

Squeak

www.squeak.org

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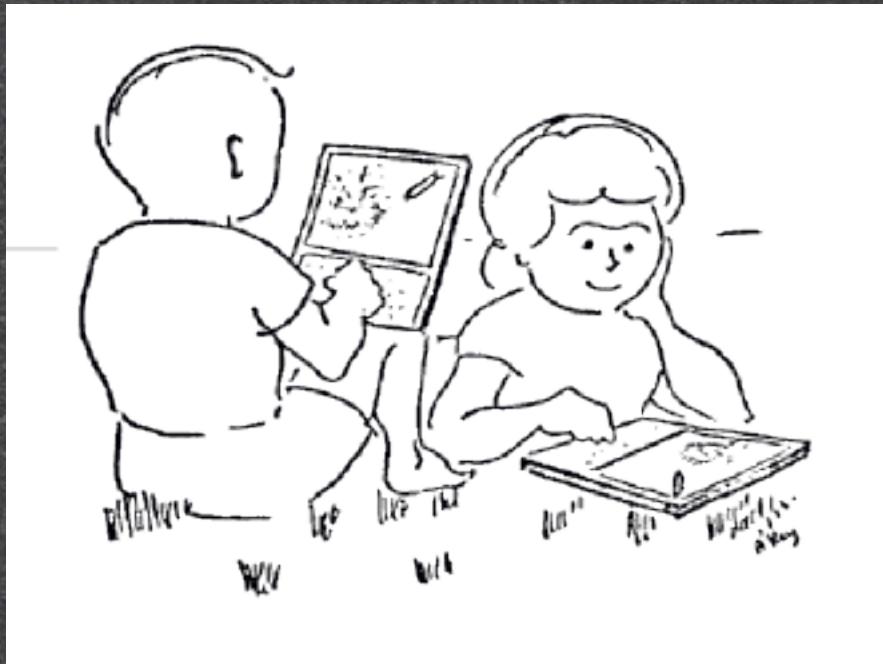
Topics

- 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



The screenshot shows the Xerox Smalltalk System Browser window. The left pane lists various Smalltalk classes and their methods. The right pane shows a code editor with some Smalltalk code and a graphical interface with a clock and a nut/bolt icon.

System Browser

Collections-Sequence	Interval
Collections-Text	LinkedList
Collections-Arrays	MappedCollection
Collections-Streams	OrderedCollection
Collections-Super	SortedCollection
Graphics-Primitives	---
Graphics-Display	---
Graphics-Media	---
Graphics-Paths	---

accessing
copying
adding
removing
enumerating
private

collect:
do:
doAndBetweenDo:
promoteFirstSuchT
reverse:
reverseDo:
select:
Form Editor

collect: aBlock
"Evaluate aBlock with each of my elements as the argument. Collect resulting values into a collection that is like me. Answer with 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>>characterBlockAtPoint:  
Paragraph>>mouse4Select:it:  
CodeController(ParagraphEditor)>>processRedButton:  
CodeController(ParagraphEditor)>>processMouseButtons:  
CodeController(ParagraphEditor)>>controlActivity:  
CodeController(Controller)>>controlLoop
```

controlActivity

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

blueButton 31857 corner: 656770

marker savedArc paragraph startBloc

Rectangle fromUser origin:

```
ScreenForm setFullPageWidth:  
| aRect |  
aRect := self fullPageWidthRect.  
aRect origin: self origin.  
aRect extent: self extent.
```

(Form readFrom: 'FilledSkate.form") edit

Fig.1

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

Plopp3d

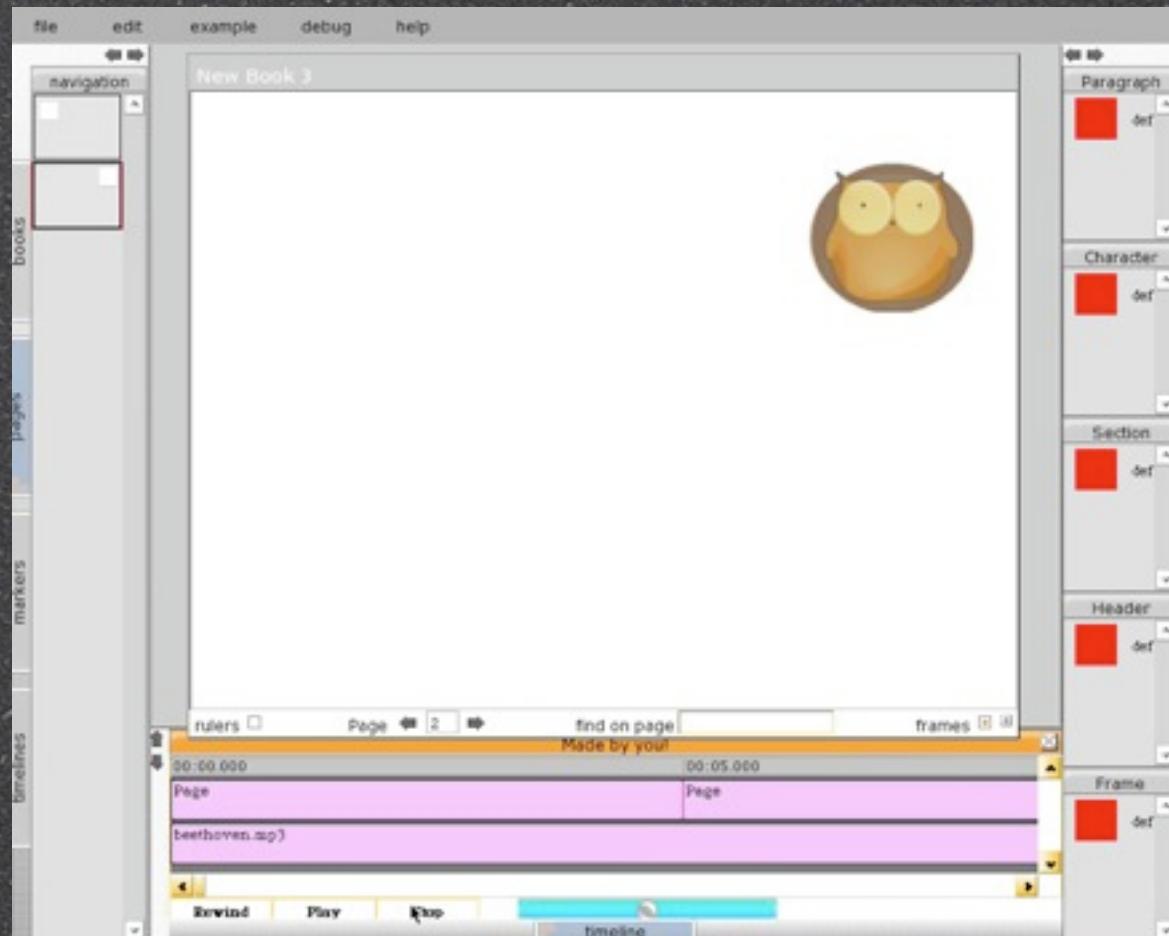
DEMO



Sophie

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

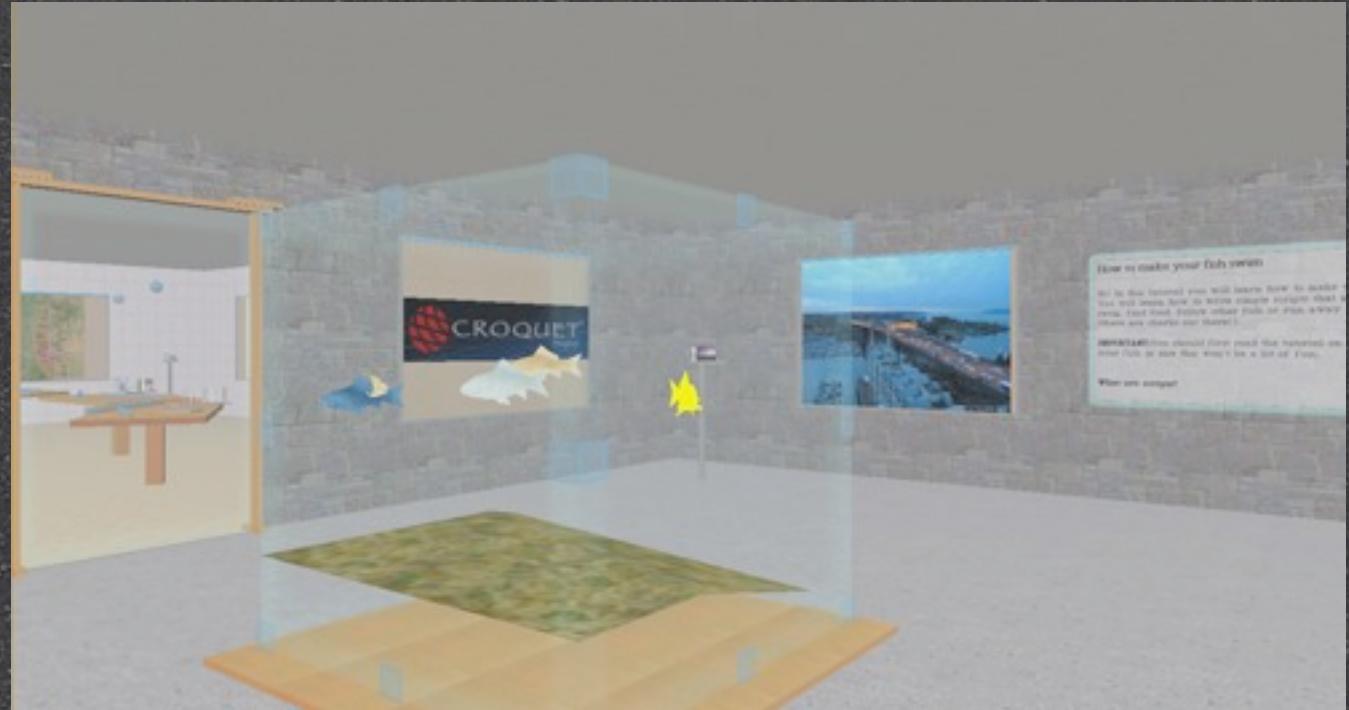
Sophie Project



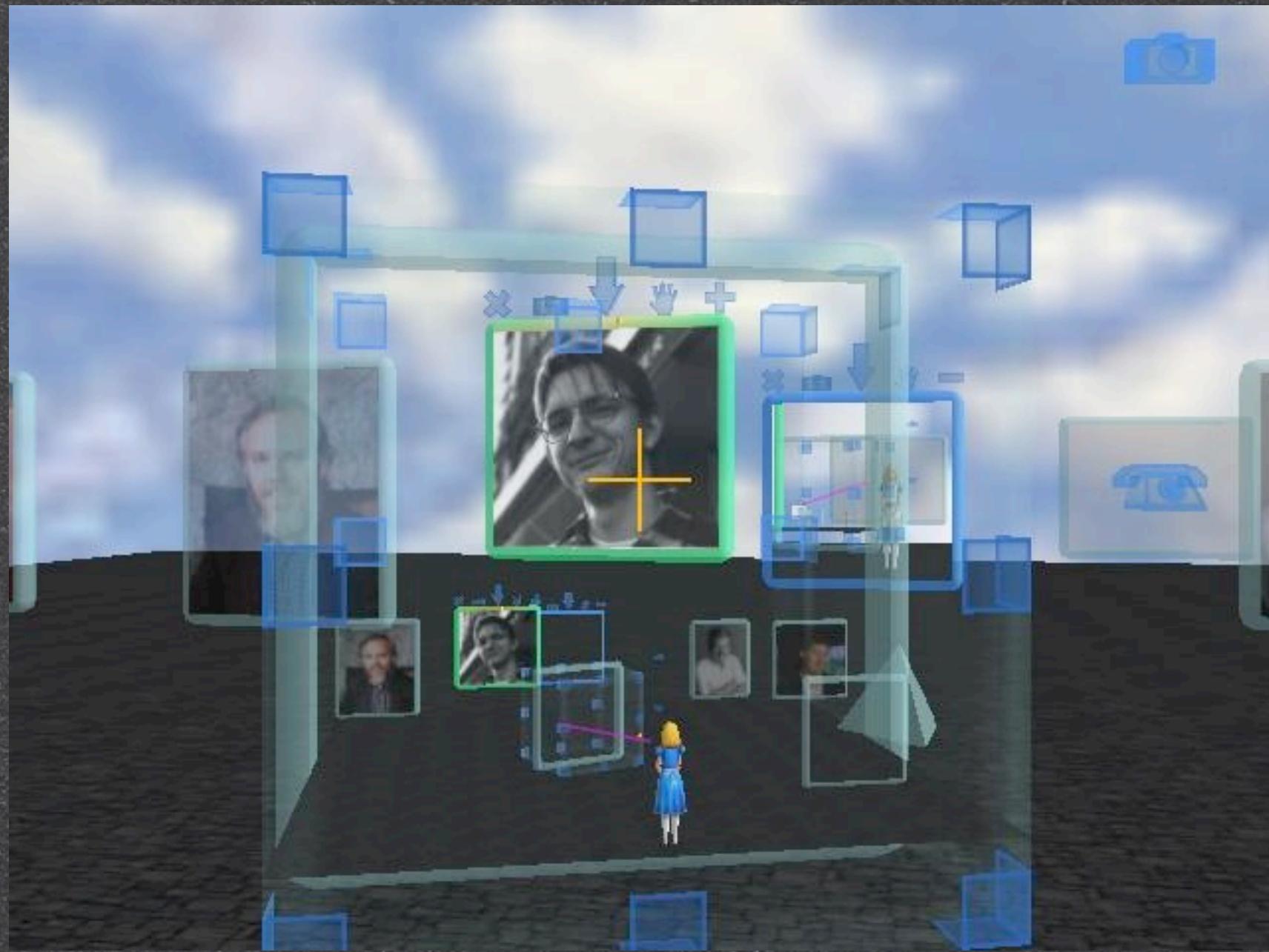
DEMO

<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.dabbledb.com

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



A screenshot of the OSCON PLANNER application interface. At the top, there's a navigation bar with links like 'Home', 'About', 'Import Data', 'Sharing', and 'Help'. Below that is a search bar. The main area is titled 'Python Calendar' with a subtitle 'What is next?'. It shows a grid of events for the week of July 6, 2003, from 8 am to 4 pm. The events are color-coded in teal and include titles like 'Up & Coming with Python', 'Introduction to Python', 'Network Programming in Python', 'Python Programming for Non-Pythonists', 'Python for Database Applications', 'Advanced Web Development with Python', 'Python and XML', and 'Python and MySQL'. On the left, there are filters for 'All Events', 'Filter by Category', and 'Filter by Value', with 'Keywords' set to 'python'. A note at the bottom left says: 'You can specify that any user is the "Home" user of their account by setting the "User name" field and checking "Use as Home" box.' There's also a 'Help' link.

CMSBox

The screenshot shows a web browser window titled "cmsbox - Ich bin ein Menu" displaying the URL "http://www.cmsbox.ch". The browser's toolbar includes standard icons for back, forward, search, and refresh. Below the toolbar is a menu bar with "INHALT", "TEIL", "TURT", "BILD", "LINK", and "LISTE". The main content area features a logo for "CMS box" and a navigation bar with "Home", "a.a.A", "Suchen", "Sitemap", "Drucken", "Umstellen", "Kontakt", "Logout", and "Ansicht". A green banner at the top says "Ich bin ein Menu". The main content area contains the text "Ich bin der Seitentitel". Below it is a section titled "Ich bin ein Artikel" featuring a blue document icon. To its right is a box containing "Ich bin ein Untertitel" followed by five lines of placeholder text: "Ich bin ein Lauftext. Ich bin ein Lauftext.". Below this box is the text "Ich bin ein Link". On the right side of the page, a floating editor window is open over the text "Ich bin ein Lauftext. Ich bin ein Lauftext. Ich bin ein Lauftext. Ich bin ein Lauftext. Ich bin ein Lauftext.". The editor has a title "Ich bin ein Artikel" and a subtitle "INHALT: Text". It includes a toolbar with "Rückgängig", "Wiederholen", "Ausschneiden", "Kopieren" (which is highlighted with a blue background), "Einfügen", "Duplizieren", and "Löschen". A context menu is open, with the option "Text kopieren (Ctrl+C)" highlighted in yellow.

[cmsbox . com](http://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

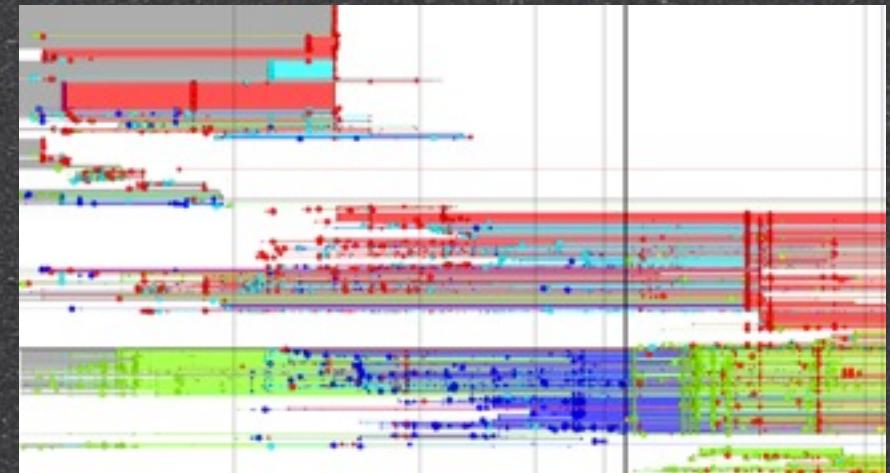
- Analyzing existing source code
- Understanding big systems
- Enabling future evolution
- Software Visualization

Moose

Reengineering
Environment

Many Plugins

Example:
Chronia



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

Moose

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

Languages for Evolution

- ➊ Languages do not support Evolution
- ➋ 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...