

# Pharo is Growing ... Fast!

Consortium.pharo.org

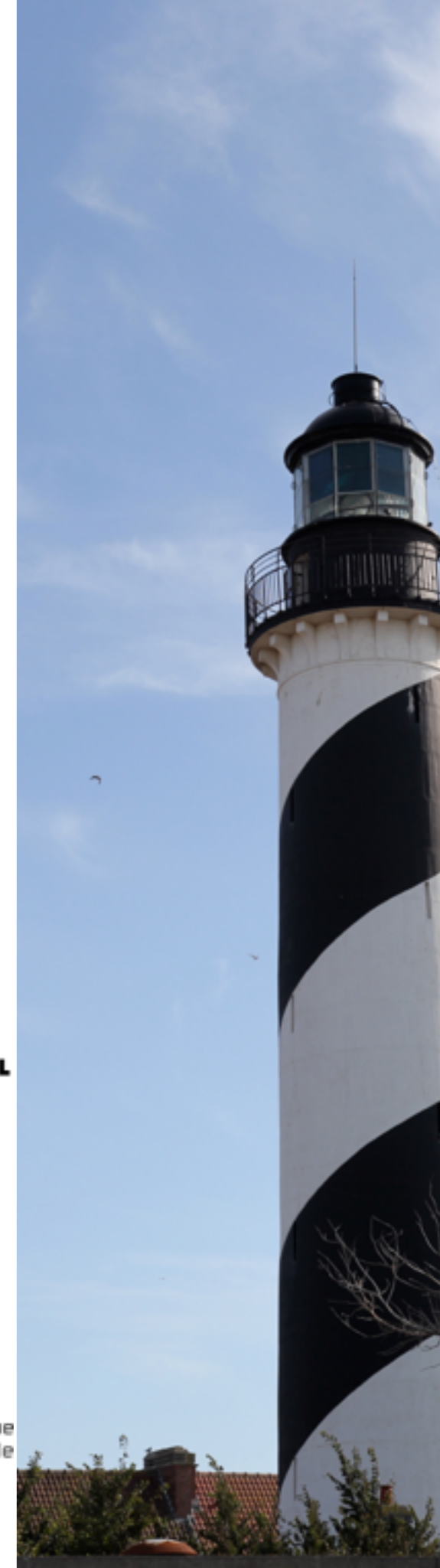
<http://www.pharo.org>



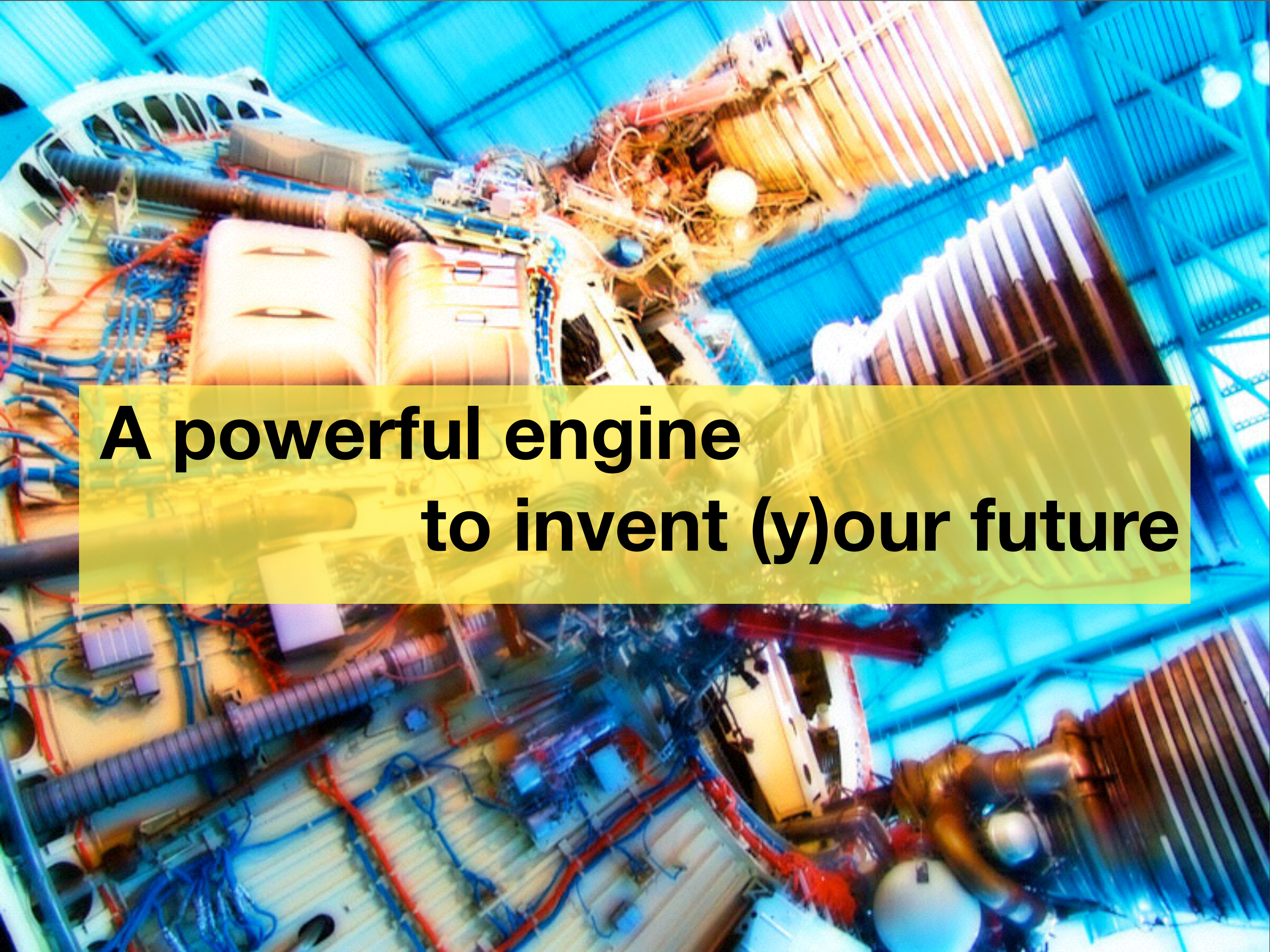
Accelerate Confidently




Gagnez une Qualité d'Avance



**You may remember...**



**A powerful engine  
to invent (y)our future**



**An ecosystem where  
innovation/business bloom**

# More Pharo's Teachers

- Uni. of Buenos Aires • Uni. of Bern • Uni. of Maroua • Uni. of Brussels • Ecole des Mines de Douai • Uni. de Savoie • Ivan Franko Nat. Uni. of Lviv • Czech Technical Uni. • CULS Prague
- Uni. of Quilmes • Uni. of La Plata • Northern Michigan Uni. • Uni. Technologica Nacional (UTN)
- Uni. Catholic of Argentina • Uni. of Santiago • Uni. Policnica de Catalunya • Uni. de Bretagne Occidentale • Uni. of Tomsk • Uni. of Fernhagen • IT University of Copenhagen • Uni. Cat del Sacro Cuore of Brescia • Uni. of Yaounde • Uni. of Saint-Louis • Uni. of Lomé • Uni. of Lyon

# More Tweets, blogs, buzz

- ✦ Pharo 3,603 tweets / 1,195 followers
- ✦ S. Ducasse tweets 841 / 896 followers
- ✦ S. Stinckwich 11700 / 1240 followers
- ✦ Moose 784 tweets / 359 followers
- ✦ Youtube Pharo smalltalk: about 1540 videos!

# Blogs

- ✦ <http://pharo.org/blogs>
- ✦ <http://astares.blogspot.co.uk>
- ✦ <http://clementbera.wordpress.com>
- ✦ <http://pharoweekly.wordpress.com>

- Guille Polito, [Playing with Objects](#)
- Mariano Martinez Peck, [Sending messages](#)
- Igor Stasenko, [Computer Adventures](#)
- Laurent Laffont, [MaGaLoMa](#)
- Esteban Lorenzano, [The Martian Chronicles](#)
- Tudor Girba, [Humane assessment](#)
- Philippe Back, [The Philippe Back Report](#)
- Yuriy Tymchuk, [Uko on Code](#) and [Sleepy Coders](#)



# More Contributors

Over 76 contributors for Pharo 40

**\*\*THANK\*\* YOU ALL !!!**

There are more and more people that we never met or never ever heard about :)

# More Research Groups

Lafhis (AR)

Software Composition

Group (CH)

CAR (FR)

RMOD (FR)

Ummisco (IRD)

Reveal (CH)

CEA-List (FR)

Uqbar (AR)

Lab-STICC (FR)

IGEVET (AR)

Pleiad (CL)

Rych (CL)

OC (FR)

CCMI-FIT (CZ)

ASEREG (BR)

# Companies

[www.2denker.de](http://www.2denker.de)

[www.agilitic.com](http://www.agilitic.com)

[www.airflowing.com](http://www.airflowing.com)

[www.anymorphic.com](http://www.anymorphic.com)

[www.ardishealth.com](http://www.ardishealth.com)

[www.beta9.be](http://www.beta9.be)

[www.bombardier.com](http://www.bombardier.com)

[www.cmsbox.com](http://www.cmsbox.com)

[www.finworks.biz](http://www.finworks.biz)

[seaside.gemstone.com](http://seaside.gemstone.com)

[www.ibizlog.com](http://www.ibizlog.com)

[www.inceptive.be](http://www.inceptive.be)

[www.jooshr.com](http://www.jooshr.com)

[www.majcon.de](http://www.majcon.de)

[www.mindclue.ch](http://www.mindclue.ch)

[www.miriamtech.com](http://www.miriamtech.com)

[www.myneat.org](http://www.myneat.org)

[www.netstyle.ch](http://www.netstyle.ch)

[www.panasoft.com](http://www.panasoft.com)

[www.pinesoft.co.uk](http://www.pinesoft.co.uk)

[www.promedmedical.net](http://www.promedmedical.net)

[www.sharedlogic.ca](http://www.sharedlogic.ca)

[www.smallworks.com.ar](http://www.smallworks.com.ar)

[www.10pines.com](http://www.10pines.com)

[www.trantaria.com](http://www.trantaria.com)

[www.yesplan.be](http://www.yesplan.be)

[www.synectique.eu](http://www.synectique.eu)

[www.sorabito.com](http://www.sorabito.com)

[objectprofile.com](http://objectprofile.com)

**trentosur**

Soluciones móviles para retail y trade show testing

Nos enfocamos en lo que importa del negocio  
sin perder de vista los detalles de su implementación.

Dispositivos móviles, Aplicaciones móviles para Android, Soluciones para dispositivos móviles de terceros.

**PharoCloud**

Overview Pricing Blog Login Sign Up

Pharo platform as a Service: put your Smalltalk web-application online at PharoCloud in just 3 clicks

Try it for FREE

Watch how it works

**Romax TECHNOLOGY**

Wind Energy

Pioneering new ways of maximizing sustainable wind energy yields. Our products and services optimize asset availability, wind turbine performance and drivetrain reliability. We work with owners, operators, manufacturers, insurers and service providers worldwide.

Get in touch

Related links: Insight, Recruitment, Customer experience, Product service, Monitoring service

Wind Energy

Pioneering new ways of maximizing sustainable wind energy yields.

**WEBDRUCK.CH**  
Web-To-Print Solution

- Design and create individual printed matter
- eShop with credit card payment
- High quality PDF output with Printing Process integration
- Thousands of orders for seven Swiss printing companies

**Quuve**

**iBizLog** - <http://www.ibizlog.com>

A product by Smallworks

**SpenserFuchs**

**Pinesoft MBagger**

Dedicated and cost-effective tools for software evolution

Dedicated Analyses, Dedicated tools, Decision making

# Some Success Stories

**Yesplan** is veelzijdige software voor het efficiënt plannen van evenementen.

Yesplan is uiterst gebruiksvriendelijk, flexibel en makkelijk te koppelen met andere software.

NAME	ADDRESS	PHONE
...	...	...

Model is a platform for software and data analysis.

License assessment

Line graph showing trends over time.

**CSOB**

**airflowing**

Organize your creative work

Plans and Pricing

Manage your simple way

**OBJECT PROFILE**

**Das Content Management mit System**

100% inline-Editor

**2denker**

Continuous API Testing

Keep your services under control 24/7

**t3**

# More new books!!!

- Numerical Methods in Pharo
- Enterprise Pharo: a Web Perspective (will be announced at ESUG :)
- Soon “Updated Pharo by Example”
- Will start writing soon: “Developing Web App with Pharo: a Tutorial”

# Forthcoming MOOCs

- Getting immersed in Pharo (April 2016)
  - 5 weeks/ 1h videos a week
  - 40 K Euros of videos processing
  - eng/french/(may be spanish)
- Advanced object-oriented design in Pharo (later)

**You may remember...**



Pharo is (y)our vehicle



Pharo is

**yours**



Pharo is not perfect

But **\*\*every\*\*** single day we improve it

Yes you can have an  
impact in 1h per week

How to strengthen  
Pharo's future?

# Pharo Consortium

[membership](#)

[members](#)

[news](#)



Pharo is a clean, innovative, open-source Smalltalk-inspired environment. Pharo's goal is to deliver a clean, innovative, free open-source Smalltalk-inspired environment. By providing a stable and small core system, excellent dev tools, and maintained releases, Pharo is an attractive platform to build and deploy mission critical Smalltalk applications. The license of Pharo is MIT with some original parts remaining under the Apache License. All contributors are required to sign our license agreement.

The consortium is for legal entities, if you are an individual that wants to support Pharo participate to the [Pharo association](#).

**Industrial members**

## Pharo consortium portal

*A clean, innovative, open-source, Smalltalk-inspired environment.*

### What's new ([See all](#))

#### [A new age for Pharo](#)

*1 March 2013 5:37:47 pm by Stéphane Ducasse*

After some efforts, we are proud to announce the consortium around Pharo. With such consortium companies and academic partners will be able to collaborate and sustain the development of the Pharo envi...

[Entries \(RSS\)](#) and [Comments \(RSS\)](#)

# Consortium Members

- ✦ Managed by Inria for now
- ✦ Who: companies, institutions, user groups
- ✦ Privileged access to the **core** development team
- ✦ Influence **priorities** of the next development
- ✦ **Engineering support time**
- ✦ Job posts
- ✦ Training/Conferences special prices

# Fees

- ✦ Gold 4000
  - ✦ 4 days of engineering time + multiple job descriptions for job dashboard.
- ✦ Silver 2000
  - ✦ two days of engineering time + one job description.
- ✦ Bronze 1000
  - ✦ one day of engineering time.

25 \* 2K



$$25 * 2K = 50 * 1K$$

$25 * 2K = 50 * 1K$   
= 1 full engineer for Pharo

Yes you can have an impact  
on the future!



This is the **Pharo** users association site

*Pharo is a clean, innovative, open-source Smalltalk-inspired environment.*

[Home](#)

[Members](#)

[News](#)

[About](#)

- ✦ Managed by the Pharo Association
- ✦ Individuals
  - ✦ Premium (99 Euros)
  - ✦ Normal (40 Euros)
- ✦ Join and participate what we do!

We can do better  
to support business!

*Phar* *Pro*

# Pharo Pro

- ✦ Managed by the Pharo Consortium
- ✦ Professional Support

# Pharo Pro Services

- ✦ Long Term Support (LTS)
- ✦ Supporting different platforms
- ✦ Supporting migration
- ✦ Specific development (libraries, bindings)



# Pharo Pro

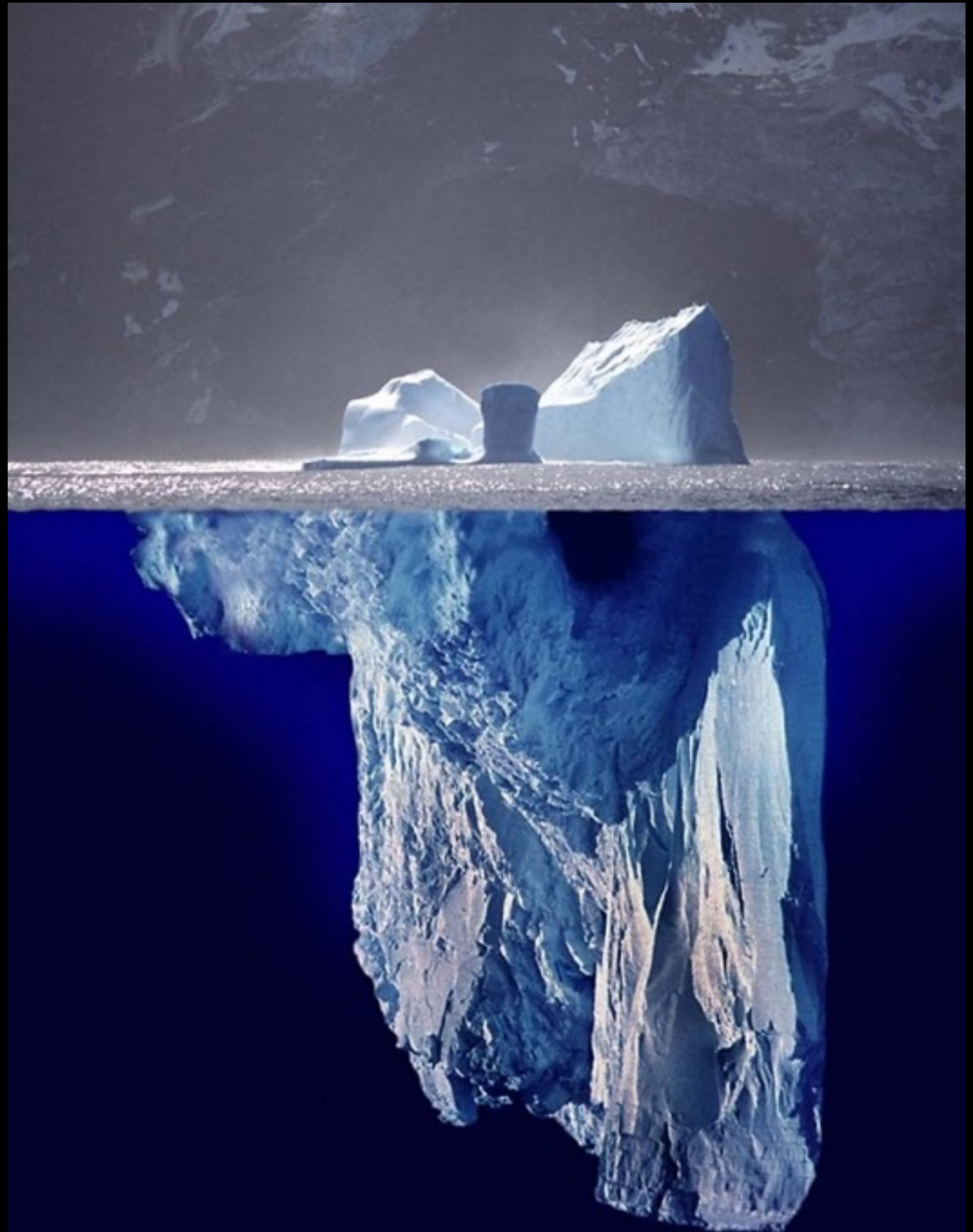
- ✦ Talk to us :)
- ✦ Esteban and me are here to talk to you

# Releases

- ✦ Pharo3: Release April `14
- ✦ Pharo4: Release April `15
- ✦ Pharo5: Alpha started full speed

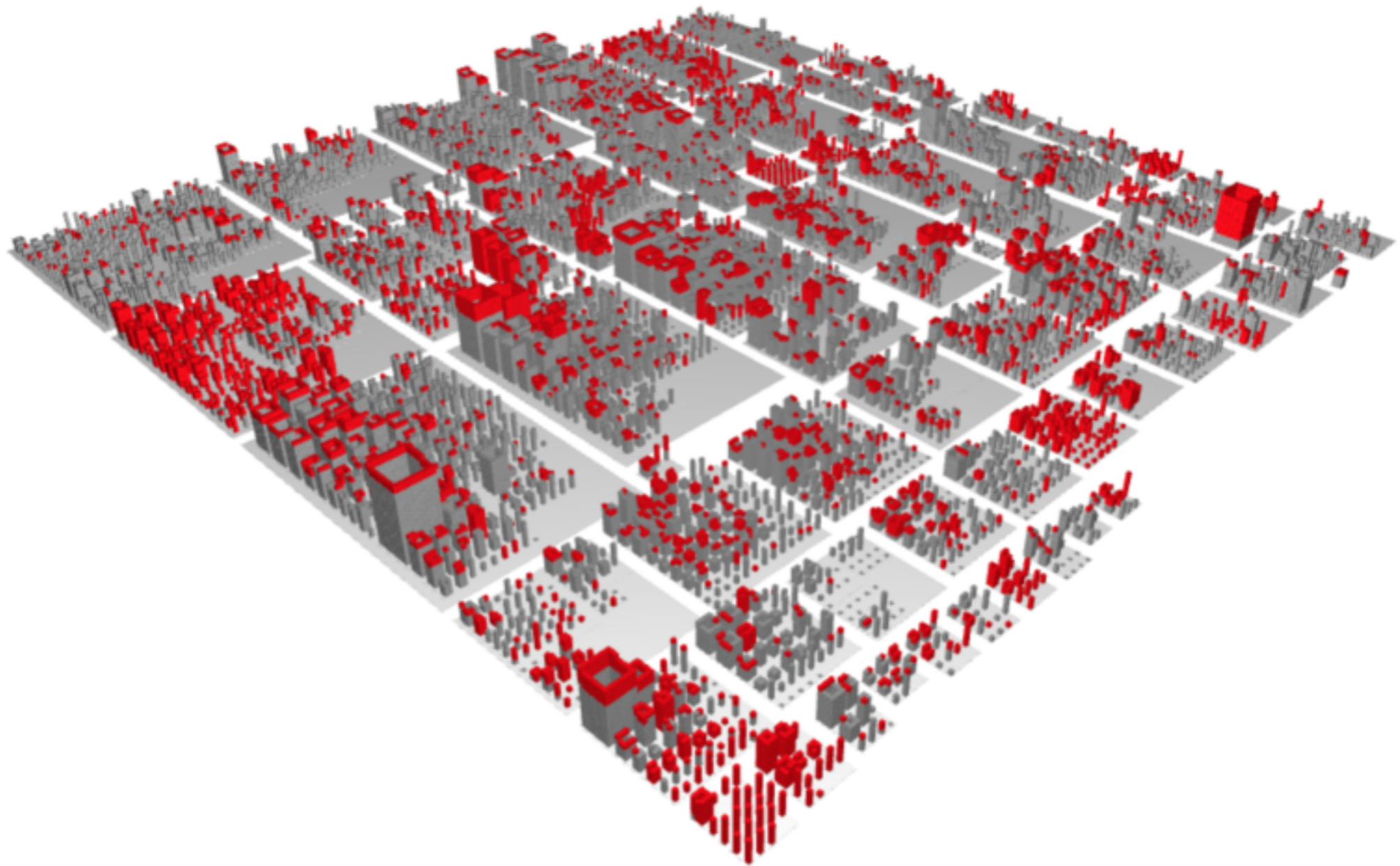
# Iceberg

- ✦ A lot of changes!
- ✦ Not everything visible



Any little step is a quality  
improvement

# A lot of Change!



# Yet easy to adopt

- ✦ Moose (152 packages) switched in two afternoons (two people)
- ✦ Others: “I just loaded my packages”

Pharo4

# Pharo4

- ✦ Released Spring 2015
- ✦ >1700 Issues closed
- ✦ Very stable



# Small stuff...

- ✦ Improved Refactorings
- ✦ 6MB Deployment Image
- ✦ Browser and Tool cleanups
- ✦ Context Cleanup (MethodContext/ContextPart merge)

# Dark Theme

The screenshot displays the Pharo IDE interface in a dark theme. The main workspace shows a calculator application with a numeric keypad and function buttons. The calculator display shows the value 3.141592653589793. The interface includes several panels:

- Workspace:** Shows the current object being inspected, `HP35CalculatorUIModel`, with the message `new inspect; openWithSpec.`
- HP35CalculatorModel >> #pi:** A list of methods including `one`, `pi`, `power`, `rcl`, `reciprocal`, `rollDown`, `seven`, `sin`, `six`, and `sqrt`.
- HP35CalculatorModel >> #testDivision:** A list of test methods including `setUp`, `testAddition`, `testArcSinCosOutOfRange`, `testClear`, `testDivision`, `testDivisionByZero`, `testEmpty`, `testExpLn`, and `testLog`.
- EyeTreeInspector:** Shows the object structure for `HP35CalculatorModel`, including `core`, `memory`, `input`, `inputState`, `arcMode`, `autoEnter`, and `error`.
- Test Runner:** Displays the results of a test run: `118 run, 118 passes, 0 skipped, 0 expected failures, 0 failures, 0 errors, 0 unexpected passes`.
- Test Finished:** A notification box indicating the test is complete.

The bottom status bar shows the current workspace and the test runner's actions: `Run Selected`, `Run Profiled`, `Run Coverage`, `Run Failures`, `Run Errors`, and `File out results`.

# GT Tools

- ✦ Start to replace all tools
- ✦ For now: Inspector + Spotter

<http://gt.moosetechnology.org>

GTInspector:  
empower you to revisit your  
interaction with your objects

a MethodDictionary [99 items] (#\*-&gt;Point&gt;...



a CompiledMethod (Point&gt;&gt;#scaleTo:) x



Items Raw Meta

Key	Value
#x	Point>>#x
#theta	Point>>#theta
#quadrantOf:	Point>>#quadrantOf:
#onLineFrom:to:within:	Point>>#onLineFrom:to:within:
#bitShiftPoint:	Point>>#bitShiftPoint:
#<	Point>>#<
#scaleFrom:to:	Point>>#scaleFrom:to:
#sideOf:	Point>>#sideOf:
#\\	Point>>#\\
#scaleTo:	Point>>#scaleTo:
#grid:	Point>>#grid:
#'/'	Point>># '/'
#asIntegerPoint	Point>>#asIntegerPoint
#directionToLineFrom:to:	Point>>#directionToLineFrom:to:
#r	Point>>#r
#angleWith:	Point>>#angleWith:
#isInsideCircle:with:with:	Point>>#isInsideCircle:with:with:
#'>='	Point>># '>='
#negated	Point>>#negated
#translateBy:	Point>>#translateBy:
#squaredDistanceTo:	Point>>#squaredDistanceTo:
#flipBy:centerAt:	Point>>#flipBy:centerAt:
#octantOf:	Point>>#octantOf:

50 / 99

enter search query

I... t... S... A... Ir Dε... He... Met...

```

37 <20> pushConstant: 3.0
38 <D1> send: reciprocal
39 <69> popIntoTemp: 1
40 <10> pushTemp: 0
41 <CE> send: x
42 <70> self
43 <CE> send: x
44 <D2> send: asFloat
45 <B9> send: /
46 <6A> popIntoTemp: 2
47 <10> pushTemp: 0
48 <CF> send: y
49 <70> self
50 <CF> send: y
51 <D2> send: asFloat
52 <B9> send: /
53 <6B> popIntoTemp: 3
54 <12> pushTemp: 2
55 <13> pushTemp: 3
56 <B6> send: =
57 <9B> jumpFalse: 62
58 <12> pushTemp: 2

```


#p Pad

Show all  
<cmd+shift+right>




Packages 5/9





 System-FilePackage



 RPackage-Core

 Tool-FilePackageBrowser

 \_UnpackagedPackage

 Tool-Workspace

Pragmas 3/3

nautilusGlobalPackageTreeFixMenu

nautilusGlobalPackageFixMenu

nautilusGlobalPackageMenu

<https://www.youtube.com/watch?v=wdYhM9byyPw>

# First Class Variables

- First class Instance Variables (Slots)
- First class globals + class variables



# For what?

- Allows programmers to define behavior
- Easy reflection on variable access
  - Break on variable read, for example

Ongoing Progress...

# Better Database support

- Garage provides a unified API
- Glorp up to date soon.

# Advanced Reflection

- Partial Behavioral Reflection
- Associate MetaObject with structural object
  - Slots, Globals
  - AST nodes

# Why?

- Change behaviour for selected AST Nodes or Variables
- “All variable reads”
- “this message send”

But without changing the program code!

# Epicea

- Replace .changes
- High level model:
  - aggregate changes (refactoring)
  - serialized to disk independent of source model

Epicea Log Browser

Prior+Trigger view Expand all

Event

more

Undo 24/1/2014 10:34

**ExampleClass** >> #fortyTwo 24/1/2014 10:34

Undo 24/1/2014 11:06

**ExampleClass** >> #fortyTwo 24/1/2014 11:06

#fortyTwo --> #forty2 24/1/2014 11:07

**ExampleClass** >> #forty2 24/1/2014 11:07 This is a comment

**ExampleClass** >> #fortyThree 24/1/2014 11:07

**ExampleClass** >> #fortyTwo 24/1/2014 11:07

'I didn't like the name' 24/1/2014 11:08

'' 24/1/2014 11:09

"'comment ' trim' 24/1/2014 12:52

**EpEntryItem** >> #displayWidget 24/1/2014 12:53

MC save: Epicea-MartinDias.470 on: <http://smalltalkhub.com/mc/MartinDias/Epicea/main/> 24/1/2014 12:55

Snapshot: /Users/tinchodias/Downloads/Epicea/Epicea-1.image 24/1/2014 12:55

'312312321' 24/1/2014 13:41

Content Filters

"protocol: #example"	"protocol: #example"
fortyThree ^ self fortyTwo + 1	fortyThree ^ self forty2 + 1

# A new GC: Spur

- New Object Layout
  - e.g. faster instantiation, larger hash
- Ephemerons, Fast Become:, Pinned Objects
- Double Performance
- In stabilisation phase for Pharo



# Spur

- Esteban is fully working on it.
- Will be released for Pharo 40 and Pharo 50

# The Future is Bright

- ✦ Spur
- ✦ OSWindow
- ✦ Bloc
- ✦ Brick
- ✦ ThreadedFFI

# 64 bit COG VM

- ✦ New Spur GC+Object layout has 64bit version
- ✦ 64bit in development
  - ✦ prototype starts to work in interpreter VM
  - ✦ 32bit images can be converted to 64bit

# Sista: Runtime Optimizer

- ✦ Current JIT work per method
- ✦ Sista: detect hotspots, collect type info ==> Optimize
- ✦ Support 4th level optimisation of modern VMs (V8, Java)
- ✦ Bytecode-2-Bytecode
- ✦ Optimizer implemented in Pharo Image

# OSWindow+SDL2

- ✦ Move window and event logic to the image :)
- ✦ OSWindow is an API
- ✦ Backend uses libSDL2 via FFI
- ✦ Multiple OS Windows, OpenGL...

# Modern Gestures



Modern Events Touch  
and Gestures in Pharo

# Block: Morphic, redone

The screenshot displays the Pharo IDE interface. The main workspace contains the Pharo logo, a blue circle with a black arrow, and a diamond-shaped grid of 16 white blocks labeled 1-1 through 4-4. A red border highlights the entire grid. A class browser window titled "BIPolygonView class>>#example2" is open, showing a list of classes including BIRectangleView, BICompositeView, BImageView, BFormImageView, BSvgImageView, BLabelView, BMinimalMorphView, BIPolygonView, and BStringView. The "example2" class is selected, and its code is visible in the editor:

```
example2
<example>
^ (self new
  vertices:
    {(227 @ 0).
     (354 @ 119).
     (268 @ 195).
     (188 @ 100).
     (107 @ 183).
     (0 @ 44)});
fillstyle: Color blue;
```

Below the code, a blue polygon is rendered, with a label "BIMorph" pointing to it. The IDE window title is "Pharo! (C:\Pharo4\Pharo-40463.image)".

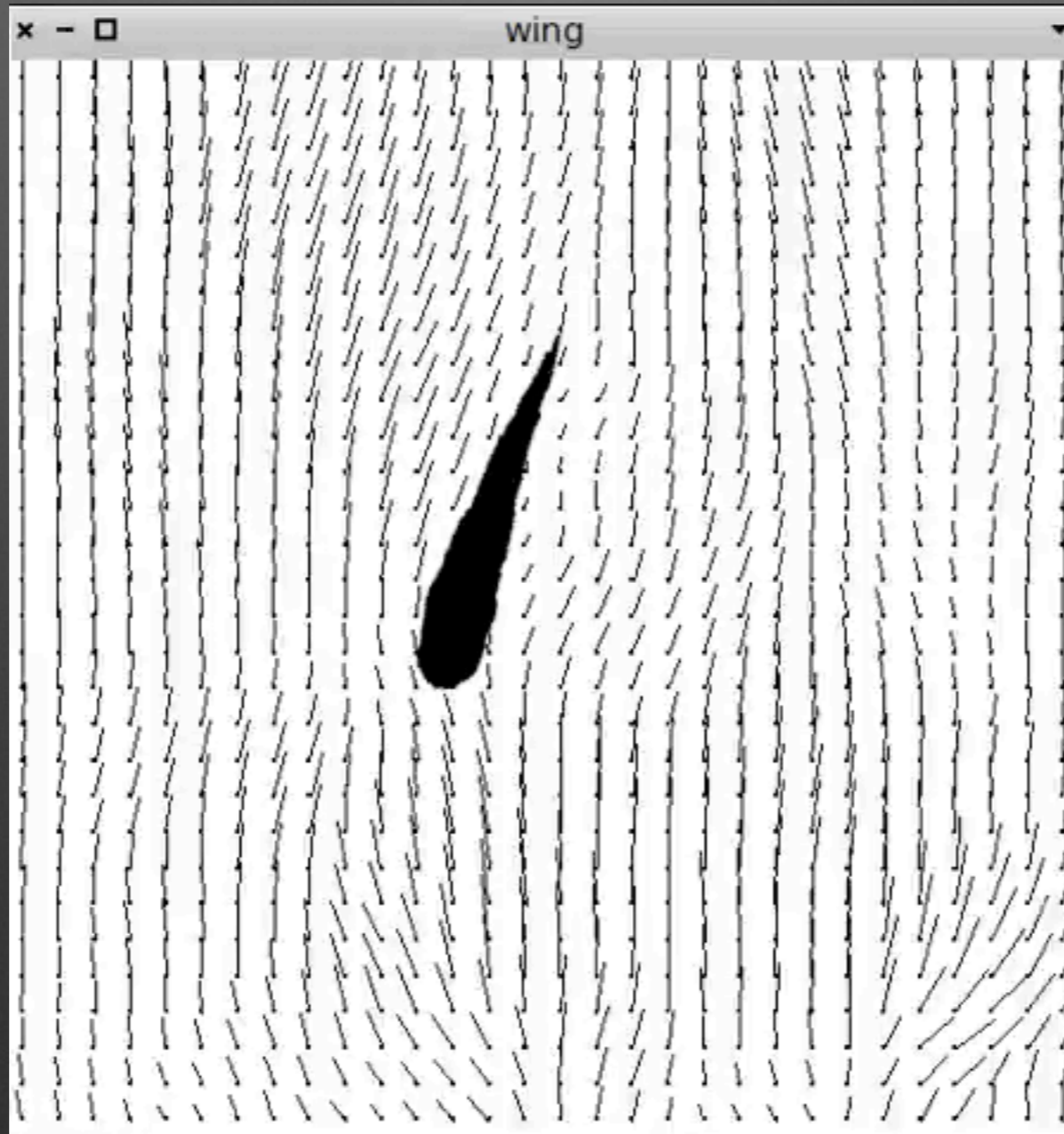




# External projects

- ✦ Too many :)

# SPH (Smoothed Particle Hydrodynamics)



# Mixing 3D

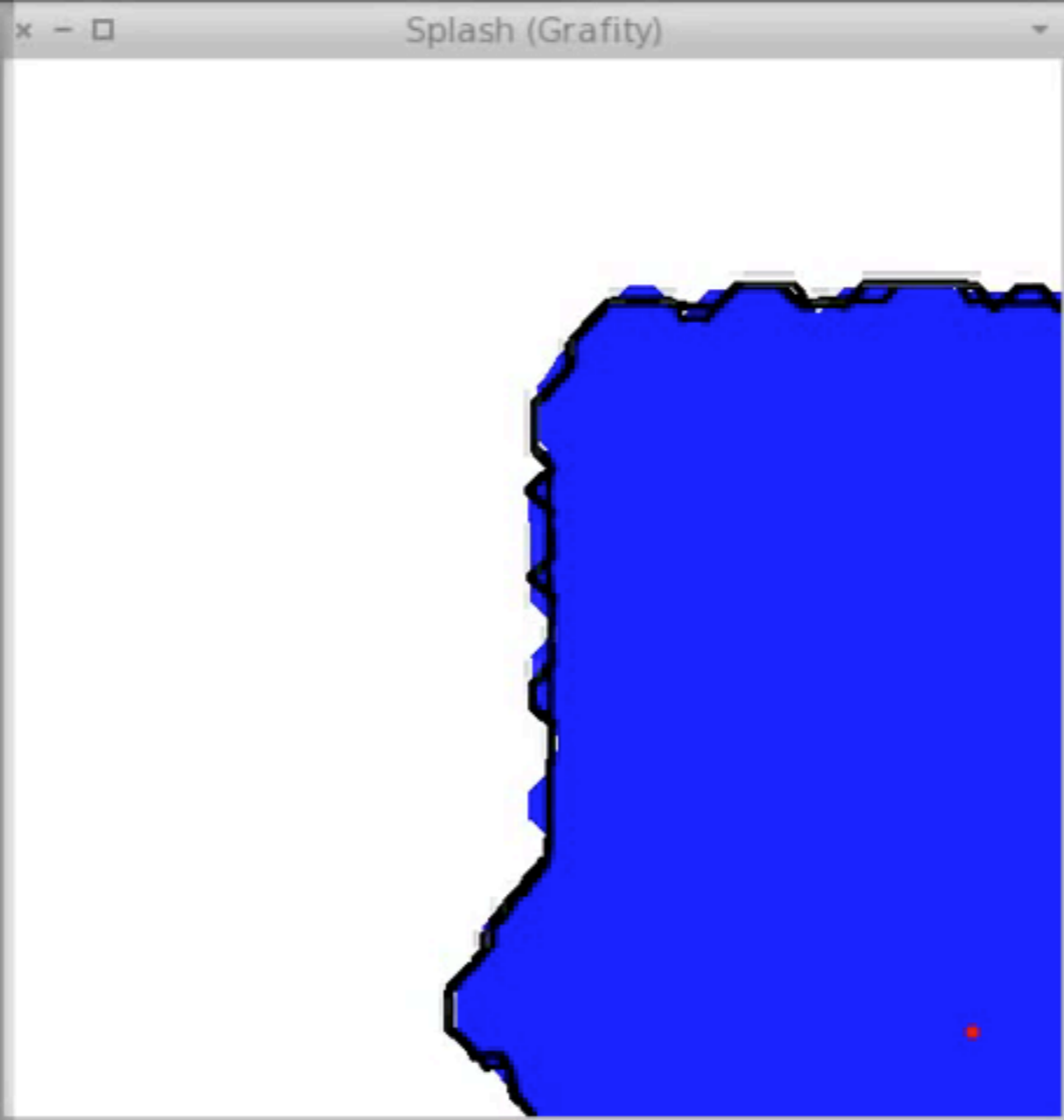
The screenshot shows an IDE window with a class hierarchy on the left and source code on the right. The class hierarchy is expanded to show the `HGSimulator` class. The source code is a Scala-like code snippet for `goonRefractionWorld`.

```
pe: Pkg1|^Pkg2|Pk.*Core$
  Facades
  Simulator
  Tests-Abstract
  Utilities
  HudsonBuildTools20
  Jun-Geometry
  Jun-Graphics
  Jun-System
  Jun-Tests
  Jun-Woden
  Kernel
  KernelTests
  KeyChain
  Keymapping-Core
  Keymapping-KeyCombinat
  Keymapping-Pragmas

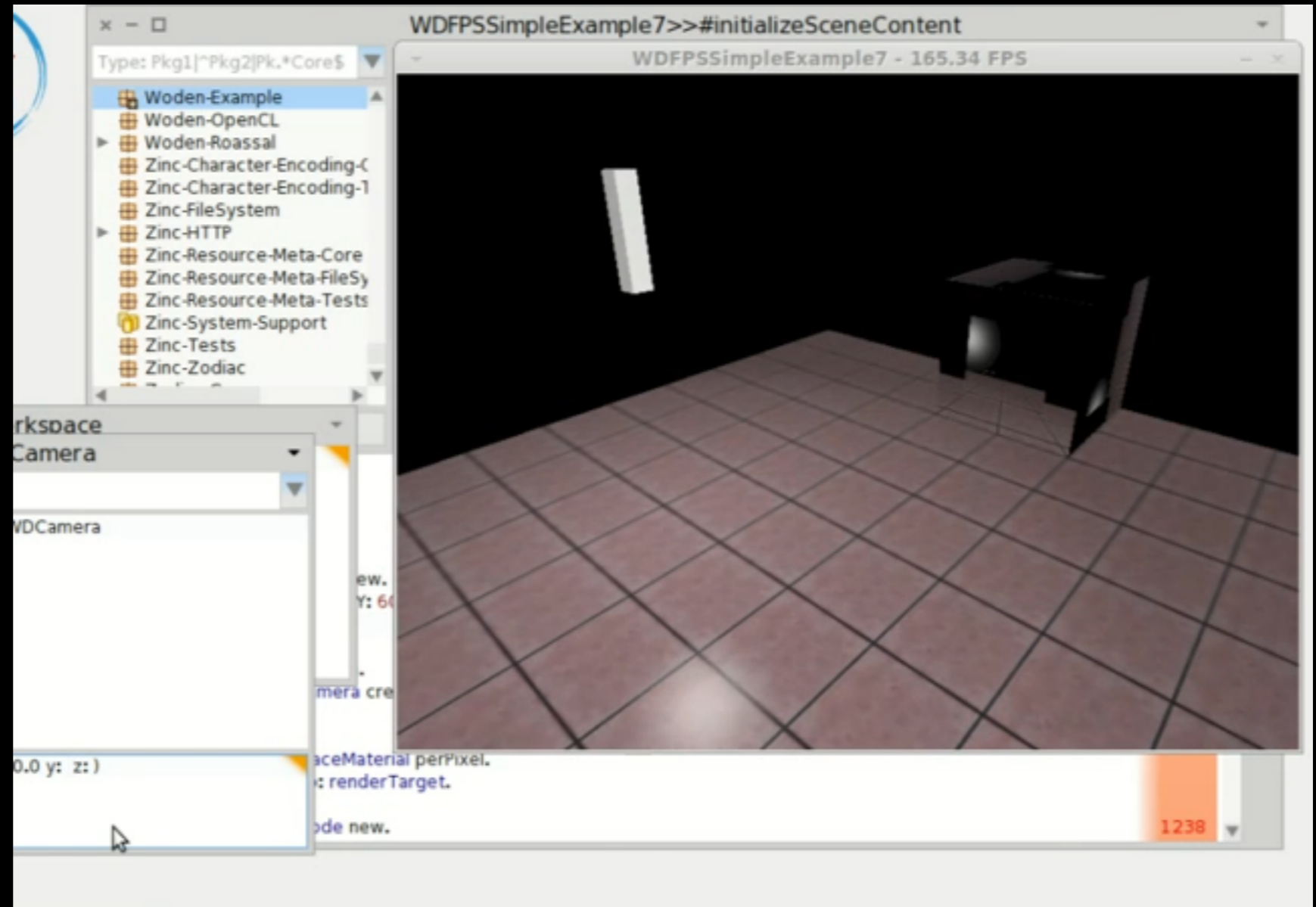
-- all --
application
application
application
application
application
application
application
application
application
application
copyrights
images
utilities

goonRefractionWorld
  "HGSimulator lagoonRefractionWorld"

  | random form0 form1 form2 form rc1 rc2 ball ball2 a1 a2 r simulator contact |
  random := Random new.
  form0 := Form fromDisplay: (0@0 corner: 500@500).
  form1 := Form extent: form0 extent depth: form0 depth.
  form2 := Form extent: form0 extent depth: form0 depth.
  form := Form extent: form0 extent depth: form0 depth.
  rc1 := JunWodenRenderingContext on: form1.
  rc1 projection: (JunPerspectiveProjection
    eyePoint: (0, 0, 10)
    sightPoint: 0, 0, 5
```



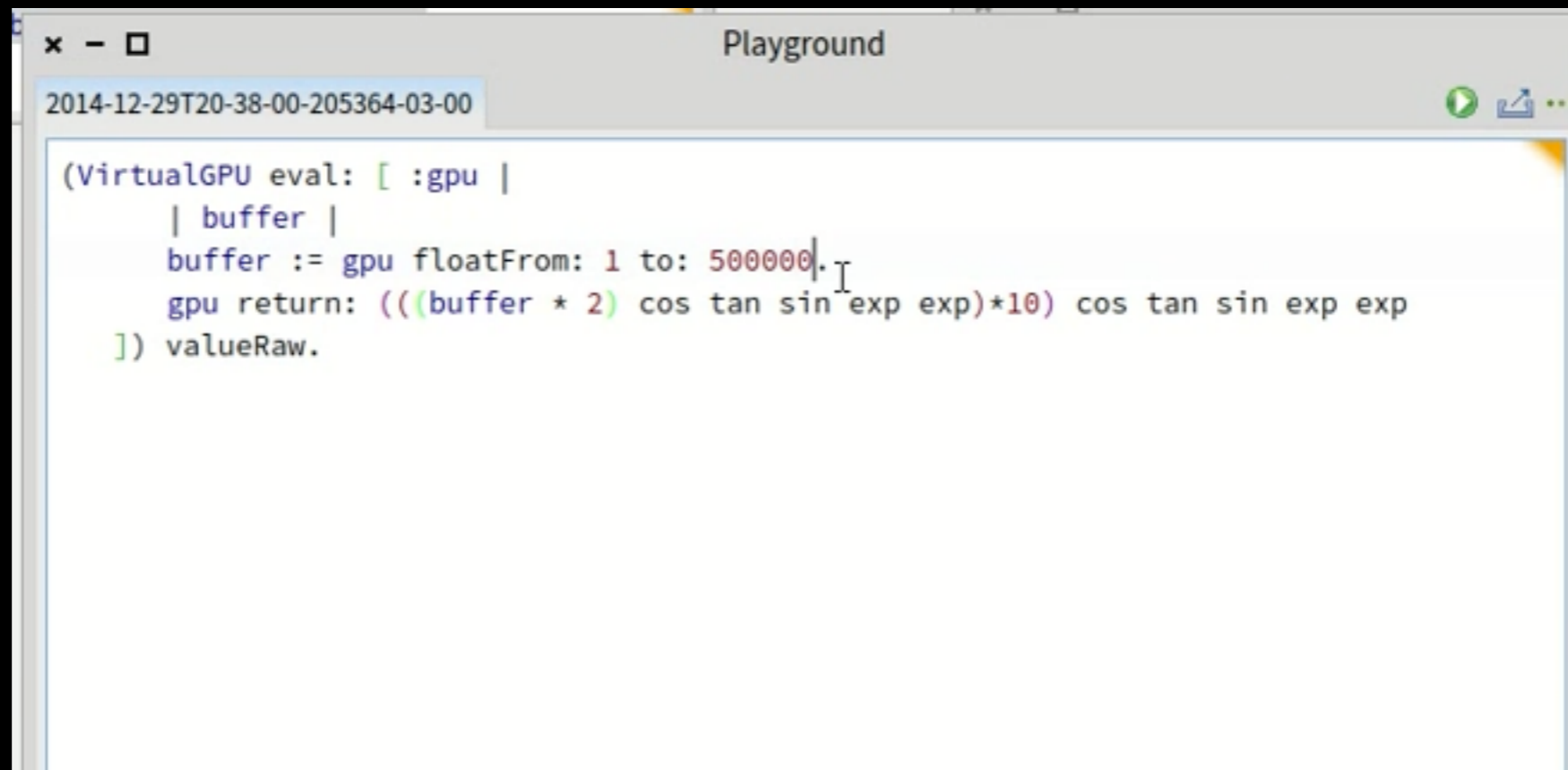
# Woden 3D



<https://www.youtube.com/watch?v=1Nze9tnwYxY>

# Virtual GPU

- The VirtualGPU is a simple DSL/framework for parallel algorithms.



```
(VirtualGPU eval: [ :gpu |
  | buffer |
  buffer := gpu floatFrom: 1 to: 500000.
  gpu return: (((buffer * 2) cos tan sin exp exp)*10) cos tan sin exp exp
]) valueRaw.
```

<https://www.youtube.com/watch?v=6xrq40kvSi4>

# Too much to show...

- ✦ Twitter: @pharoproject
- ✦ reddit Smalltalk sub-reddit
- ✦ Google+



<http://pharo.org>

Fun, simple

Excellent for teaching

Pure & elegant

Highly productive

Empowering Tools

Full access