



## Wicked Problems

- Defined in 1973 Horst Rittel and Melvin Webber
- Formulating the solution leads to better understanding of the problem
- Wicked problems have no stopping rule
- Solutions to wicked problems are not right or wrong, but better and worse
- Every wicked problem is essentially novel and unique
- Every solution is a “one shot” solution


# Wicked Problem: Poverty



# Wicked Problem: Obesity



# Wicked Problem: Highway Planning



**"THE CITY PLANNERS ARE RAVAGING OUR CITIES!"**

☞ They've put up gleaming stone and glass cube housing which breeds delinquency and crime.

☞ They've built spacious green park areas that are avoided by everyone but bums and hoodlums.

☞ They've condemned and destroyed entire city blocks that are not slums, but attractive places to live.


☞ They've zoned our cities into intolerable patterns of dullness.

Jane Jacobs says this and much more in her explosive new book, **THE DEATH AND LIFE OF GREAT AMERICAN CITIES**. Mrs. Jacobs shows that the city planners have failed because they have overlooked the realities of urban life, and stripped our cities of the vitality and diversity which make them exciting places to live. She offers concrete, practical alternatives that can save our cities from the blunders of orthodox planners.

Harrison Salisbury of the *New York Times* hails this book as "the most refreshing, stimulating and exciting study of this greatest of our problems of living which I've seen. It fairly crackles with bright honesty and good sense."

William H. Whyte, author of *The Organization Man*, calls it "magnificent. One of the most remarkable books ever written about the city."

**The Death and Life of Great American Cities**  
By **JANE JACOBS**  
\$5.95, now at your bookstore  
RANDOM HOUSE



# Wicked Problem: Health Care



## New Media: Wicked

- I think that new media preservation represents a wicked problem for collecting institutions. Most notably, the problem is not well defined: we don't know when we've adequately preserved an artifact; and there's no stopping point – we can't say we've "solved the problem," because once we propose a solution, that solution often uncovers other issues not previously considered. It's messy.
- And not only is it a wicked problem, it's a wicked problem that often looks like a tame one – meaning it seems like there should be tractable, technical solutions to some of the technical problems.

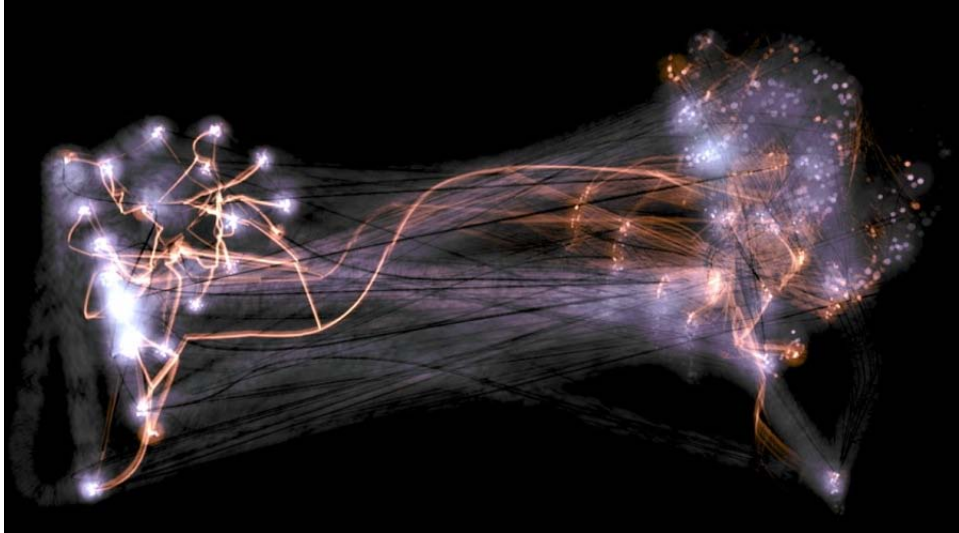


Loops, 2001 – 2011



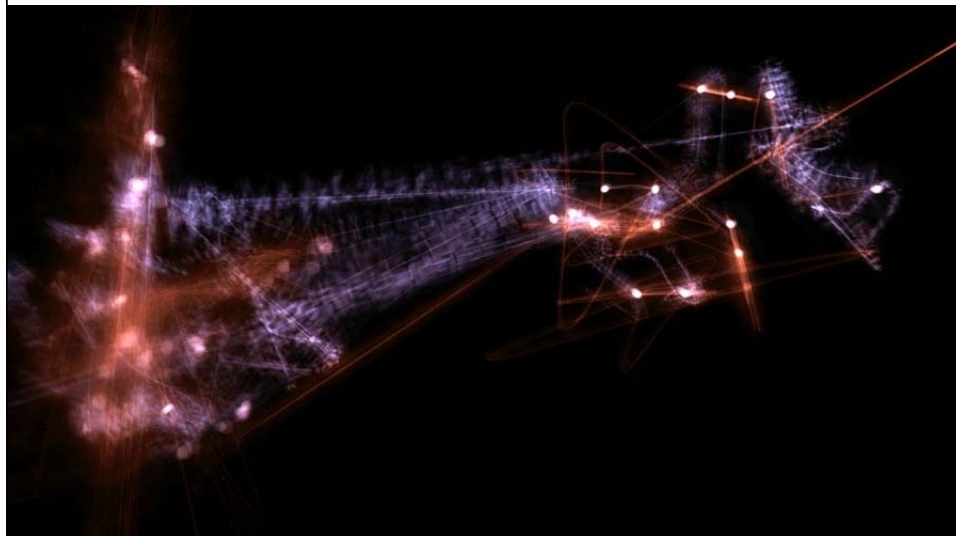
<http://openendedgroup.com/artworks/loops.html>

Loops, 2001 – 2011



<http://openendedgroup.com/artworks/loops.html>

## Loops, 2001 – 2011



<http://openendedgroup.com/artworks/loops.html>

## Loops

- Loops is an important work. It's won numerous awards, it is one of the Open Ended Groups' best known pieces, and certainly represents an important foray into the digital domain for Cunningham. In its original incarnation it was both interactive and intelligent, although the final iteration – the one made in 2011 is a static representation created by the Open Ended Group to serve as the "definitive version" of the piece.
- Cunningham did not record the choreography for Loops – it was initially created in 1971 and he changed it throughout his life, so that by the time he died in 2009, it was a piece simply for hands (he could no longer walk). No one but Cunningham knows the piece. No one but Cunningham and the sensors. The Open Ended Group made the sensor data open source, and in 2009, the Boston Cyberarts Festival allowed 4 artists to re-interpret the data. According to Paul Kaiser – the leader of the Open Ended Group, this was an unmitigated disaster, "After our experience with cyberarts, we have no interest in anyone else interpreting it, since it was so stupid...none of [the four artists] engaged anything of any interest, certainly not with the motions of Cunningham...I just found the whole thing just tremendously simple-minded... gimmicky. And just not thought through."  
(<http://scienceline.org/2012/07/dancing-in-digital-immortality/>)
- So in my mind, this is a **preservation fail**: the "definitive version" is a static representation of an interactive, data-driven piece; and the re-interpretations are "stupid," "simple-minded," and "gimmicky."



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.RUN ADV11

WELCOME TO ADVENTURE!!  WOULD YOU LIKE INSTRUCTIONS?

YES
SOMEWHERE NEARBY IS COLOSSAL CAVE, WHERE OTHERS HAVE FOUND
FORTUNES IN TREASURE AND GOLD, THOUGH IT IS RUMORED
THAT SOME WHO ENTER ARE NEVER SEEN AGAIN.  MAGIC IS SAID
TO WORK IN THE CAVE.  I WILL BE YOUR EYES AND HANDS.  DIRECT
ME WITH COMMANDS OF 1 OR 2 WORDS.
(ERRORS, SUGGESTIONS, COMPLAINTS TO CROWTHER)
(IF STUCK TYPE HELP FOR SOME HINTS)

YOU ARE STANDING AT THE END OF A ROAD BEFORE A SMALL BRICK
BUILDING .  AROUND YOU IS A FOREST.  A SMALL
STREAM FLOWS OUT OF THE BUILDING AND DOWN A GULLY.

GO IN
YOU ARE INSIDE A BUILDING, A WELL HOUSE FOR A LARGE SPRING.

THERE ARE SOME KEYS ON THE GROUND HERE.

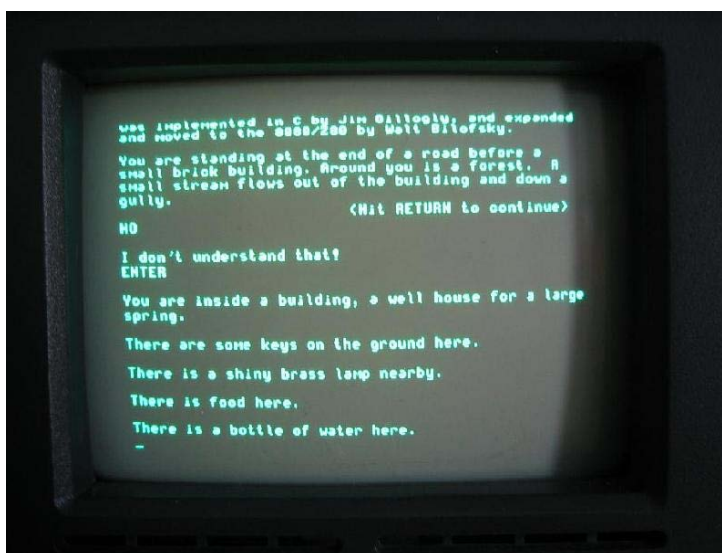
THERE IS A SHINY BRASS LAMP NEARBY.

THERE IS FOOD HERE.

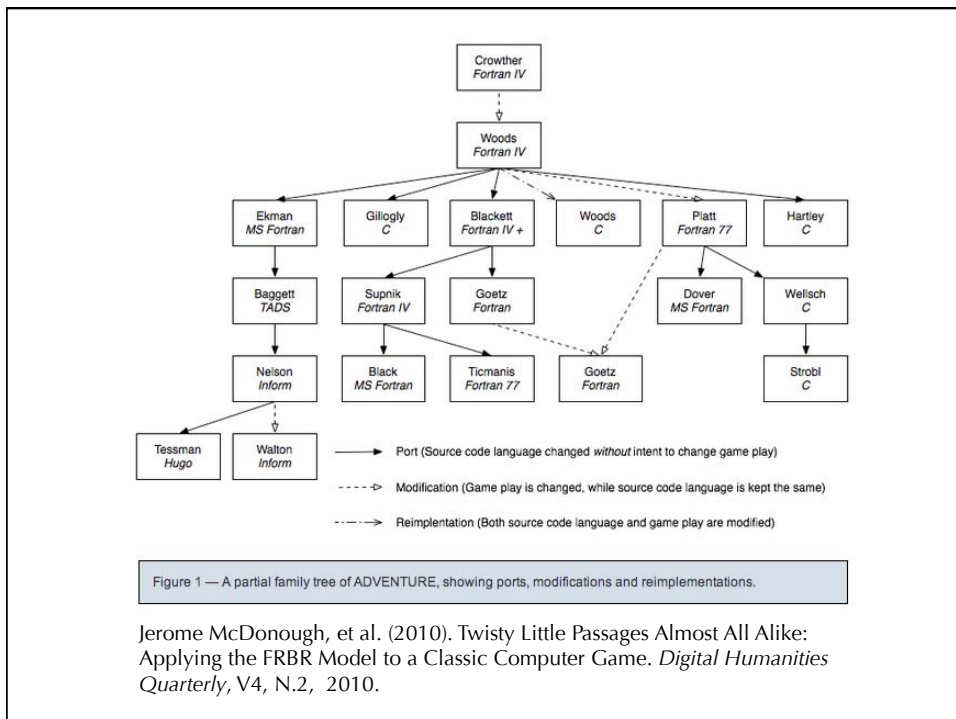
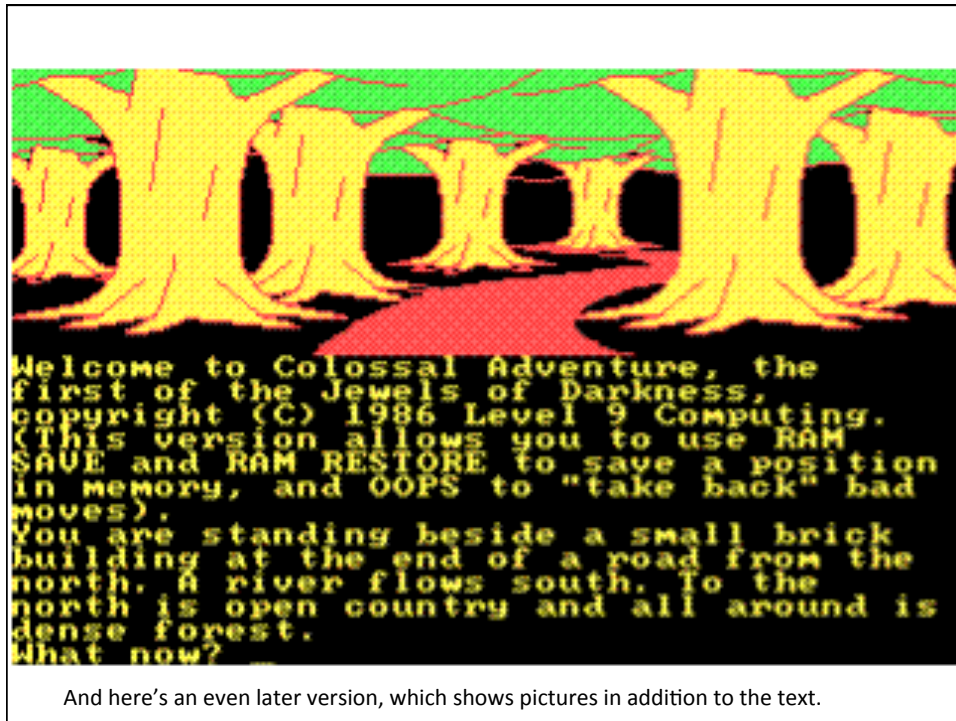
THERE IS A BOTTLE OF WATER HERE.

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Here's another example of an attempt to preserve new media. It's a game, called **Adventure**: It's a text-based game created in 1977. Here's a screenshot of it running on a PDP-10.

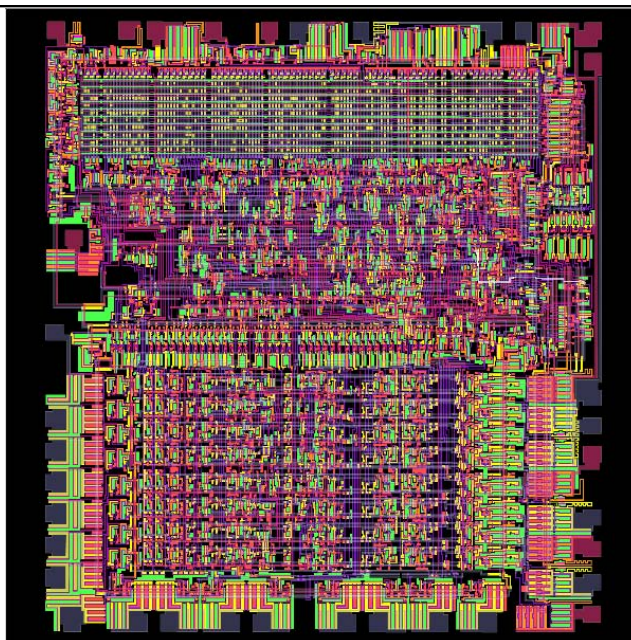


Here's a screenshot of the same game running on an Osborne II Computer, circa 1982



## Preservation Thru Representation

- In 2010, Jerome McDonough – along with a bunch of people at Maryland, Rennslear and Stanford and funded by NDIP – used Adventure as an exemplar for their attempt to use existing metadata models to represent the complexity of this (relatively straightforward) game. The article is entitled “Twisty Little Passages Almost All Alike: Applying the FRBR Model to a Classic Computer Game”, and their conclusion was, essentially, that existing metadata models are not appropriate for these kinds of materials – games – even simple, text based games – are too complex, and that catalogers would need deep and expert knowledge for the most basic representations.
- So metadata poses a problem as well.

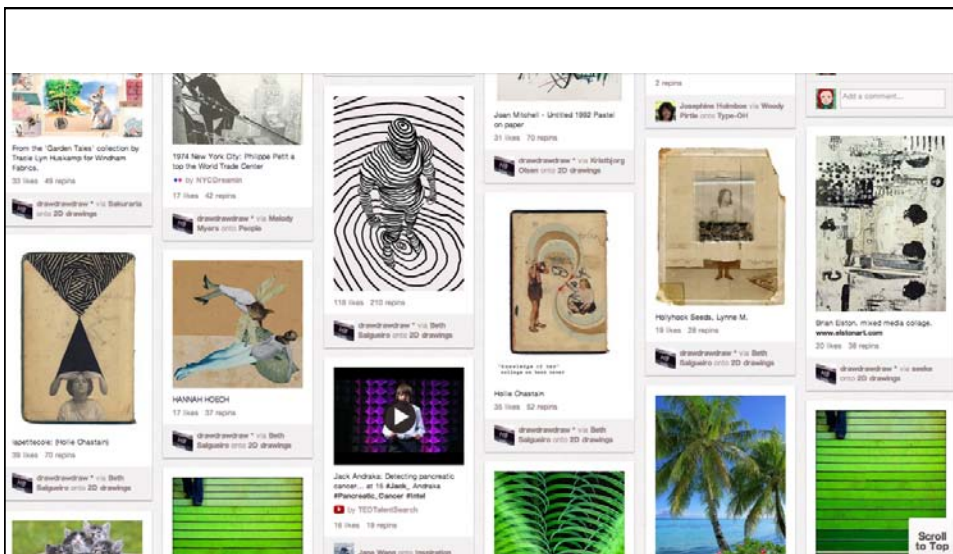


<http://visual6502.org/>

## Visual 6502 Project

And here's another example of providing a really cool technical solution to the technical problem of preservation – it's called the "Visual 6502 project," and these guys are making vector polygon models of actual physical computer chips to form the basis for authentic and reliable emulations of programs running on these chips. They define their project as "archaeology for microchips," and they are able to run programs on emulated machines that use these chip representations – but only insofar as the chip is concerned. They are not able to model the use-aspect of the experience

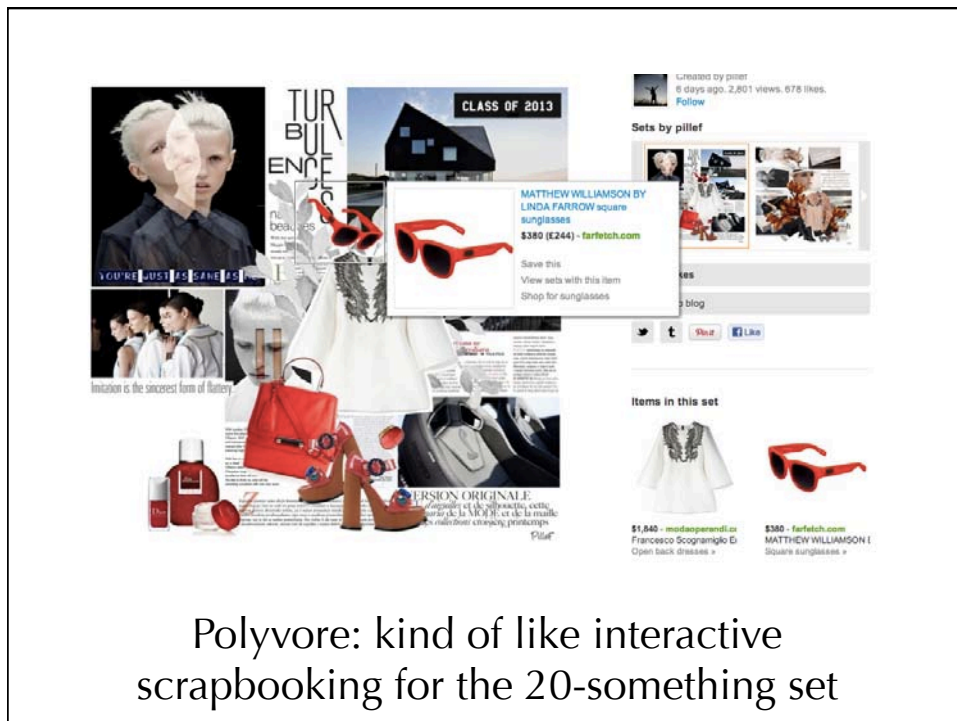
These examples (new media art and video game preservation) represent problematic situations for collecting institutions, in terms of collecting, managing, and providing prolonged access to these materials. But the trick is that these examples are relatively straightforward – the artifacts were created by authentic creators – artists and videogame developers, working within traditional boundaries – and the products of their creative process are "things" that we have models for. We know how to collect art, for example – we know how to interact with games...but what about all of the truly new stuff out there? While I believe that these examples represent a wicked problem for collecting institutions, it's just the tip of the iceberg.



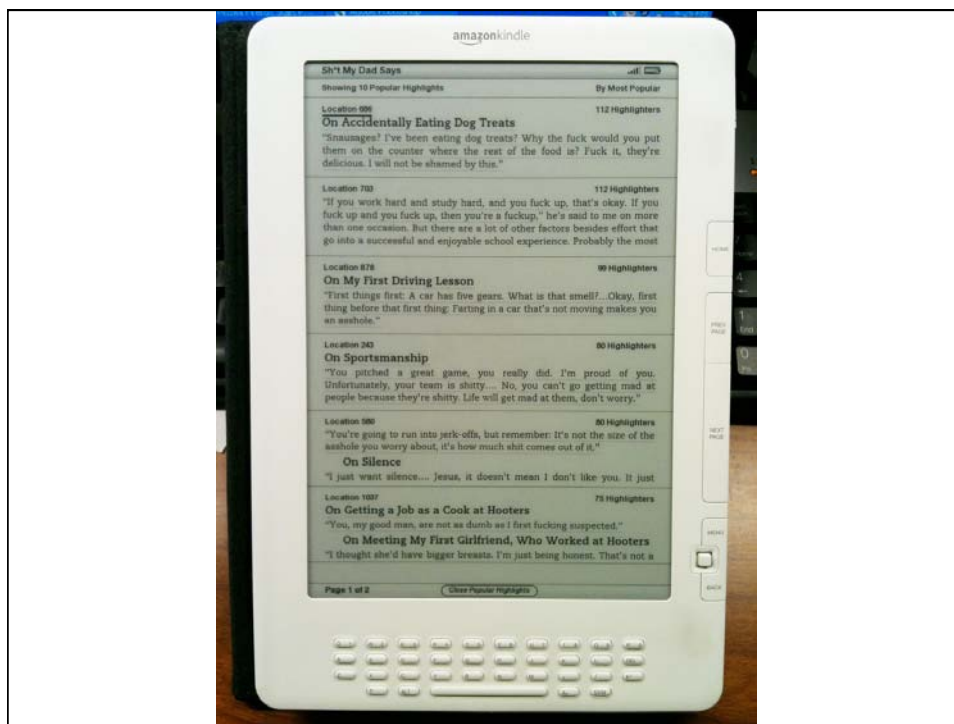
## How To Deal With Pinterest?



## How About Polyvore?



Polyvore: kind of like interactive scrapbooking for the 20-something set



## Kindle

- Or even reading. Kindle allows users to highlight important passages and share those passages with other readers. Services like Findings allow Kindle users to share their highlights. Not only do we have a problem with artifacts that are created by authoritative creators like artists and designers, but we now also have artifacts that are created by individuals – as a side effect of their normal course of behavior. What is a book, now that we've got the ability to share our interpretations and interactions with it? Where does it start? Where does it end?
- In terms of wicked problems – this, to me seems almost intractable.
- But there are people who are working on technical solutions to collecting this stuff. In addition to the fine folks at LOC and NDIIP who are leading the institutional charge.



**ARCHIVE TEAM**

**WE ARE GOING TO RESCUE YOUR SHIT**

<http://archiveteam.org/>

There are collectives like The Archive Team (led by Jason Scott), which describes itself as "... a loose collective of rogue archivists, programmers, writers and loudmouths dedicated to saving digital heritage. Since 2009 this variant force of nature has caught wind of shutdowns, shutoffs, mergers, and plain old deletions - and done our best to save the history before it's lost forever. Along the way, we've gotten attention, resistance, press and discussion, but most importantly, we've gotten the message out: IT DOESN'T HAVE TO BE THIS WAY."

Also from Jason Scott...

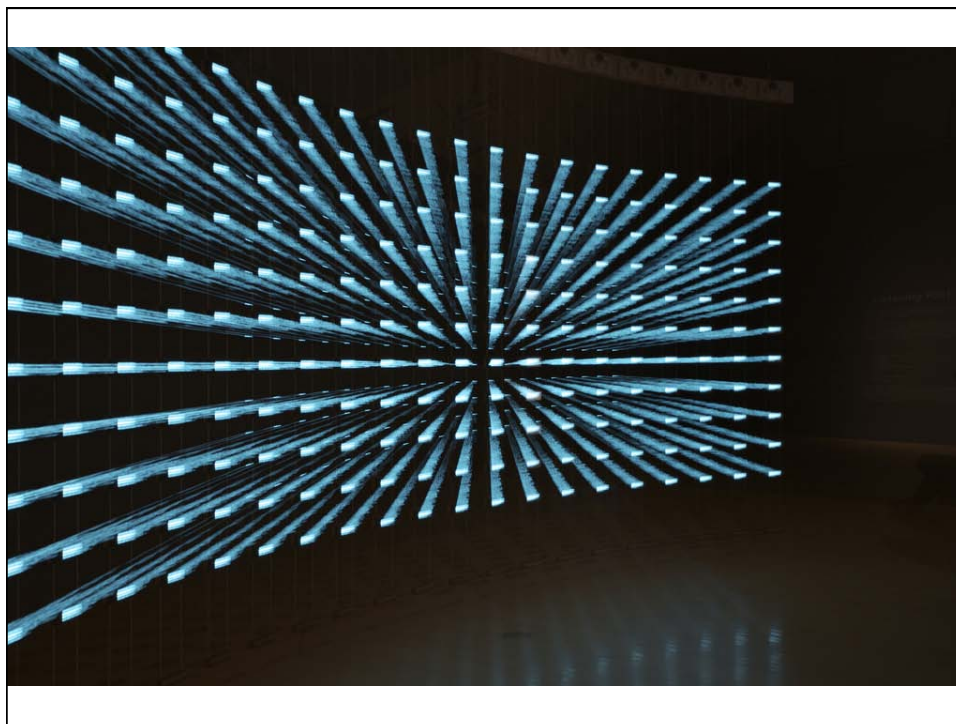
**JUST SOLVE THE  
PROBLEM**

November 2012: SOLVE THE FILE FORMAT PROBLEM MONTH.

<http://ascii.textfiles.com/>







## Conclusion!

- All of these approaches present valuable steps forward in preserving these materials, but I believe that these technical approaches are only solving and addressing part of the problem. To truly preserve new media – like this piece – *The Listening Post* by Ben Rubin and Mark Hansen – we have to come to an understanding of some of their more basic characteristics, and this is where my interests lie:
- My current research interest is to try to determine more precisely what constitutes the work in situations where the boundaries are unstable, when the work includes and depends on interactions between different pieces of technology within the piece as well as interactions of viewers / users with the piece. And the only way – that I can see – to understand what constitutes a work is to do a new kind of social history: To talk to users and viewers, to talk to artists and curators about what the artifacts mean to them, and somehow preserve traces of their interactions in addition to the technological artifact itself.

Thanks!

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