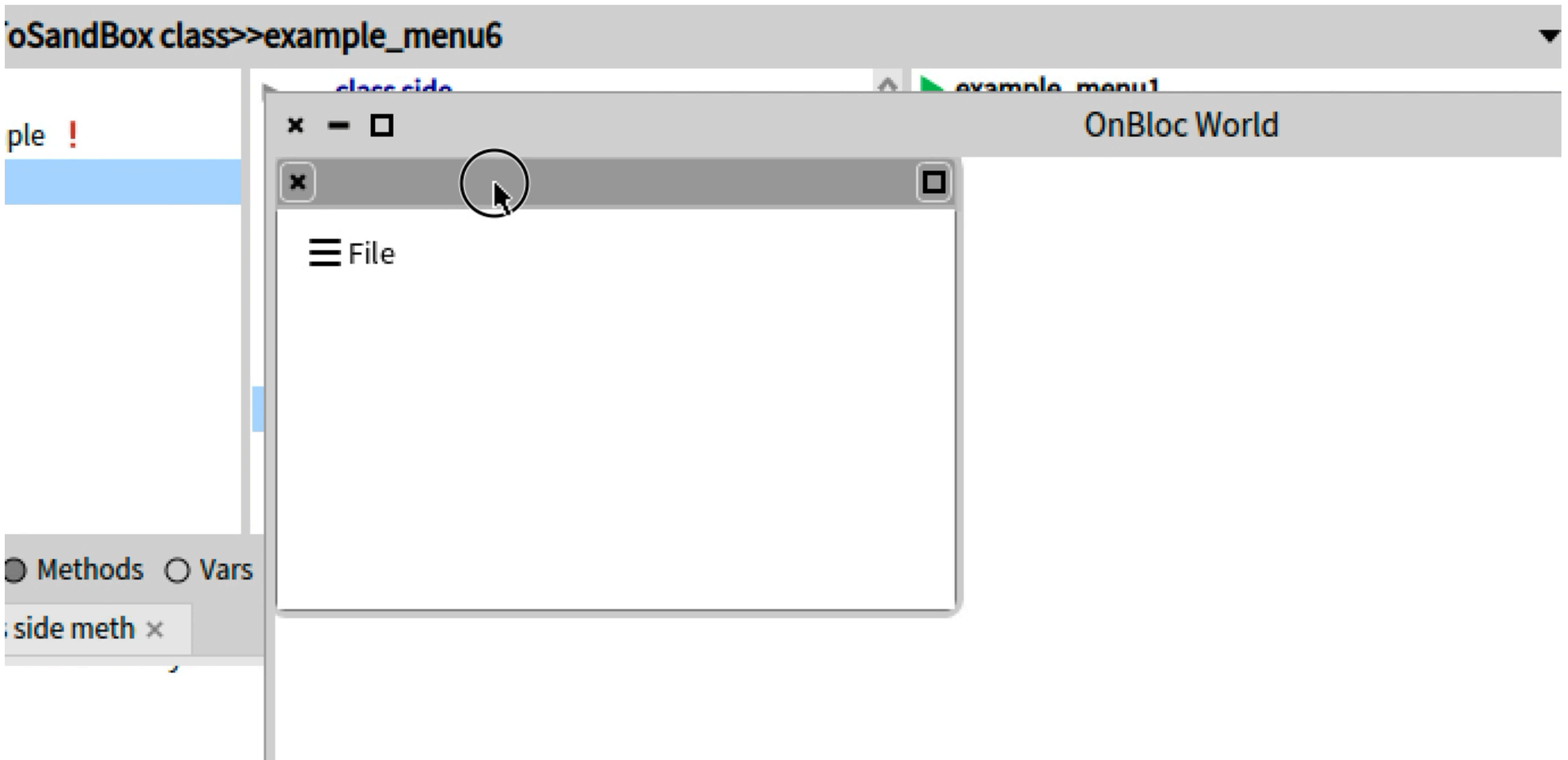
- Managing contracts and risks
- Developed in 2 months by 3 people with Bloc the new Pharo graphics framework

https://www.youtube.com/watch?v=t5qaFM2F3J0

Isometric scene

- About to be open-sourced
- github/ThalesGroup/Isometric

Toplo




```
nsets all: 5).
)).


150; withGhostT
Field).


rtical; beLabel
```

Vertical

Wrapping

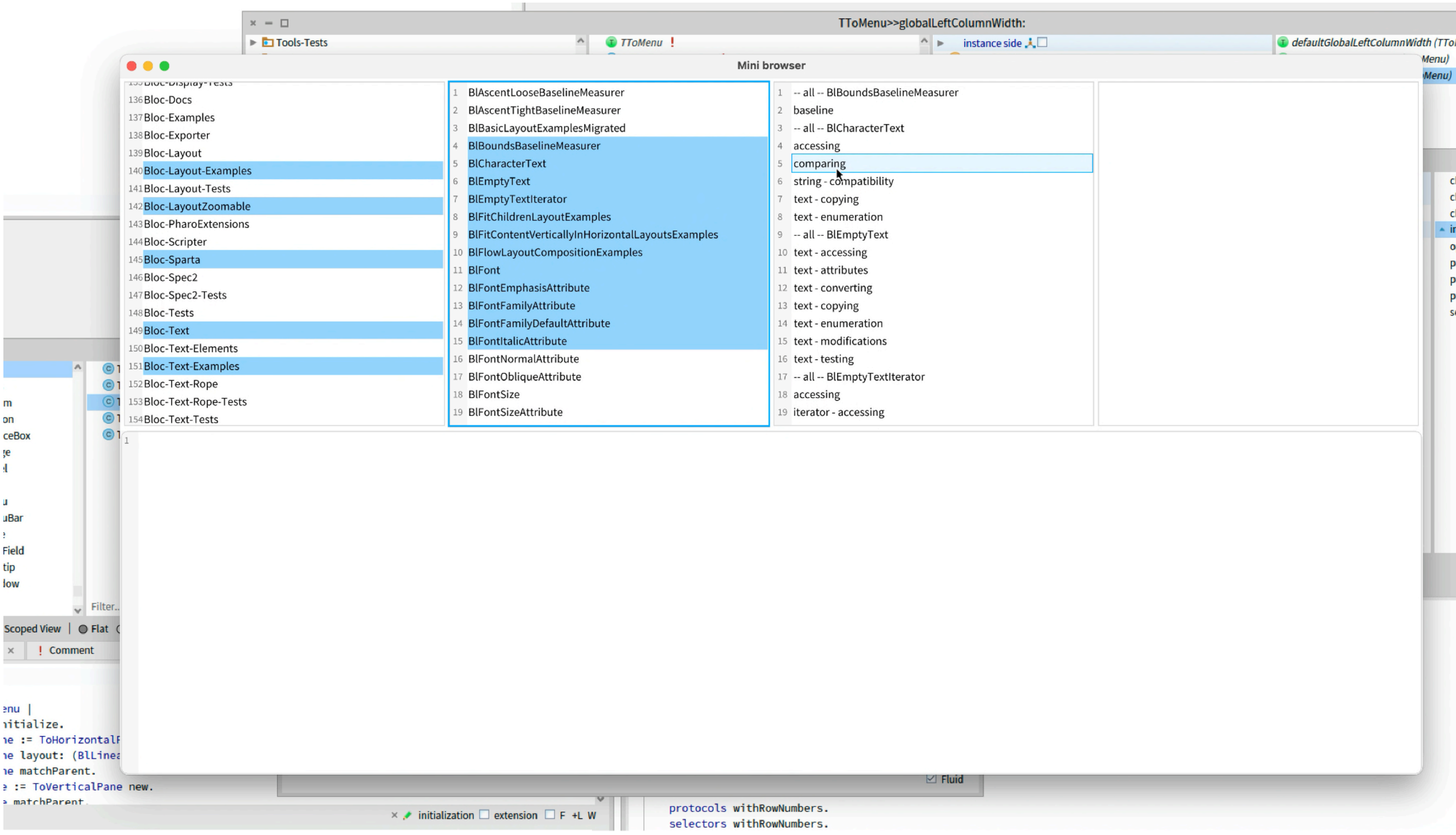
Uniform element width

Scrolling

Auto-distribution

Animate selection transition

1: Alabama
2: Alaska
3: Arizona
4: Arkansas
5: California
6: Colorado
7: Connecticut
8: Delaware
9: Florida
10: Georgia
11: Hawaii
12: Idaho
13: Illinois Indiana
14: Iowa
15: Kansas
16: Kentucky
17: Louisiana
18: Maine
19: Maryland
20: Massachusetts
21: Michigan
22: Minnesota
23: Mississippi
24: Missouri
25: Montana
26: Nebraska


TToMenu>>globalLeftColumnWidth:
Tools-Tests
TToMenu
instance side
defaultGlobalLeftColumnWidth (TTo
Mini browser
136 Bloc-Docs
137 Bloc-Examples
138 Bloc-Exporter
139 Bloc-Layout
140 Bloc-Layout-Examples
141 Bloc-Layout-Tests
142 Bloc-LayoutZoomable
143 Bloc-PharoExtensions
144 Bloc-Scripter
145 Bloc-Sparta
146 Bloc-Spec2
147 Bloc-Spec2-Tests
148 Bloc-Tests
149 Bloc-Text
150 Bloc-Text-Elements
151 Bloc-Text-Examples
152 Bloc-Text-Rope
153 Bloc-Text-Rope-Tests
154 Bloc-Text-Tests
1 BlAscentLooseBaselineMeasurer
2 BlAscentTightBaselineMeasurer
3 BlBasicLayoutExamplesMigrated
4 BlBoundsBaselineMeasurer
5 BlCharacterText
6 BlEmptyText
7 BlEmptyTextIterator
8 BlFitChildrenLayoutExamples
9 BlFitContentVerticallyInHorizontalLayoutsExamples
10 BlFlowLayoutCompositionExamples
11 BlFont
12 BlFontEmphasisAttribute
13 BlFontFamilyAttribute
14 BlFontFamilyDefaultAttribute
15 BlFontItalicAttribute
16 BlFontNormalAttribute
17 BlFontObliqueAttribute
18 BlFontSize
19 BlFontSizeAttribute
1 -- all -- BlBoundsBaselineMeasurer
2 baseline
3 -- all -- BlCharacterText
4 accessing
5 comparing
6 string - compatibility
7 text - copying
8 text - enumeration
9 -- all -- BlEmptyText
10 text - accessing
11 text - attributes
12 text - converting
13 text - copying
14 text - enumeration
15 text - modifications
16 text - testing
17 -- all -- BlEmptyTextIterator
18 accessing
19 iterator - accessing
1
Scoped View
Flat
Comment
Filter..
Fluid
initialization
extension
F +L W
protocols withRowNumbers.
selectors withRowNumbers.

Fun with Us

- 1 hour from Paris, 1:30 from London, 35 min from Brussels
- Internships 3 to 6 months (right now we have 8 interns)
- Google Summer of Code
- PhDs / co supervision (e.g., B. Sarenac)
- Engineer position
- Visitors (Magadascar, Chile, Montreal, …)

Pharo