

Squeak

www.squeak.org

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Topics

- 📌 History: The Dynabook
- 📌 Squeak Overview
- 📌 Projects using Squeak
- 📌 Squeak: A Tool for Research

History

- Alan Kay 1968: The Dynabook Vision
- Xerox PARC 1972-1980: Smalltalk
- Disney 1997 - 2001: Squeak

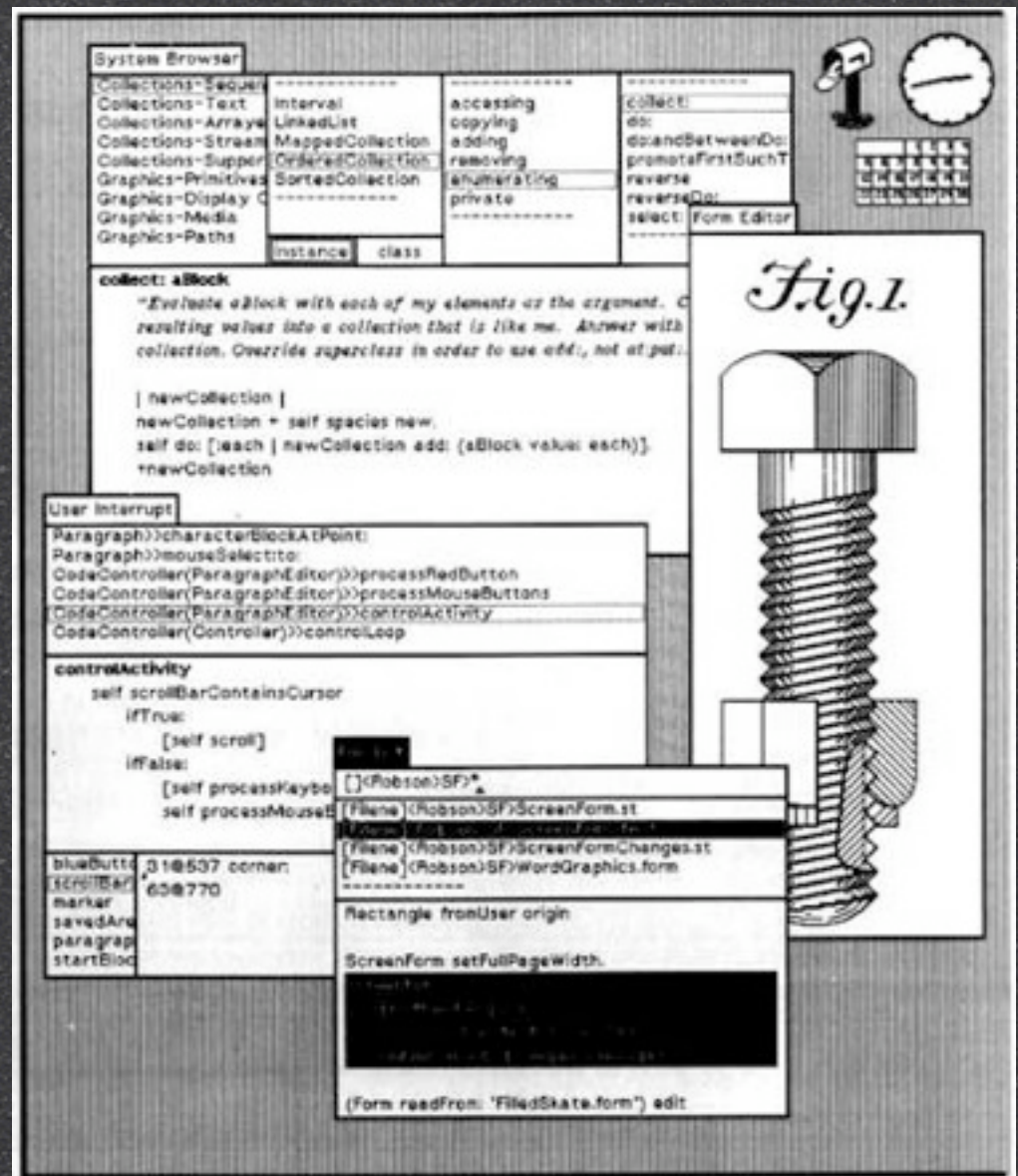
The Dynabook



A Dynamic Medium
for Creative
Thought



Xerox PARC: Smalltalk



System Browser

Collections-Sequence	Interval	accessing	collect:
Collections-Text	LinkedList	copying	do:
Collections-Array	MappedCollection	adding	do:andBetweenDo:
Collections-Stream	OrderedCollection	removing	promoteFirstSuchT
Collections-Suppl	SortedCollection	enumerating	reverse
Graphics-Primitives		private	reverseDo:
Graphics-Display			select: Form Editor
Graphics-Media			
Graphics-Paths			

instance class

collect: aBlock

"Evaluate aBlock with each of my elements or the argument. Collect the resulting values into a collection that is like me. Answer with that collection. Override superclass in order to use add: not at:put:"

```
[ newCollection ]
newCollection = self species new.
self do: [each | newCollection add: (aBlock value: each)].
newCollection
```

User Interrupt

- Paragraph characterBlockAPoint:
- Paragraph mouseSelector:
- CodeController(ParagraphEditor) processRedButton
- CodeController(ParagraphEditor) processMouseButtons
- CodeController(ParagraphEditor) controlActivity
- CodeController(Controller) controlLoop

controlActivity

```
self scrollBarContainsCursor
ifTrue:
  [self scroll]
ifFalse:
  [self processKeyboard]
self processMouseButtons
```

blueButton 31@537 corner:
scrollBar 65@770
marker
saveArea
paragraph
startBlock

Fig. 1

```
[<Robson>SF]*
[File](<Robson>SF)ScreenForm.st
[File](<Robson>SF)ScreenFormChanges.st
[File](<Robson>SF)WordGraphics.form
-----
Rectangle fromUser origin
ScreenForm setFullPageWidth.
(Form readFrom: 'FiledSkate.form') edit
```


Squeak

- Prototyping Environment
- Based on Smalltalk 80
- Adds Multimedia features
 - Color and 2D Graphics
 - 3D, Sound, Networking...
 - Etoys prototype for kids

Squeak: Overview

DEMO

Viewpoints

📌 Tweak: Scripting + UI

📌 Croquet

📌 Coke/Pepsi/Cola

📌 Rethinking Language Implementation

Squeak.org

- Community squeak.org
- Lots of cool projects
 - Some demos later
- Sadly not much coordination
 - Working together is very hard!

Squeak 3.9


- Merged back SqueakLand + SmallLand + SCG + Impara + Seaside (NetStyle)
- New Features:
 - Traits, Pragmas, Services, Look
- A ****lot**** of changes!

Projects

 Sophie

 Impara: Plopp3d,

 Croquet

 OLPC

 Seaside

P1opp3d

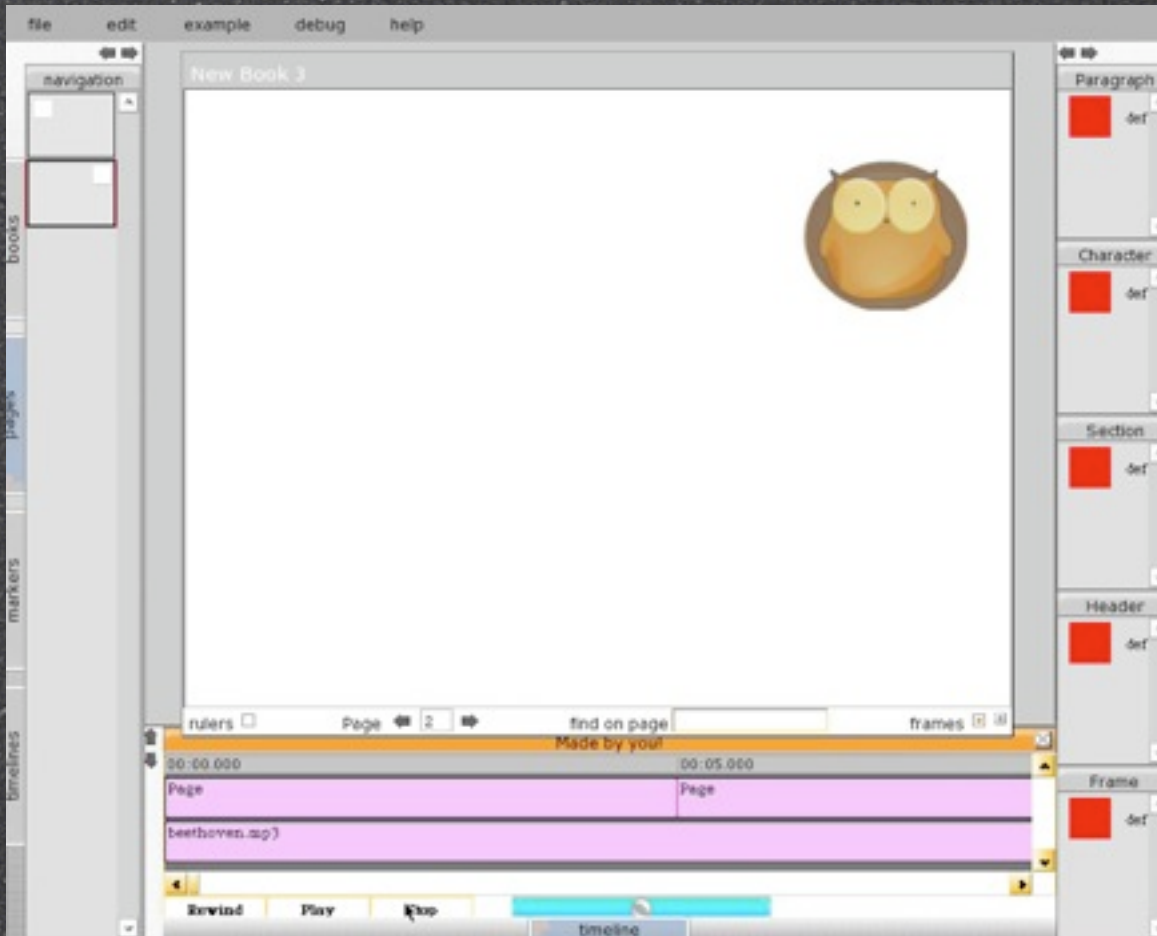
DEMO



Sophie

- Open-source multimedia publication and run-time frameworks
- Flash + iMovie + PDF
- Completely new text + font implementation

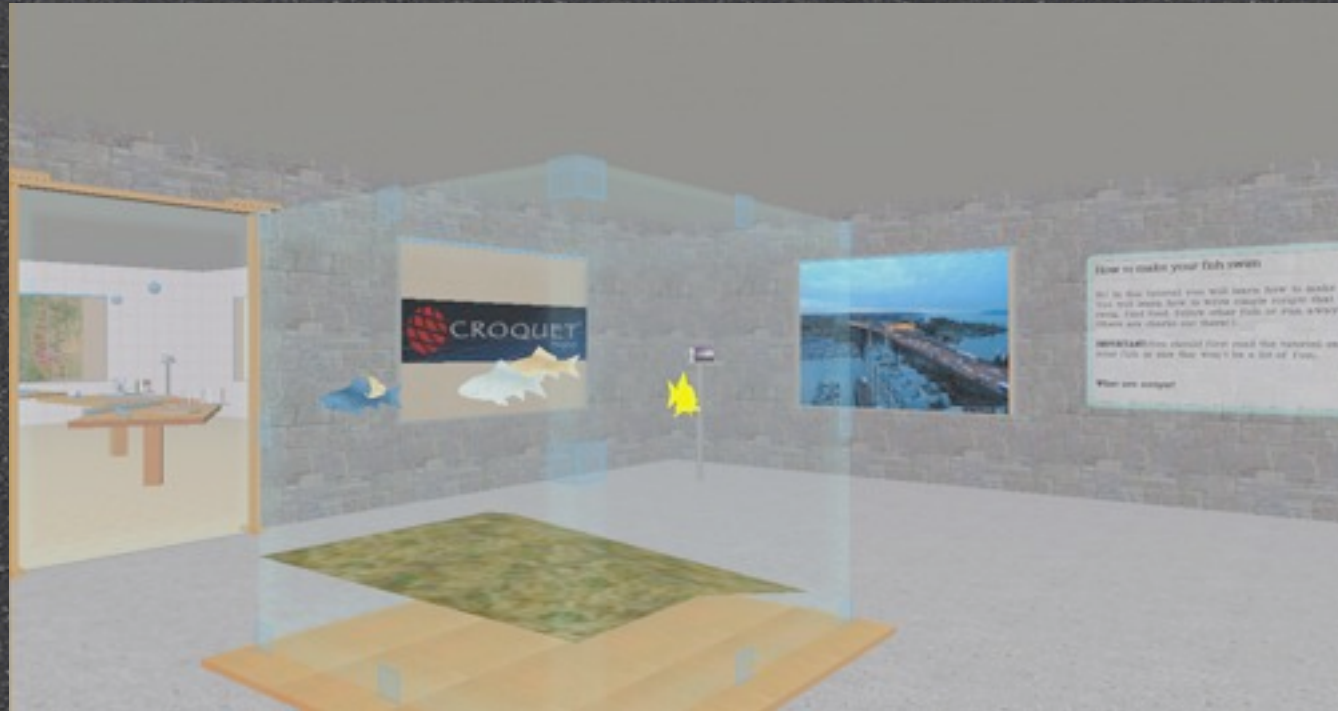
Sophie Project



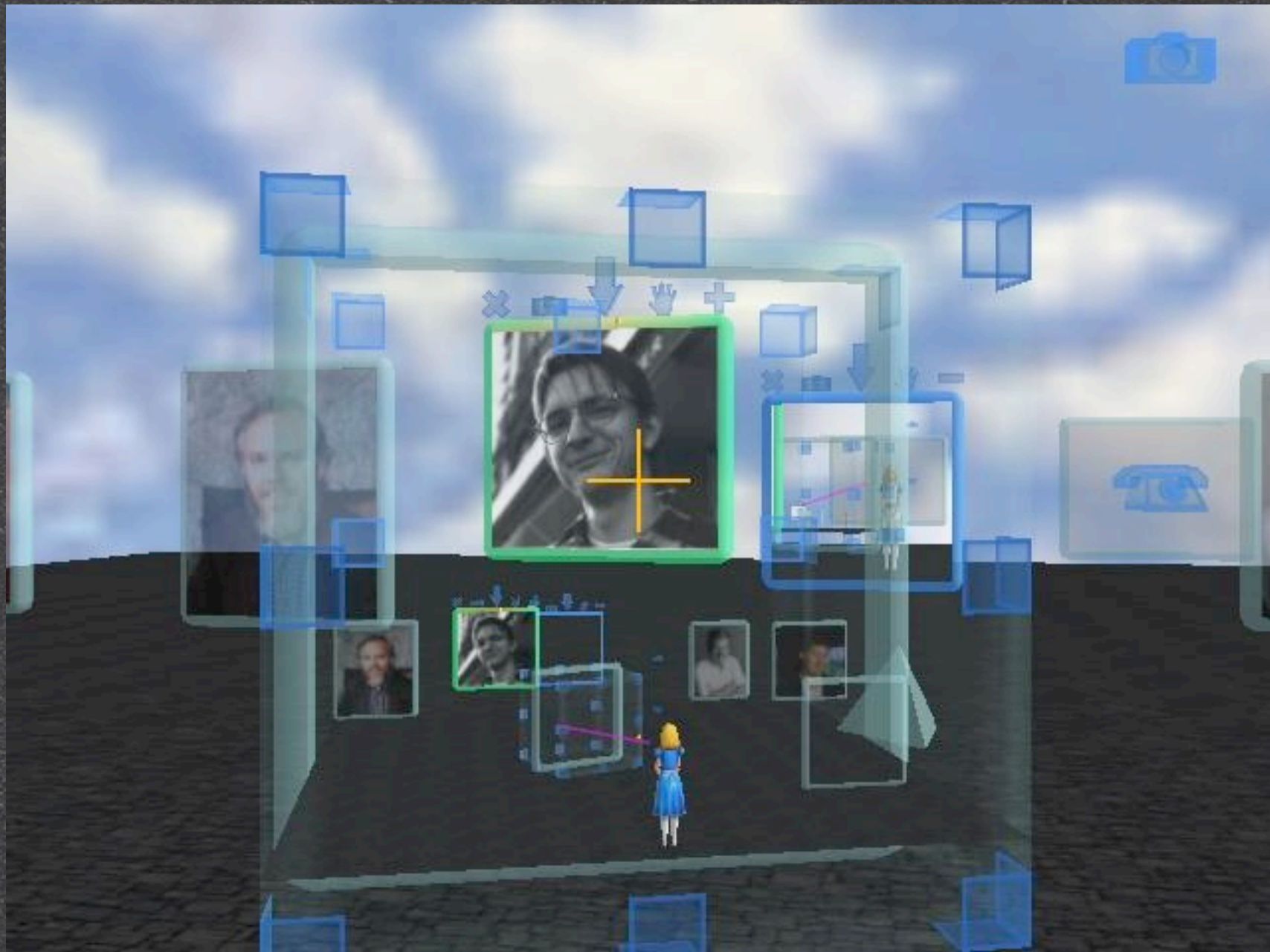
DEMO

<http://sophieproject.org/>

Open-Croquet



- 📌 Immersible and collaborative system
- 📌 <http://www.opencroquet.org>
- 📌 version 1.0 is out



Qwaq Forums



<http://qwaq.com/>

OLPC: \$100 Laptop




Seaside

 <http://www.seaside.st/>

 Free seaside hosting

 Support for Ajax

 scriptaculous.seasidehosting.st/

 <http://seachart.seasidehosting.st/>

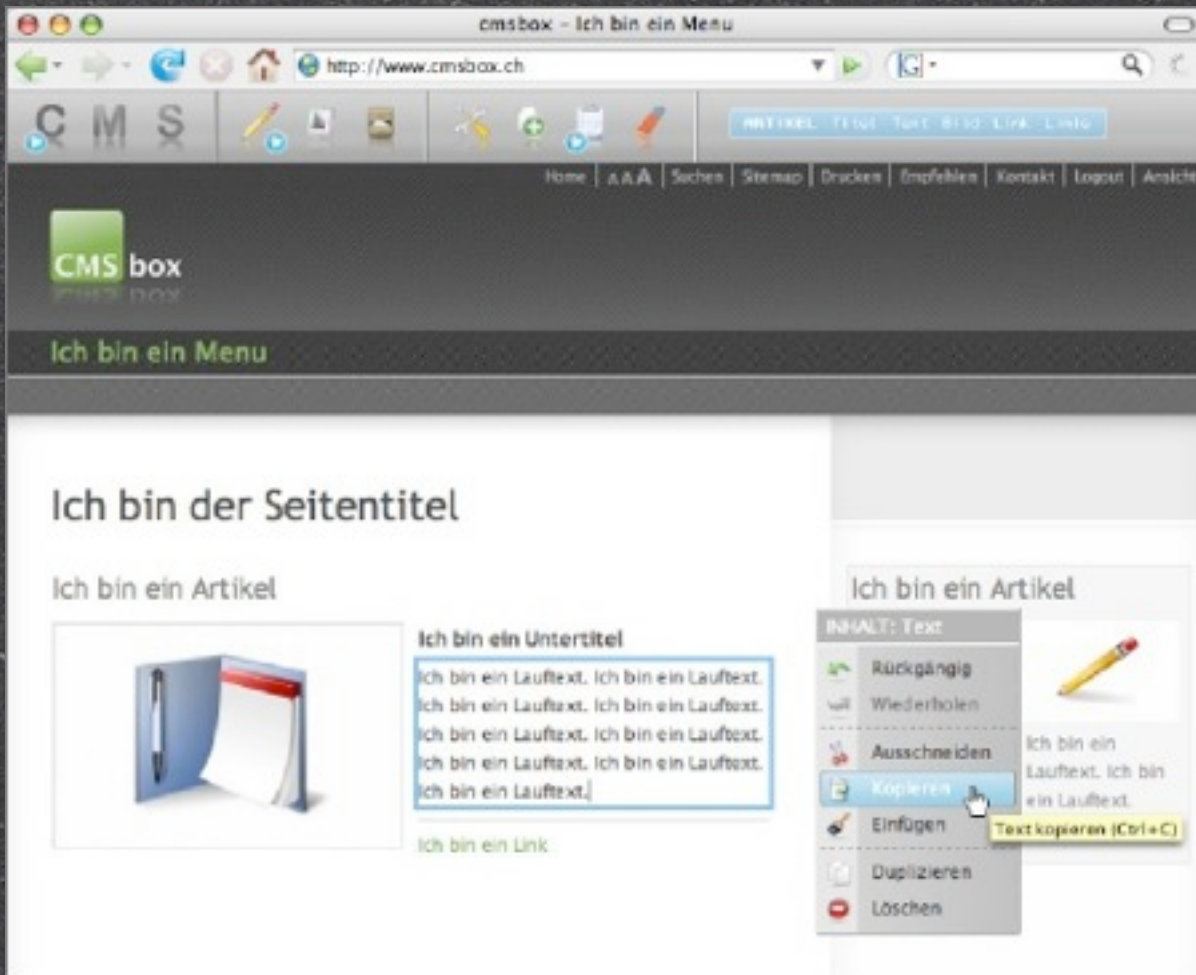
www.dabbleedb.com



- Seaside-based
- venture capital funded
- www.dabbleedb.com



CMSBox



cmsbox.com

Part II: Research

- Why use a kids system for Research?
- Especially Software Engineering?

Example: SCG

- Software Evolution
- Two directions
 - Reengineering
 - Language support for Evolution

Reengineering

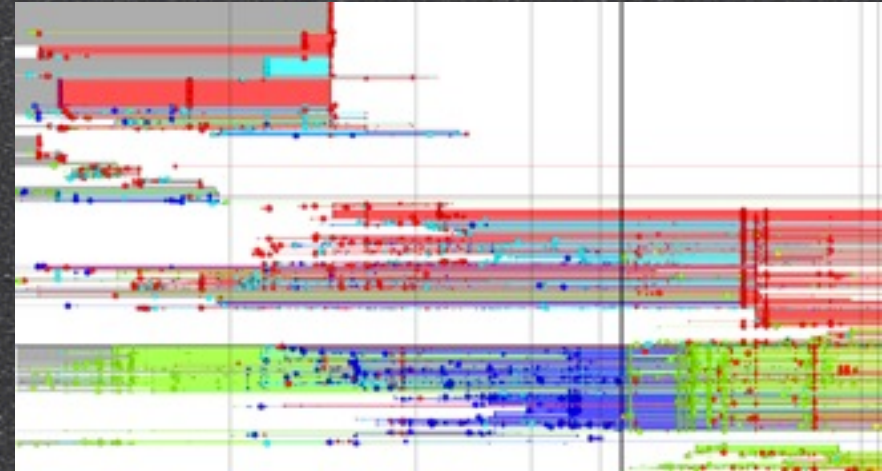
- Analyzing existing source code
 - Understanding big systems
 - Enabling future evolution
- Software Visualization

Moose

Reengineering
Environment

Example:
Chronia

Many Plugins



<http://moose.unibe.ch/>

Moose

- Implemented in Smalltalk (Cincom)
- Smalltalk enables
 - Rapid prototyping of complex tools
 - Very fast turnaround
 - Agile development

Languages for Evolution

• Languages do not support Evolution

• How to support Evolution better?

Squeak for Prototyping Languages

- Completely open
 - Reflection
 - VM easy to modify
- Simple
 - Simple Syntax
 - Dynamic Typing

Traits

- Classes composed of Traits

 - Collection of methods

 - No state

- Pioneered in Squeak

 - Scala, Perl6, Fortress, Slate

Changeboxes

- Provide first class model of Change
- History always available
 - even at runtime
- System can be run in old version

Other groups...

- HPI Potsdam (Germany)
- University of Savoie (France)
- Ecole des Mines de Douai (France)
- Cadence Design Systems Inc. (USA)

Thats it...?

📌 ... for now

📌 Questions?

📌 Next?

Possible topics...

- Reflection
- Metaprogramming and Refactoring
- Bytecode + Bytecode Transformation

- Examples of how to use dev tools
 - Monticello, Browser...