

Information Spaces

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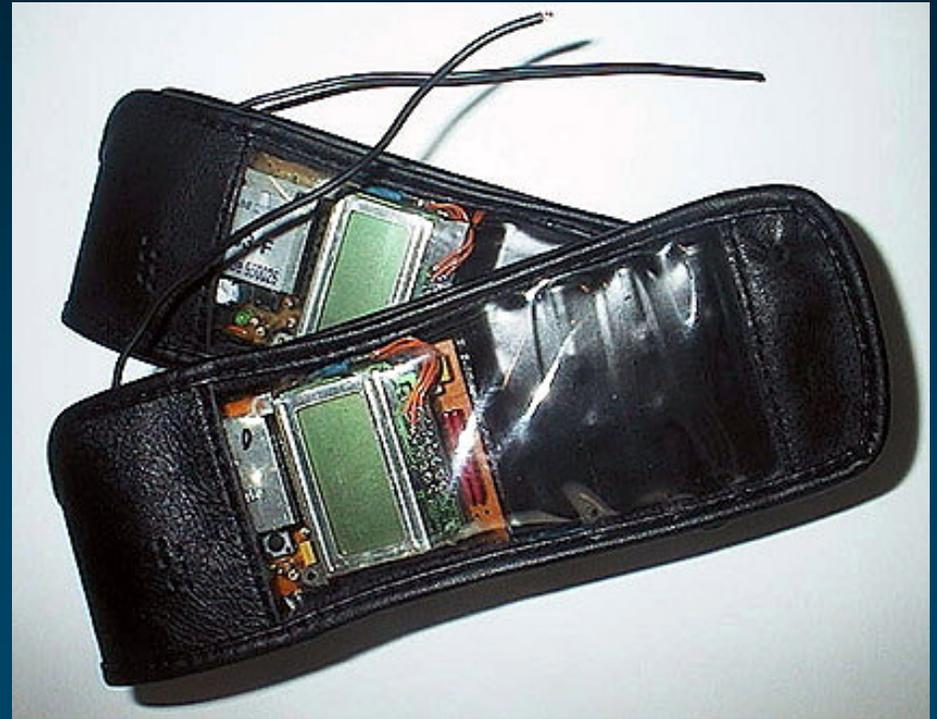


Two projects

- Today I will talk about two recent projects that were showcased at **SIGGRAPH Emerging Technologies**
- *Pirates!*
 - A mobile computer game that takes place in the real world as well as on the computer
- *Informative Art*
 - How to design information displays that fit better in the everyday environment

Background: The Hummingbird (1998)

- *The Hummingbird* is a “friend finder” that tells you when your friends are in the vicinity
- Short-range radio detects other devices and gives a subtle audio indication when other users are near



Hummingbirds results

- We did several studies of Hummingbirds in use - e.g. ski instructors and construction workers
- A major finding was that Hummingbirds work best as a *social facilitator*
- This experience is now used in a commercial product, the DigiBird: www.wunderkind.se



Motivation - Pirates!

- Playing *board games* involves a lot of face-to-face interaction...
- ...whereas playing *computer games* (even multi-player games!) is still mostly a single-person experience



Pirates!

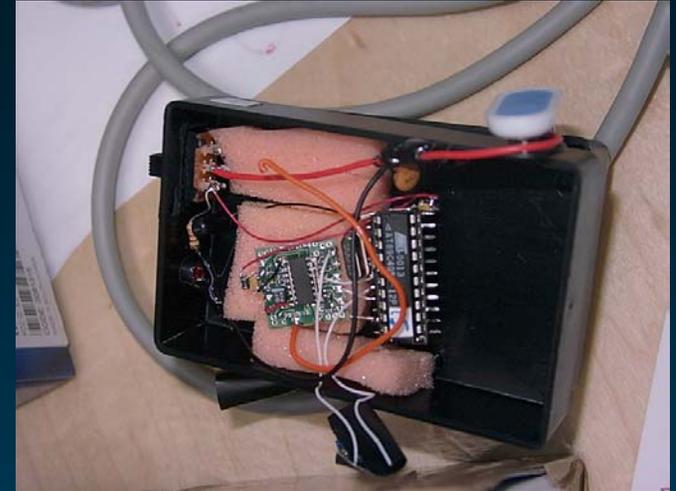


- Mobile game with a Pirate theme
- Collaboration between PLAY and Nokia Research
- Uses novel techniques to create a social game experience



A game that makes people talk - and *walk!*

- We wanted to make a game that encourages the players to interact face-to-face in the real world
- By using position sensing, we can trigger events in the game world depending on events in the real world
- This forces players to move around and interact with each other - not just the computer!



- Your ship is a hand-held computer with a wireless LAN card and custom hardware for proximity sensing



- You interact with the game using a graphical user interface on the PDA



- But you *also* have to walk around in the environment, so that you can engage in combat with other players, find islands, return your cargo to the safe harbor, etc., etc.



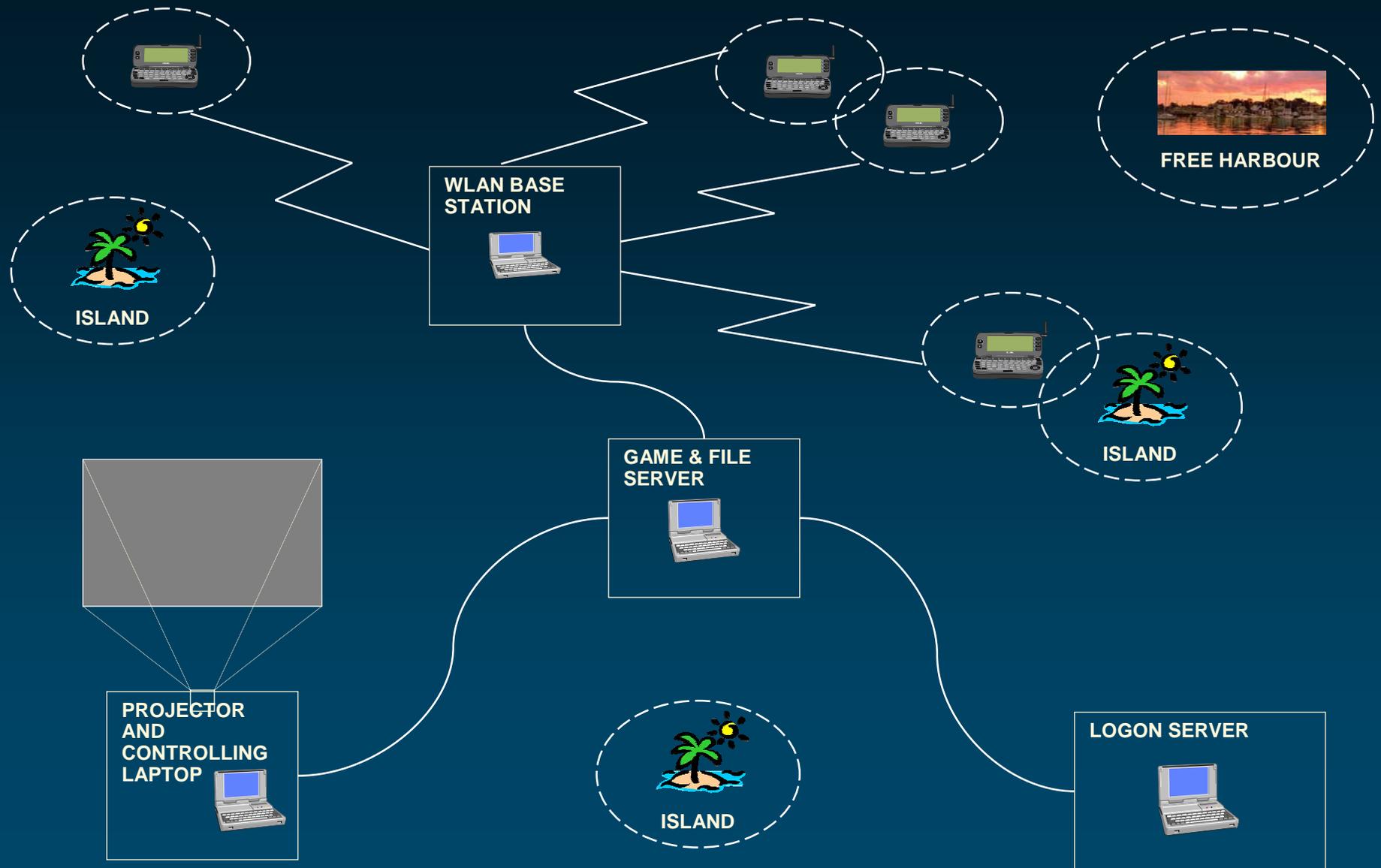
Some things you can do

- Find unknown islands
 - Around the environment are various locations that are the game's "islands"
 - If you get close you can make landfall
 - But you have to look for the islands!
- Engage in combat with other players
 - If you come close enough to another player, you can fight (using the GUI)
 - The winner gets the other player's gold!

Interaction with the audience

- The game can take place in a setting where there are many non-players
- Thus “the audience” become involved
 - They can give hints - “There is an island over there”, “Look out for that guy!”
 - They can chat with the players about what they are doing
 - It can also be interesting to just watch, for instance battles between two players!

Pirates! technical setup



Conclusions from Pirates!

- We attempted to blur the line between physical and virtual play and move computer gaming into a social setting
- It was *partially* successful in that respect, but we need to think more about how to make players engage with each other and not just the technology!
 - Too much interaction happened on the screen rather than in the real world

Future work with Pirates!

- For the next generation, we would like to have the game even more integrated with the real world
- Some ideas:
 - A more engaging interface for combat
 - Props that interact with the environment - c.f. glowing magic swords in fantasy books
 - Things in the environment that react to the players presence - e.g. a volcano

Informative Art

- In the future “ubiquitous computing” environments, we will have access to a lot of different information
- But how can we integrate information into our everyday environment without going crazy from “info-stress”?
- We try to develop information displays that can be used in the same way as art and decoration is used in homes today

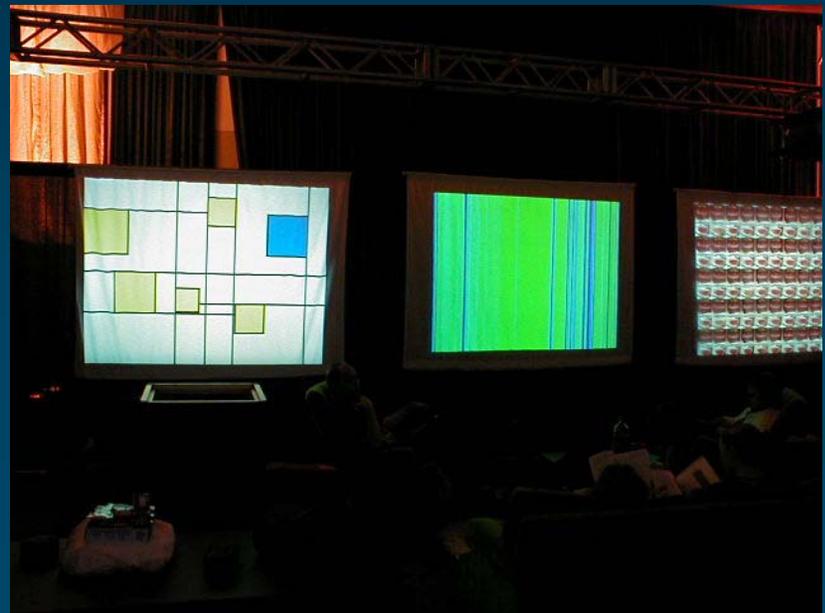


- A home of the future?

Informative Art @ SIGGRAPH

- Three screens running different visualizations in a “cozy” environment!



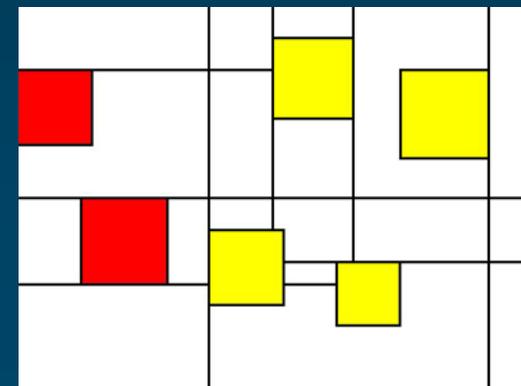
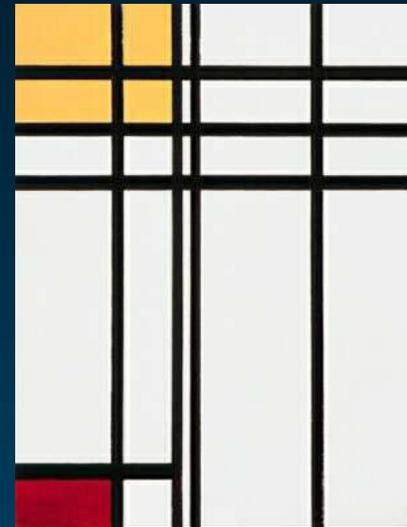


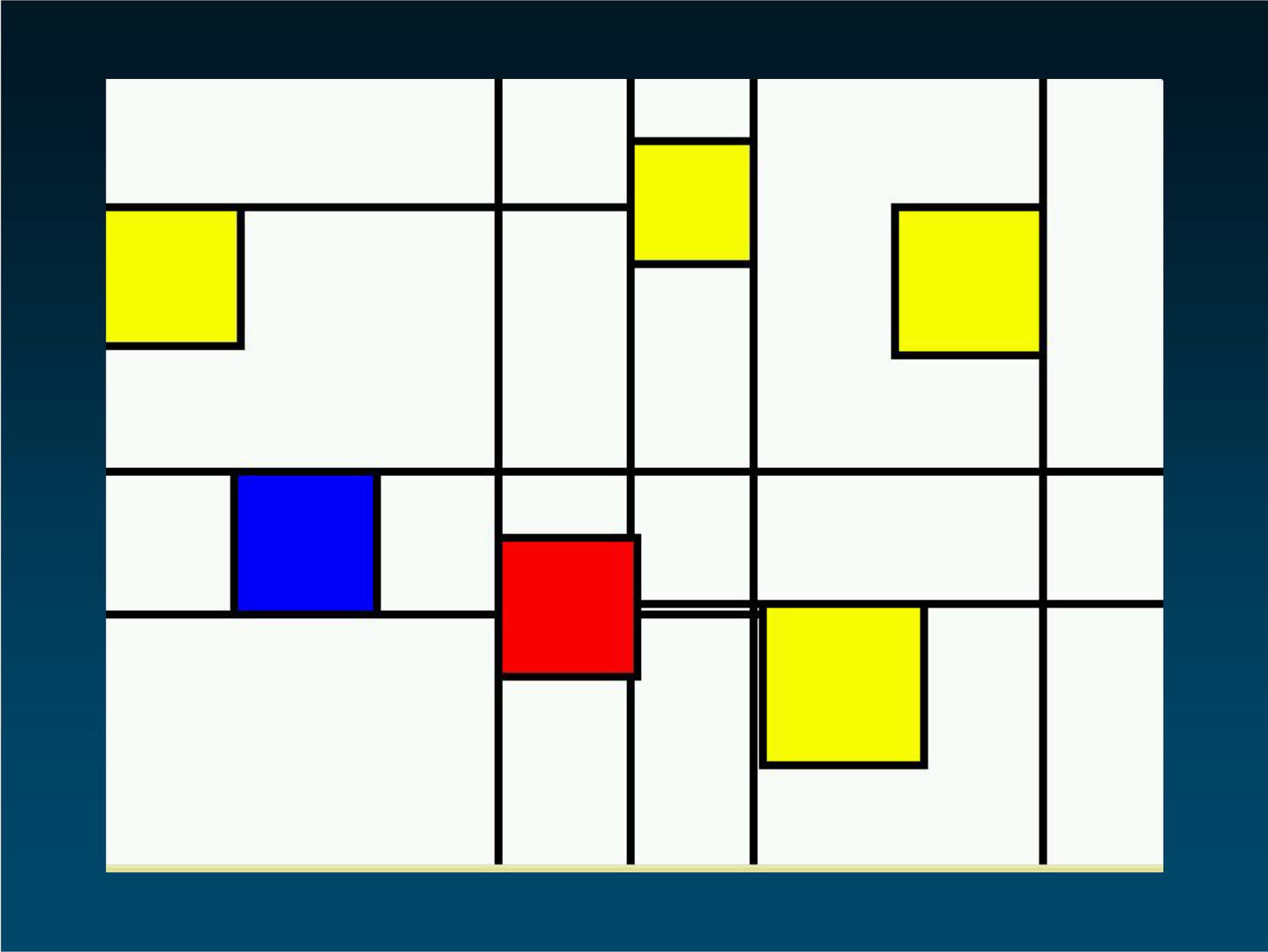
Informative Artworks

- Each exhibit was a dynamic information display inspired by a different type of art or artist
- We used different types of information:
 - Weather data, earthquakes, time, activity
- We also used different types of art for inspiration
 - Geometrical compositions, abstract color art, landscape art, pop art

Informative Mondrian

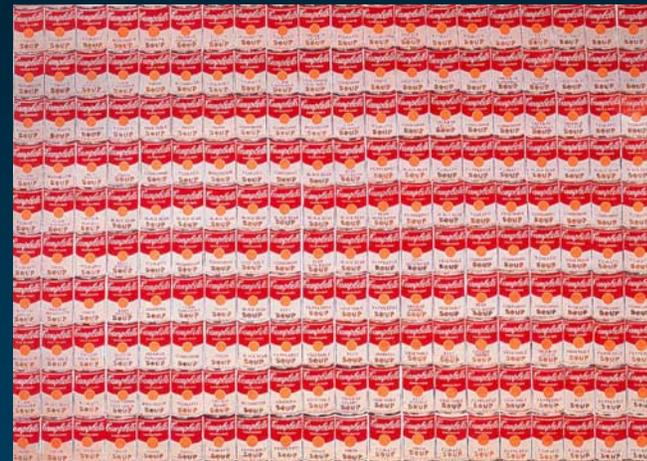
- This piece is inspired by Dutch painter Piet Mondrian
- But it is in fact showing the weather in six different cities
- The data is dynamically updated from the Internet





Soup Clock

- This piece is inspired by Andy Warhol's paintings of various packages - soup, washing powder, etc.
- But it is in fact a clock!



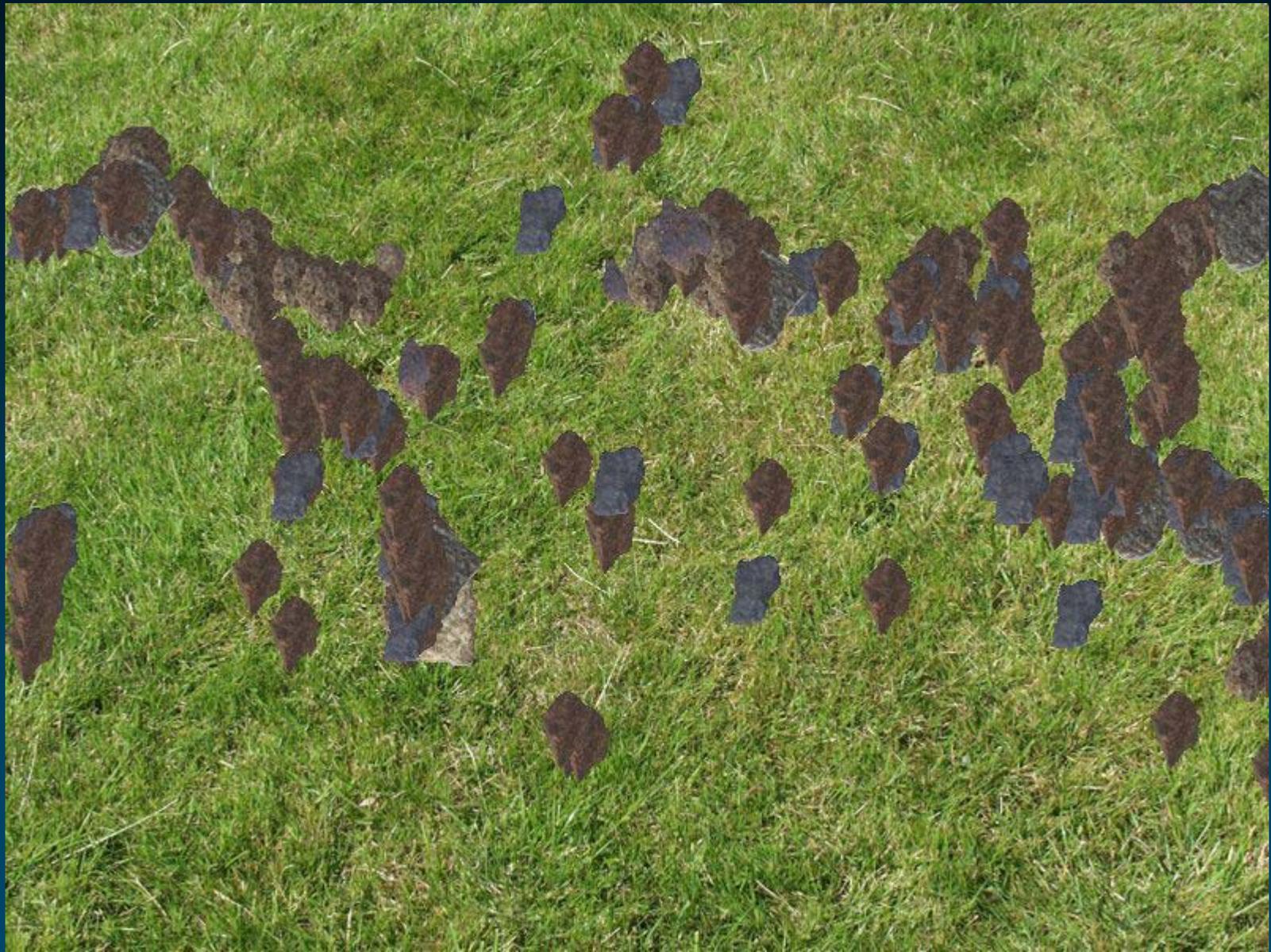




Stone garden

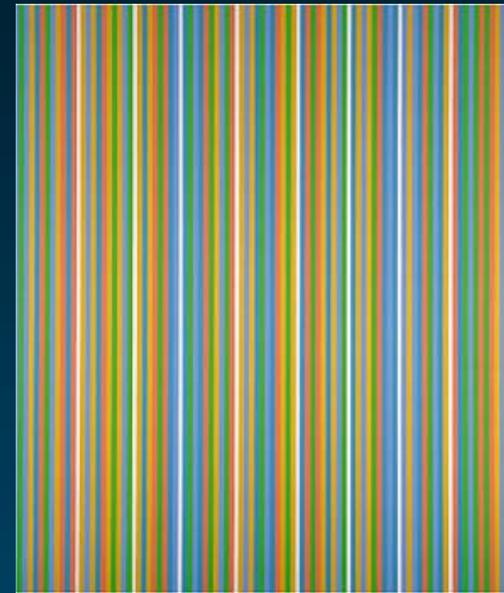
- This piece was inspired by landscape artists such as Richard Long
- It is based on the last 30 days of earthquake data

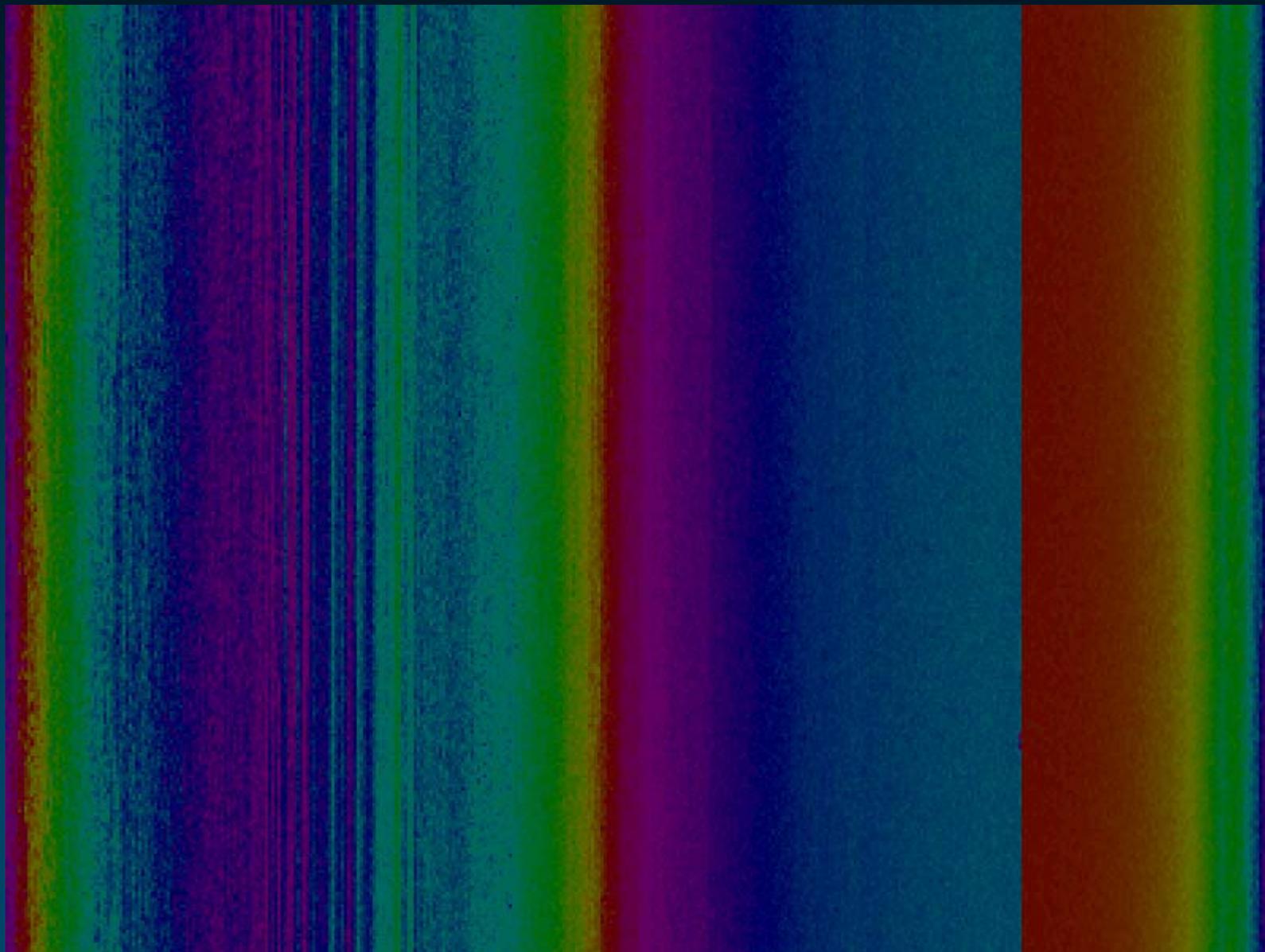


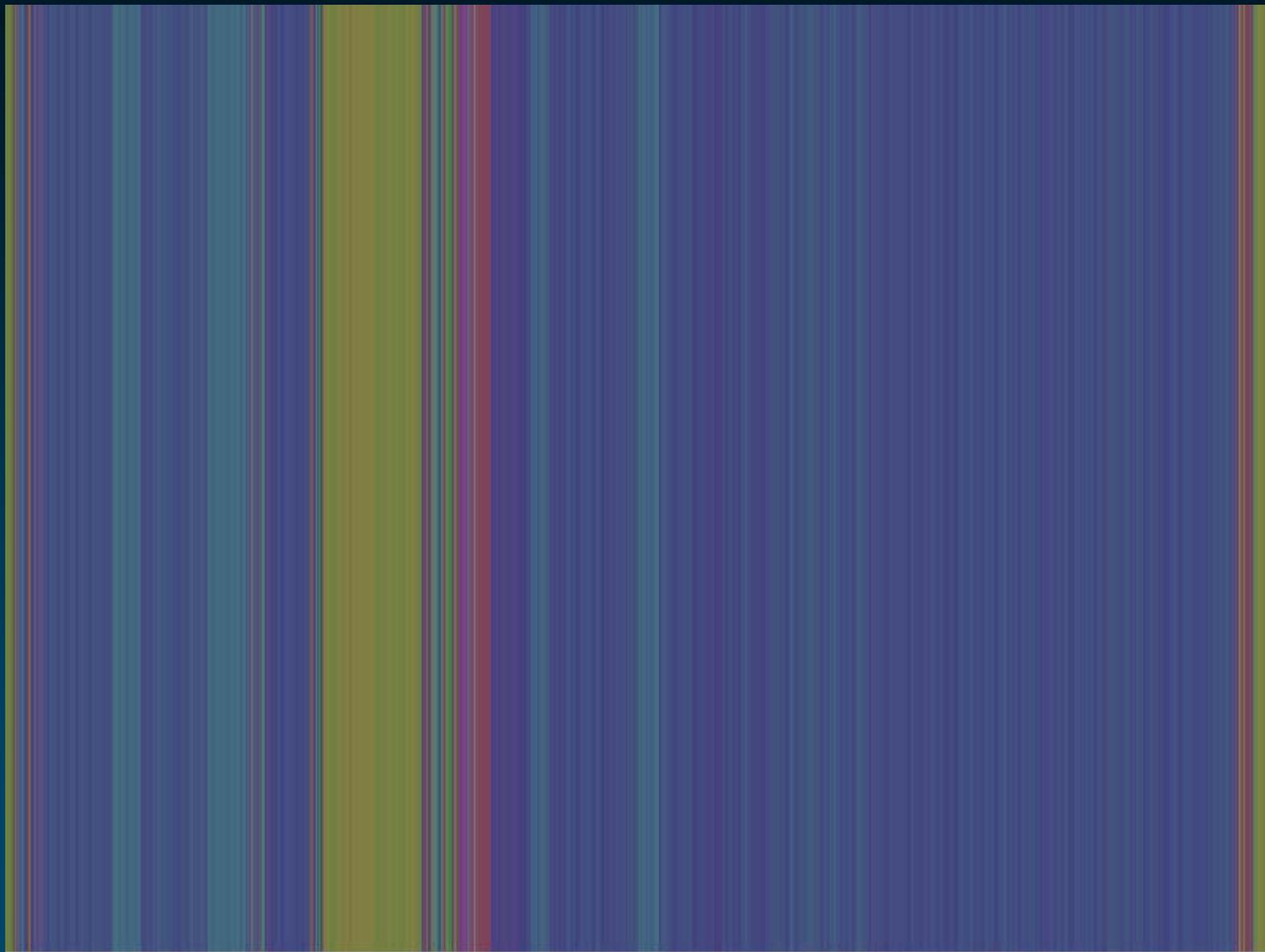


Motion Painting

- This piece was inspired by abstract artists like Bridget Riley and Mark Rothko
- Uses a web cam to give a long-term impression of the activity at a place

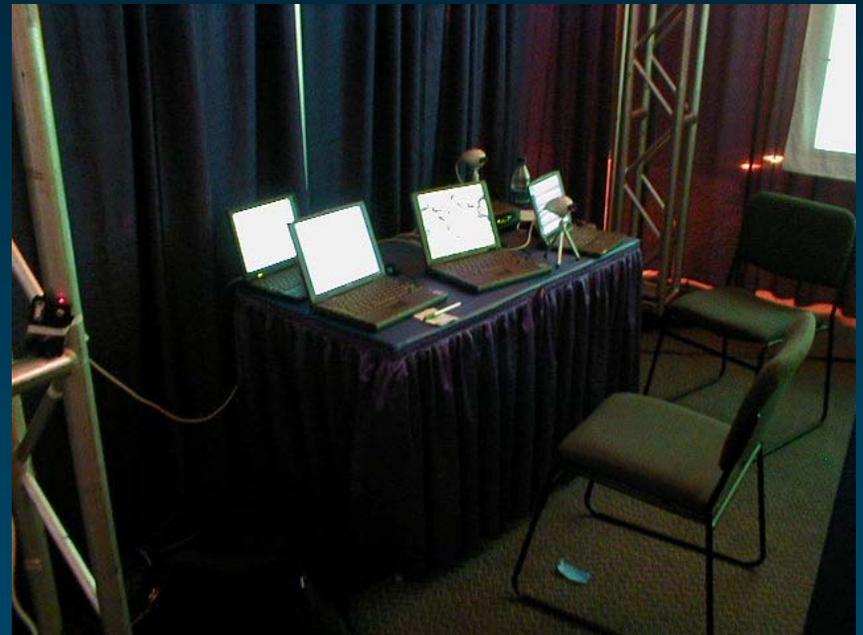


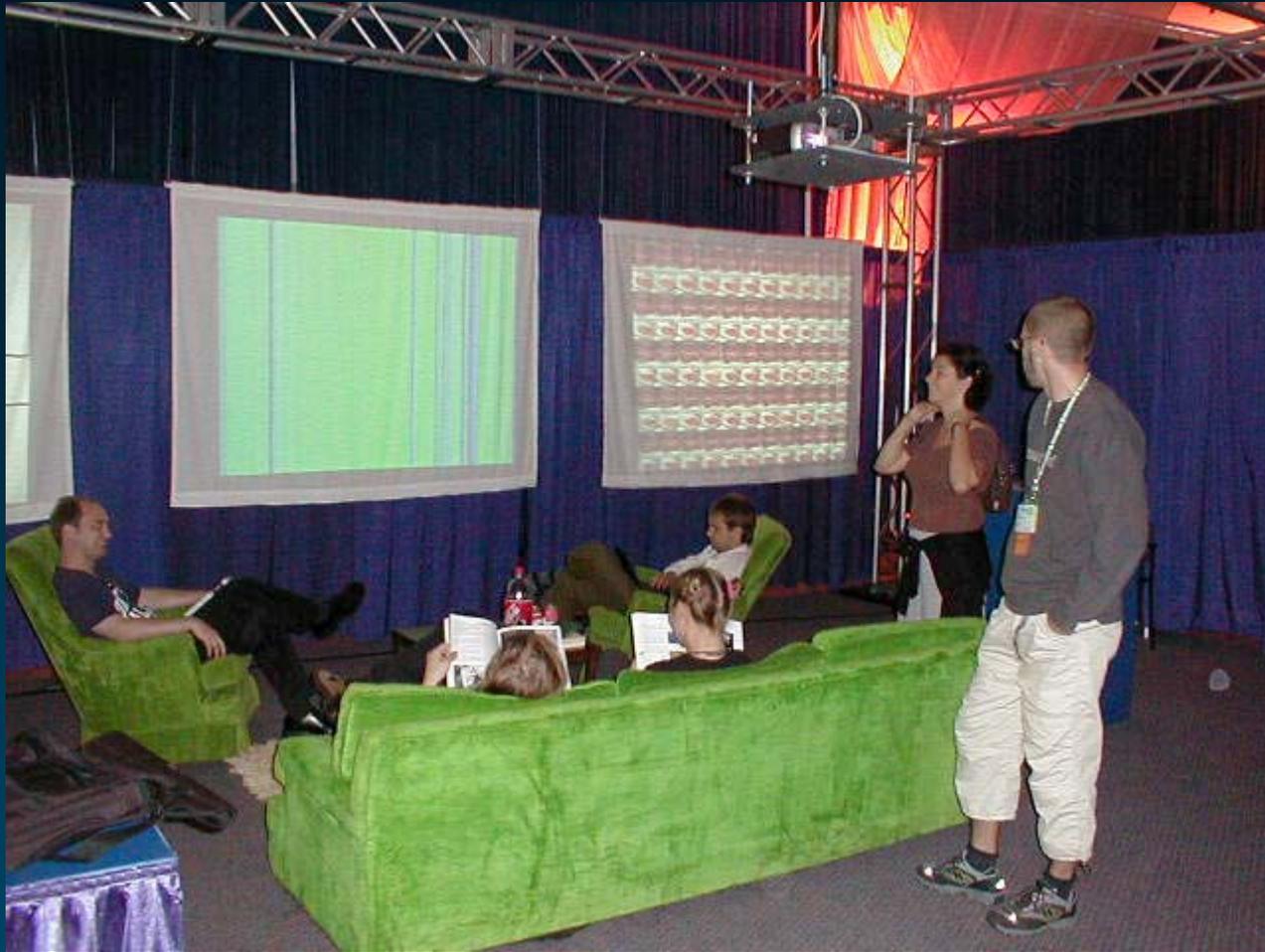




Technical set-up

- Three laptops ran applications, a fourth ran an information server that connected to the Internet
- Everything was written in Java





- Just lounging...

New considerations for computer graphics

- Each of these visualizations is very *slow*
 - this is deliberate!
- If we are to use them as decorations in our homes, it can not be something fast and attention-grabbing!
- We also need to think of how the graphics fit in with the interior design
 - How does this go with my sofa?

Future work

- We are currently working with color-changing textiles
- These change color when subjected to ultraviolet light
 - The change stays for 5-10 minutes
- By weaving patterns into a textile, we have been able to create a simple form of computer display



Thanks!

Questions?

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