



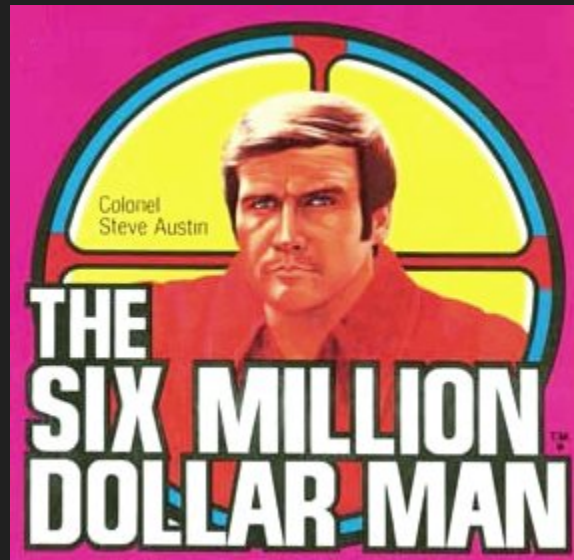
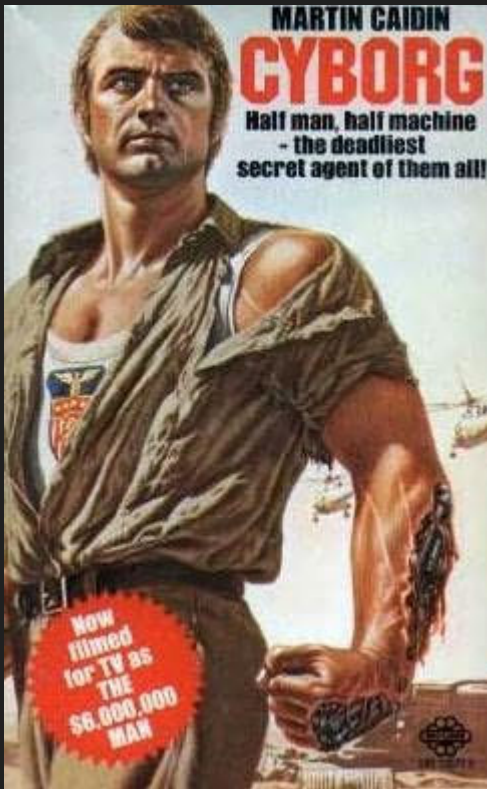
# Natural Born Cyborgs

Stephen Simms

I501 Presentation

November 8, 2017

# Cyborg – Cybernetic Organism



# Transparent Technology

Transparent Technology – “so well fitted to, and integrated with, our own lives, biological capacities, and projects as to become almost invisible in use”.

Opaque Technology – “one that keeps tripping the user up, requires skills and capacities that do not come naturally to the biological organism, and thus remains the focus of attention even during routine problem-solving activity.”

Donald Norman describes Transparent Technology as “human centered” versus Opaque Technology being “technology centered”.



# Information Appliances

## “Information Appliances

- Geared to support a specific activity and does so via storage, reception, processing, and transmission of information
- Form an intercommunicating web. They talk to each other.
- Transparent technologies designed to be easy to use and to fade into the background. They are poised to be taken for granted”



# Invisible Computing

Apple Watch



# Wearable Computing

Olympus  
EI-10 Smart Glasses

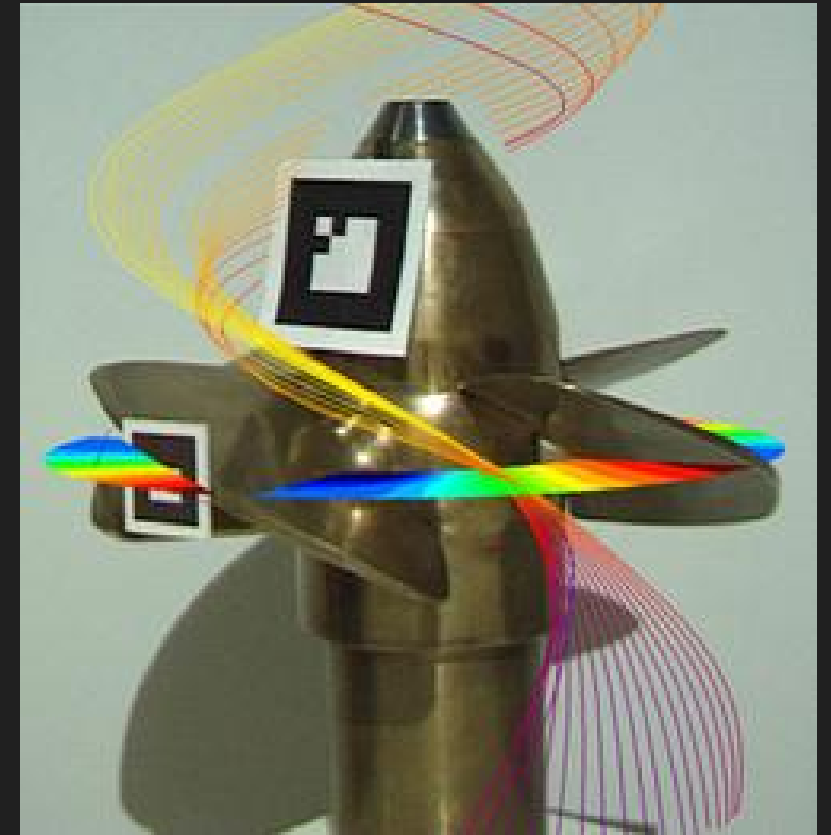
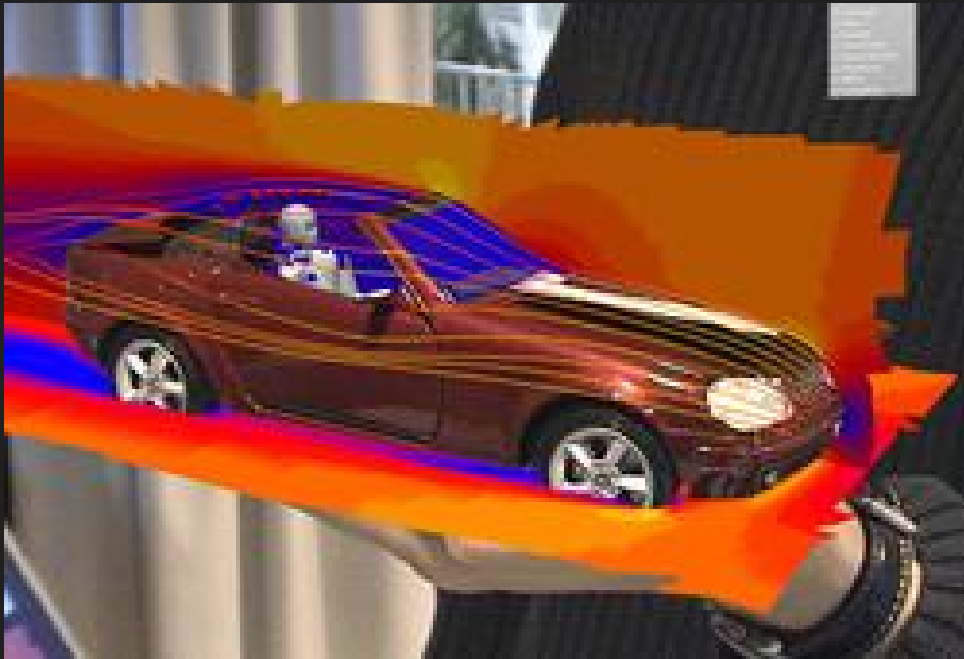


# Tangible Computing

Reactable  
Developed in Barcelona  
Musical Pucks are  
placed, moved, “played”



# Augmented Reality (at Stuttgart's HLRS)





# Dynamic Appliance

“The passage to transparency often involves a delicate and temporally extended process of co-evolution”

My iPhone knows that I’m prone to type Simms  
Just the letters s-i-m prompt my name



# Swarm Intelligence

“Relatively dumb individual agents create beautiful, complex, and life-enhancing structures by following a few simple rules and by automatically pooling their knowledge courtesy of chemical traces and structural alterations laid down by their own activity.”



# Collaborative Filtering

“Each episode of use or access by a consumer lays down a trace, and after a sufficient amount of consumer activity, exploitable patterns emerge.”

“Categorization by cumulative trail laying is unplanned, emergent, and as flexible as consumer choice itself.”



# Search

- Simple Text Search
- Google Search examines hyperlinks
- Jon Kleinberg Search
  - text search obtains “root set”
  - expanded to include linked pages
  - computes hubs and authorities based on link structure



# Soft Assembly / Active Recommendation

“elements are not tied together firmly by fixed, preexisting links. Instead, they are brought together on the spot in response to a specific query, made by a specific user in a specific context.”

Active Recommendation Systems – can provide a soft assembly without using “fixed semantics”

- Talkmine combines collaborative filtering and keyword strategies



# Global Information Sharing

- Linux



- Lustre



# The Internet of Things?

“Our smart worlds will automatically become smarter and more closely tailored to our individual needs in direct response to our own activities.”



# Questions

1. Andy Clark in 2003 had a window onto our present. How did he do? What's next for us natural born cyborgs?
2. The chapters we read mention “free lunches”. What are some of the obvious and not so obvious dangers of the technologies he lays out?

