

LCC 6310 The Computer as an Expressive Medium

Lecture 19

Overview

Programming concepts

Process intensity

Look at projects 3

Process Intensity

Process intensity - term coined by Chris Crawford

Refers to the "crunch per bit" ratio

How much processing does the computer do on the data?

Instantial assets - data displayed by computer

Sound files

Bitmaps

Text

Animations

...

Instantial assets: a temptation

When first learning to program, instancial assets can provide immediate reward

Using them might feel more "safe"

But instancial assets

Don't make use of the unique properties of computational media

Limit possibilities for interaction

Create an authorial bottleneck

Are computationally "opaque"

The essence of the medium

The essence of the computer as a representational medium is not...

Intervention in the production or display of 3 dimensional forms or visual imagery (**tools**)

Interaction with a participant/observer (**interactivity**)

Control of electro-mechanical devices (**installation**)

Mediation of signals from distant locations (**communication**)

The essence of the computer as a medium is...

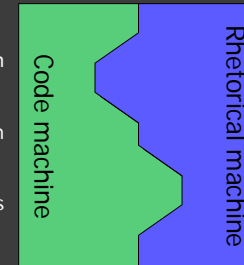
Computation, processes of mechanical manipulation to which observers can ascribe meaning

Computation = code + rhetoric

Uninterpreted computation

Physical symbol system

Complex causal flows



Rhetorical strategies

Interpretation

Representation

Overuse of instancial assets blocks flow between code and rhetoric

Instancial assets limit interaction

More degrees of interactive freedom require more complexity of response

As the interactor can do more, the program needs to do more

Responses generated from instancial assets...

Limit response to combinations of assets

Require more assets as the range of response grows

Can be an authorial bottleneck

Instancial design tends to limit interaction or collapse response

Computational opacity

The meaning of instancial assets are opaque to code

Example: code that triggers video clips can't reason about or manipulate the meaning of the clips

This opacity limits the code's ability to resequence these assets in meaningful and interesting ways

Assets must be designed for sequencibility or...

Assets must be "opened-up" to the code

But instancial assets aren't "bad"

Can tap into rich meaning systems

Complex connotations, emotional flavor...

We don't know how to procedurally generate rich instancial assets

This can quickly become an AI complete problem

Purely procedural work may be overly abstract

Need to appropriately balance the use of instancial assets and procedurality

Develop strategies for manipulation of instancial assets

Project 3

Create a literary machine. The literary machine must include algorithmic elements, such as animated typography, generated text, conditional responses as a function of the previous interaction trace. It must respond to external inputs (e.g. user interaction). Your piece may include conjunctions of text and imagery.

Project 3 discussion

Let's look at some of your project 3s...

Volunteers?

Things to think about

Concept: what does the literary machine do? is there an overall theme or concept? is it easily grasped? is it original? is it engaging?

Presentation: does the literary machine provide an appealing interface? what are the criteria of visual appeal? how does the visual/auditory presentation reflect the way the machine works?

Input response: how does the literary machine respond to external inputs? what is the space of inputs and outputs? are the mappings between inputs and outputs clear?

User interaction (if provided): clear affordances/constraints? clear input/output mappings clear? (how do users know what they can/cannot do?) responsiveness and feedback?

Remember...

For **Thursday** this week: Theory Readings

Four students: present one reading each

Everyone else: prepare one discussion question for each reading

Process Intensity - Chris Crawford & *Interactivity, Process Intensity, and Instancial Assets* - Greg Costikyan (linked from class page, for Costikyan scroll down to Tues, May 20, 2003)

Semiotic Considerations - Michael Mateas (linked from class page)

Computing Machinery and Human Intelligence - Alan Turing (NMR pp.49-64)

From *Computing Power and Human Reason* - Joseph Weizenbaum (NMR pp.367-375)