

## COMMENTS ON SCOTT KIM'S THESIS: VISUAL INTERFACE

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Scott Kim's thesis proposal is seminal to the design of user interfaces. I place it with Kay's dissertation and Tuft's book.

This message is a condensation of several important points that Scott makes.

"Computers are visually impoverished.  
The problem has to do with imagination, not hardware."

Basically, computer scientists are *not trained* in aesthetics, graphic design, or visual thinking. Interdisciplinary effort (remember, that was or is an ADS selling point) is necessary. That we are considering Mike Naimark, a first class video artist, as a consultant is an indication of intelligence. That we let programmers design interfaces is an indication of ignorance. (well, I'll temper that a bit: it plain *arrogant* to think that folks expert in symbol manipulation are also expert in picture manipulation.)

"Interface design by computer scientists is hampered  
by lack of knowledge of basic communication techniques."

Basically, computer scientists are *not trained* in interpersonal communication skills. (That's why we hang out with machines.) We need experts from film, writing, and social psychology to build interfaces.

"The current verbal bias of computer science is not inherent  
in computers, but instead reflects current societal tendencies."

Basically, computer scientists are *anti-trained* in visual skills.

"Consider this analogy:  
A text editor is to a programming language  
as a painting system is to what? ...  
Imagine what computers would be like if *pictures* were treated  
as the primary representation of information in a computer."

If you find these exercises difficult, the above observations are substantiated.

"The key to direct manipulation [rather than text editing] is that *the user can act as if the display were reality ...* Faced with a black box, the user has no choice but to trust the screen."

This is critical: we should not expect the user to build an abstract model of the computational process. We should, instead, *show* the user everything that is going on.

"Direct manipulation occurs when the user can act as if the bitmap were the same as the internal representation."

This is not an analogy. Scott's idea is that the computer's storage of state and the tracking of process are explicit on the screen. The system (as well as the user) relies on this visual information *as the internal representation*.

"Definition: A computer system is "visually modeless" if at the end of each operation it is possible to completely reconstruct the entire internal state solely from the information in the screen image."

Thus, both system and user have the same knowledge.

SALES PITCH: I have a paper written at Atari Research Lab, *A Model Interface Model*, that develops the philosophy and mathematics of Scott's ideas.

DEMO MENTALITY: If a client wants to see a demo, display everything, not just the end result of a lot of invisible processes. A solution to the technical criticism that demos are shallow is to *hide nothing* and to expect nothing underneath.

WYSIWTI: WHAT YOU SEE IS WHAT THERE IS.