Make It So: Learning From Sci-fi Interfaces

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ABSTRACT
Interfaces from science fiction films and television offer lessons to interaction designers and other developers of real world interfaces that are humorous, prophetic, inspiring, and practical.

Science fiction interfaces are more than fun. They reflect current interface understandings on the part of developers and expectations on the part of users. Production designers are allowed to develop “blue-sky” examples that, while lacking rigorous development with users, coalesce influential examples for practicing designers. Interaction designers can learn from these examples. This presentation will describe some of the insights found from a 5 year mission to all corners of science fiction.

Categories and Subject Descriptors
H.5.2 [User Interfaces]: graphic user interfaces (GUI), prototyping, screen design, theory and methods

General Terms
Design, Experimentation, Human Factors.

Keywords
Interaction Design, Interface Design, Science Fiction, Apologetics

1. INTRODUCTION
In an investigation into interfaces portrayed in science fiction that has spanned five years (and continues), the authors have found lessons applicable to interaction design for real products. We have limited our investigation mostly to television and film because of the need for explicit portrayals of interfaces in moving images. Without this limitation, we found that interfaces were too open to interpretation as to who they worked (especially, for example, in text-based descriptions). For comparison, we’ve referenced select examples from industrial films and corporate prototypes as well as current products.

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AVI ‘12, May 21-25, 2012, Capri Island, Italy.
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2. Design Influences Science Fiction
Design in the real world sets paradigms for audiences and designers to use to convey science fiction stories. In the beginning of science fiction, films like Le Voyage Dans La Lune had no interfaces because they weren’t common in the world most audiences inhabited. However, following films like Metropolis and Buck Rogers depicted interfaces that were hybrids of existing mainstream technologies, like ticker tape, telephones, radio, and (eventually) television. This need to “explain” to audiences how interfaces work exists even today.

3. Science Fiction Influences Design
Perhaps more interesting is how science fiction media influence the creation of real interfaces in a variety of domains. The authors have found four categories of such influence: Inspiration, Setting Expectations, Social Contexts, and Proposing New Paradigms.

3.1 Inspiration
We have found evidence of direct influence in the form of science fiction media influencing the development of real product interfaces. One such example is the 2000 film X-Men. After viewing the film in a theater, Douglas Caldwell, an engineer with the U.S. Army Topographic Division, returned to work to write a request for proposal based on the physical cartographic planning table seen near the end of the film (referencing the scene in the RFP). The result is the Xenotran Mark II Dynamic Sand Table that revolutionized the use of such planning tools with the use of digital media blended with a physical interface.

3.2 Expectations
We have found many examples where interfaces to technology in science fiction became expected solutions to real products. For example, the prioritization of development of humanoid robots, as well as the Motorola Star-TAC flip phone have been driven by sci-fi (the latter example from the form-factor of the Star Trek communicator).

3.3 Social Context
Science fiction has many examples of technological interfaces depicting social interactions, particularly with a variety of anthropomorphized imagery, form, sound, and behavior. The success of these interfaces resides largely on how well they deliver to user expectations.

3.4 New Paradigms
Lastly, science fiction offers the opportunity to invent and establish new paradigms in the interface, for both new behaviors and new forms. For example, the volumetric projections in Star Wars follow social conventions of hierarchy. The film Minority
Report depicts gesture-based interfaces more common to research labs, as well as several iris-based identification interfaces for security, advertising, and shopping. 2001: A Space Odyssey shows examples of correct system behavior in the face of extraneous and confusing user input, where The Fifth Element shows the failure of systems in the same situation.

4. Conclusion
While this investigation isn’t complete (or exhaustive), concrete and usable lessons have been found, nonetheless. There is evidence of clear, bi-directional influence, as well as over 100 practical lessons for use in real world interface design.