Pharo:
10 years already and a shining future

http://stephane.ducasse.free.fr
http://www.pharo.org
Thanks you!
Thanks you Tomohiro!
A word of presentation
Expert in language design

Traits in Php7.0, Perl60
Influenced Traits in Scala
Expert in maintenance

Program analysis, Metamodels, visualization, testing, refactorings, metrics....
Building **specific** analysis tools for important running business software (Ada, Cobol, 4D, C, C++, Java…)

*Dedicated* tools to support decision making process
• LISP ....1996: discovered Smalltalk
• 1996:
• 1998: discovered Squeak
• ~2000: harvester for 3.xx, 3.6, 3.7, started to clean Squeak Responsible for Squeak3.9
• 2008: Pharo :)}
Why Pharo?
Time travel...

back to Smalltalk 2008 at Buenos Aires
I have a dream...

S. Ducasse  stephane.ducasse@free.fr

INRIA & STICAm sud (Lifia)
Let’s stop to live in a museum!
When do we *really* build on top of giant shoulders?
Thanks Dan and Alan. Now...

I want *more*!
We should be able to invent our future.
When do we make sure that we could invent Smalltalk 3000?

- first class instance variables
- modules
- immutability bits
- visibility
- image as cache
We need a new state of mind
Smalltalk as the language to define other languages

Advanced and stronger Mops

We deserve more than doesNotUnderstand:

New ways of defining languages

Domain specific language support

New generation of meta compilers
Software Engineering

Tests: which ones should I fix first?
Continuous test running
Smother refactorings and code manipulation
Continuous integration / Extreme integration
Better Lint Rules / Domain specific lint rules
Bug tracking
UI

Multitouch support
New UI
When will we be able to reinvent UI
Cairo and others?
New IDEs
Pharo’s goals...
A powerful engine to invent (y)our future
An ecosystem where innovation/business bloom
Super powerful live programming language and tools
... that **you** can make money with Pharo.

... to be able to invent solutions to existing problems.

... a powerful innovative dynamic language where we can build (y)our future.
Remember
An ecosystem where innovation/business bloom
Some Success Stories
Your mobile hardware as a high-chance to have been produced by a robot controlled via a smalltalk.

50% microprocessors of your mobile/PC/tablet.
Your mobile hardware as a high-chance to have been produced by a robot controlled via a smalltalk.

Starting to experiment with Pharo
Pharo in ATM like Device in Moscow

Now we can say it
Online marketplace raised 4.7 M$
Network Monitoring for small ISPs
Pharo platform as a Service: put your Smalltalk web-application online at Pharocloud in just a couple clicks
CMS with full history
Yesplan is veelzijdige software voor het efficiënt plannen van evenementen.
Yesplan is uiterst gebruikersvriendelijk, flexibel en makkelijk te koppelen met andere software.
Continuous API Testing
keep your services under control 24/7

www.2denker.de
Truck fleet monitoring
Pharo as a server
240 days as up time
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
Free Software Mobile Communication solutions
Programming environment for Programmable Logic Controllers
## NTed: disaster scenario recovery

### Darsteller

<table>
<thead>
<tr>
<th>Darsteller</th>
<th>Verletzungsmuster</th>
<th>Interaktionschema</th>
<th>tags</th>
<th>PIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient 1</td>
<td>Inhalationstrauma</td>
<td>Inhalationstrauma</td>
<td>SK I</td>
<td>EEGB</td>
</tr>
<tr>
<td>Patient 2</td>
<td>Verbrennungen 3. Grad</td>
<td>Verbrennungen 3. Grad</td>
<td>SK I</td>
<td>0MTH</td>
</tr>
<tr>
<td>Patient 4</td>
<td>Offener Oberschenkel#</td>
<td>Offener Oberschenkel#</td>
<td>SK I</td>
<td>Z19K</td>
</tr>
<tr>
<td>Patient 5</td>
<td>KopfWu + SHT 1°</td>
<td>KopfWu + SHT 1°</td>
<td>SK II</td>
<td>G7DE</td>
</tr>
<tr>
<td>Patient 6</td>
<td>Verbrennungen 2°</td>
<td>Verbrennungen 2°</td>
<td>SK II</td>
<td>WM4G</td>
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<tr>
<td>Patient 7</td>
<td>Schürfwunde</td>
<td>Schürfwunde</td>
<td>SK III</td>
<td>1S5T</td>
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<tr>
<td>Patient 8</td>
<td>Schürfwunde</td>
<td>Schürfwunde</td>
<td>SK III</td>
<td>EY0L</td>
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<tr>
<td>Patient 9</td>
<td>Betroffener</td>
<td>Betroffener</td>
<td>SK III</td>
<td>MUJS</td>
</tr>
<tr>
<td>Patient 10</td>
<td>Betroffener</td>
<td>Betroffener</td>
<td>SK III</td>
<td>SMB3</td>
</tr>
<tr>
<td>Patient 11</td>
<td>Betroffener</td>
<td>Betroffener</td>
<td>SK III</td>
<td>W5UR</td>
</tr>
</tbody>
</table>
iBizLog - http://www.ibizlog.com

A product by Smallworks

Full system developed in 5 months one dev (discontinued)
Works on linux, mac, windows, android, OLPC
ObjectProfile produces visualizations & analysis tools.
The world’s first online platform fully supporting risk-based test management.

- Your IT is critical to your company.
- Would you dare not to control your risks and neglect the possible impact for your company and customers?
- Start controlling your risks in a standardized and easy way!!!

1 BETTER

NORIZZK.COM guides you in composing the most effective and efficient end-to-end test strategy, starting from identified product risks. It helps you focus on the critical aspects of your projects and products.

NORIZZK.COM is the only platform for risk based test management showing you a comprehensive and visual overview on the risk status of your project.

> YOUR ADDED VALUE

2 FASTER

NORIZZK.COM is the fastest way to compose your master and detailed test plan. It comes with predefined knowledge base containing best practices for building your test plan, thus giving you a head start.

> YOUR ADDED VALUE

3 CHEAPER

As from now, wasting time and money by reinventing the wheel is history. NORIZZK.COM gives you significant savings in creating your test plans.

NORIZZK.COM allows sharing and reusing knowledge and experiences from previous projects. Over time, NORIZZK.COM becomes smarter in guiding you since it is self-learning and continuously improves its best practices.

> YOUR ADDED VALUE

COMPONENTS

- Risk Assessment
  Identify, categorize, prioritize and mitigate your risks with one single tool.

- Test strategy
  Write your master and detailed test plan in a faster way.

- Test Estimations
  Estimate all the required testing effort on one single page.

- Test Results
  Capture all the test results to monitor the progress.

- Reporting
  Monitor the progress using the Risk Assessment tool.

- Export
  Export your test plan to a daily file

- Business Intelligence
  Discover intelligence in your testing
Developed in 3 months one dev
Sold to another bank
Java team estimated 2 years
Deployed business model did not work.
Can develop a complex analysis in 3 months

Dedicated and cost-effective tools for software evolution

Dedicated Analyses
Synectique offers business intelligence tools for your software analysis needs

Dedicated tools
Synectique offers tools fine-tuned to your software analysis needs

Decision making
Synectique tools provide answers that lead to concrete decisions
Manage travel costs

Spesenfuchs

Spesenfuchs ist eine Reisekostensoftware für jedermann. Einfach, schnell und kostenlos. Alle Pauschalen und gesetzlichen Regelungen sind hinterlegt. Es ist keine Registrierung notwendig!

Reisekosten clever abrechnen →

Ohne Login benutzen

Login mit Facebook

Registrieren

E-Mail

Passwort

Login
Wind Energy
Pioneering new ways of maximising sustainable wind energy yields. Our products and services optimise asset availability, wind turbine performance and drivetrain reliability. We work with owners, operators, manufacturers, insurers and service providers worldwide.
To handle return mails in Switzerland
ROAM SMARTER
UNLIMITED DATA IN 100+ COUNTRIES

$7.99 PER DAY
VIEW PACKAGES

LIMITED TIME: 50% off Global SIM Card or Sticker + Russia data package!

Our Roaming Solutions
Affordable calls + data in 200+ countries
Bonus WhatsApp data usage
4G LTE coverage
Bond calculator for experts investors

Your own research tool for making intelligent decisions.
Help growing startups
Get back control on software
Build advanced tools for business experts and CEO of large companies
Thales prototyping VR
Thales prototypes advanced interaction design
Mobility Map: a broker for mobility services
multi-modal routing search
docker running dozens of pharo
LifeWare

800 thousand
policies currently managed by our solution

25 billion
assets under management

15 thousand
satisfied customers

90 thousand
page per views per day

130 thousand
authorized users

30 Millions lines of code...

Kent Beck is one of the founders
Why Pharo?

(A marketing thought...)
We like smalltalk but we love Pharo because it is more :)
We should sale Pharo the right way

"I have just completed week seven of the Pharo Mooc .... I have already learned so much! I have spent the last 20 years or so in software development and, following this Mooc, I realized I hadn’t really grasped the essence of object oriented design" GMJuliet on discord June 2019
We are a cool community
More Pharo's Teachers

- Uni. of Bern
- Uni. of Novi Sad
- Uni. of Maroua
- Uni. of Brussels
- Ecole des Mines de Douai
- Uni. de Savoie
- Ivan Franko Nat. Uni.
- Czech Technical Uni.
- CULS Prague
- Uni. of Buenos Aires
- Uni. of Quilmes
- Uni. of La Plata
- Northern Michigan Uni.
- Uni. Technologica Nacional (UTN)
- Uni. of Santiago
- Uni. Policnica de Catalunya
- Uni. de Bretagne Occidentale
- Uni. of Tomsk
- Uni. of Fernhagen
- IT University of Copenhagen
- Uni. of Yaounde
- INFTI
- Uni. of Lyon
- Uni. of Cordoba
- Uni. of Lille
- Uni. of Monterrey
- Enit
- Uni. of Yaounde
- Vietnam France University
- Uni. of Yamanashi Gakuin
Research Groups

Lafhis (AR)
SCG (CH)
CAR (FR)
RMOD (FR)
Ummisco (IRD)
Reveal (CH)
Lysic (FR)
CEA-List (FR)

Uqbar (AR)
OC (FR)
CCMI-FIT (CZ)
ASERG (BR)
Pleiad (CL)
SoftwareQlab (Sr)
ENIT (FR)
SRA (Jap)
Fun ...
PharoThings

lcd := board installDevice: PotLCD1602Device new.
lcd message: 'Hello everybody!\Pharo is cool!'.
lcd clear.
PharoThings

Taking sensor data with Pharo, showing in LCD display and sending to a remote server
Life board

Board Inspector

- Provides a scheme of pins similar to physical position
- A live tool which represents the current pins state
- Digital pins are shown with green/red icons which represent high/low (1/0) values
Pharo 8.0 & 9.0
If it has no tests... it does not exist.

Dr. Tests (1987 - ...)
Spec20

- Large cleanup
- New widgets
- Layouts
- Multiple back ends (Morphic, GTK30)
obtainHalo: aHalo
"Used for transferring halos between hands"

self halo == aHalo
  ifTrue: [ ^ self ].
"Find former owner"
self world hands detect [:hand | hand halo == aHalo] ifFound: [:formerOwner | formerOwner releaseHalo: aHalo ].
self halo: aHalo
obtainHalo: aHalo

"Used for transferring halos between hands"

self halo == aHalo
  ifTrue: [ ^ self ].
"Find former owner"
self world hands detect: [:hand | hand halo == aHalo] ifFound:
  [:formerOwner | formerOwner releaseHalo: aHalo ].
self halo: aHalo
Pharo Launcher

Create new image

Select image template

Templates
Pharo Mooc
Pharo Mooc

Official distributions
Deprecated distributions
Pharo Contribution Jenkins
Moose Jenkins
Pharo 6.0 (stable)
Pharo 7.0 (development version)
Pharo 8.0 (development version)

Image name: Pharo 8.0 - 64bit (development version, latest)
Welcome to Star Wars: Legends of the Jedi

(C)ontact us at imms@legendsofthejedi.com
(B)ased on the SWR 1.0 Codebase by Sean Cooper
(C)reator CYBER_Aeon (Aka Ghost)
(C)oding by Orion, Rajan, and Miros
(G)ame Owners: Rajan & Waldo
...The Legend Awaits...

Enter your name, or type NEW for a new character.
To login to an account use @<account name>.

(E)nter your name: laar
(P)assword: Redondos42

(L)ast connected from: hel59-4-88-160-126-139.fbx.proxad.net
(C)urrently connected from: hel59-4-88-160-126-139.fbx.proxad.net
(P)ress [ENTER]
<table>
<thead>
<tr>
<th>time</th>
<th>season</th>
<th>seasonal</th>
</tr>
</thead>
<tbody>
<tr>
<td>hour</td>
<td>era</td>
<td>age period</td>
</tr>
<tr>
<td>opportunity</td>
<td>current</td>
<td>contemporary</td>
</tr>
</tbody>
</table>

**Words:**
- 來
- 了
- 么
- 好
- 不

**Phrases:**
- 時
- 你
- 们
- 了

**Notes:**
- It sounds like 萬歴, 萬代, 萬传, 王, 王, 王, 王, 王, 王, 王.
Testing Spec

- Many tests
- Parameterized (same for Morphic and GTK30)
Headless: true server side

- For real, no UI when no need it
- SDL back-end
- Embeddable
Consortium agenda

- Spec v2.0
- Better FFI Infrastructure
- Better windows integration
- Basic encryption
- Zip
Consortium agenda

- File primitives performance on Windows
- cmd+dot not working in all cases
- Parallel processing (not just parallel testing, which can be resolved at image side)
- Memory management and general command line usability/documentation
- GC stops 2-3min for fullGC (in large images)
- Parallel testing
- Refactorings
- Degradation in performance
- Latency (on spotter and completion), remarkable in large images.
- Quality rules on big classes/images
- Headless Multiple windows
New debugger (Preview)

- Object-centric
- Replay subexpr
- Sindarin: Scriptable DIY
- Chest (to store your little objects)
Debugging Department

Great debugging sorcerers. Beware.

We solve all problems.


NOTE
THE DOOR IS OFTEN CLOSED BECAUSE OF THE PHARO ARGENTINIAN BAROQUE LYRIC ORCHESTRA IN THE OFFICE ON THE LEFT. UNLESS MENTIONED OTHERWISE ON THE DOOR, FEEL FREE TO ENTER THE MAGICAL WORLD OF DEBUGGING. PAY BEFORE RESULTS. NO REFUNDS. NO JAVA. NOW YOU CAN STOP READING AND GET BACK TO WORK.
Object-centric debugging

- Debugging operations at the level of objects
  - Only target objects are affected

Examples:
- A breakpoint active for one object only
- A method available for one object only
Object-centric breakpoints

Break when a message is received

- haltOnCall => on every method call
- haltOnCall: #selector => for given selector only
- haltOnNextCall => on next method call
- haltOnceOnCall: #selector => only once for given selector
- haltOnCallWhen: condition => if condition is met
Object-centric breakpoints

Break on state access

- haltOnWriteTo: #instVarName => when instVarName is written
- haltOnRead: #instVarName => when instVarName is read
- haltOnWrite => when any instance variable is written
- haltOnRead => when any instance variable is read
Who’s working on it?

- AST interpreter - Carolina Hernandez Phillips
- Reverse-execution - Vincent Aranega, Steven Costiou
- Object-centric debugger - Steven Costiou
- Scriptable debugger - Thomas Dupriez
Vision for Pharo
Smaller/Cleaner

- Removing more duplicated functionality
- Cleaner architecture
- More modular
- Tested
Better tools

- Next generation debuggers
- Customisable
VM

- More tests / better build system
- Learning VM project
- Threaded FFI for real
- P10: getting rid of the polling event loop
New Graphics for real

• Bloc as a new bottom layer
• New widget sets
Since may 2008

Pharo 7.0 - Feb 2019 - 75 committers (2142 closed)
Pharo 6.0 - Jan 2018 - 70 committers (1400 issues closed)
Pharo 5.0 - Apr 2016 100 committers (1600 issues closed)
Pharo 4.0 - Apr 2015 70 committers (1271 issues closed…)
Pharo 3.0 - Apr 2013 (2364 issues closed)
Pharo 2.0 - Apr 2013 (1727 issues closed)
Pharo 1.4 - Apr 2012 (860 updates)
Pharo 1.3 (700 updates)
Pharo 1.2 - mar 2011 (500 updates)
Pharo 1.1 - jul 2010 (410 updates)
Pharo is our vehicle
We improve it everyday
There are plenty of place for improvements
Pharo is yours
You can get an impact
Pharo is not a closed box
I want to thank all the contributors
Fun, simple
Pure & elegant
Productive
Empowering
Addictive
Full access
http://discord.gg/Sj2rhxn
WEEKLY NEWS ABOUT PHARO

Everything you wanted to know about http://www.pharo.org without being forced to read 1000 mails

HITCHHIKER'S GUIDE TO SMALLTALK, TIPS 'N TRICKS, CDD BLOG, ABOUT

NOV 25 2017

WHAT ABOUT CONTRIBUTING?

Here is the testimony of Astarea regularly contributing to Pharo 70. What is not visible in the list are the many enhancements happening also on Calypso, Bloc, Grease and many many others.

Nonetheless the core image still needs love from more people. Remember even the smallest change can make a difference and shape the future. Also "a contribution per day keeps bad systems away".

Even one contribution per week or month.

So jump in – the water is just fine.

Bye

T. (aka astarea)

NOV 23 2017

PHARO 7.9A NEXT ENHANCEMENTS 🎉
Join Us!

Creating good energy, software quality, learning and having fun

http://pharo-project.org