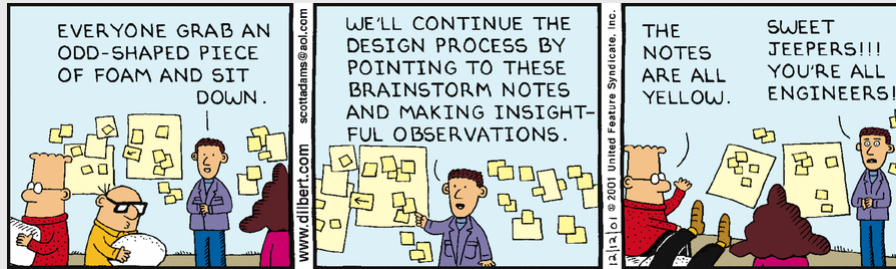


# Welcome to CMSC 434



## Dilbert



<http://dilbert.com/strip/2001-12-12>

## Douglas Adams

Ford flipped the switch which he saw was now marked  
**"Mode Execute Ready"**  
instead of the now old-fashioned  
**"Access Standby"**  
which had so long ago replaced the appallingly stone-aged  
**"Off"**

*Excerpt from: So Long, and Thanks For All the Fish*

## Why do you think this sign is posted?



Are there really any *other* options available?  
Why list them all?

## Which talk would you go to?

### HCIL Seminar Series

Stu Card  
Xerox PARC

#### "Information Scent and Visual Attention in a Focus+Context Tree Visualization"

Focus + context information visualizations have sought to amplify human cognition by decreasing the cost structure of information to the user. They have sought to do this by using the display space non-uniformly, making more detail available and using more spatial resource for information predicted to be of interest to the user. But the details of this process and whether it works have never been studied. I will describe how the focus + context distortion of the Hyperbolic Tree browser affects information foraging behavior in a task similar to the CHI '97 Browse Off. There appear to be two countervailing processes affecting visual attention in these displays: strong information scent expands the spotlight of attention whereas crowding of targets in the compressed region of the Hyperbolic Tree narrows it. We can understand these effects somewhat by combining results from theories of information foraging and visual attention. These help us to understand the mechanics of information visualization.

Oct. 24

2:00 pm

3258 A.V. Williams Bldg.

<http://www.usmd.edu/hcil>

#### Logic and AI SEMINAR

November 14, 10:15 am  
Room AVW 2460

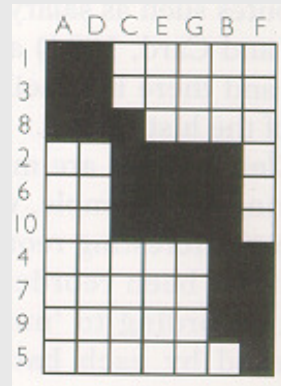
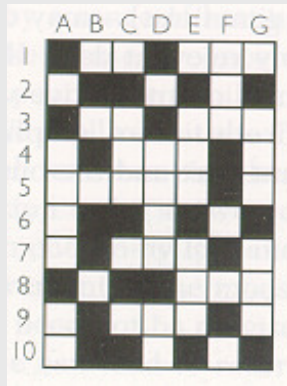
Diane Litman  
AT&T Labs-Research

#### "Misrecognitions, Corrections and Prerody in Spoken Dialogue Systems"

Understanding how people speak when they interact with spoken dialogue systems is critical to improving the performance of those systems. In particular, speakers' prosodic behavior provides useful indicators of a) whether a speaker term will be recognized correctly or not by an automatic speech recognition system; b) whether a speaker is reacting to a system error; and c) whether a speaker is correcting such an error. This talk presents results of analyses of human interactions with the TOUT spoken dialogue system, an experimental system for accessing train schedules by phone. Our analysis results show that there are significant prosodic and lexical differences between misrecognized and correctly recognized speech and between correction and non-correction utterances. Our machine learning results show that prosodic and other differences can in fact be used to automatically predict both misrecognitions and their corrections. We suggest how such results may be used to improve system behavior in dialogue systems.

For more info about LAISEM:  
<http://www.cs.stanford.edu/projects/laisem/wh/laism/laism.html>

## Which graphic tells the clearer story?



The letters A through G represent chemicals.  
The numbers 1 through 10 represent crops.  
Black = Improved    White = Got worse

images: Bob Waddington

## How does this door work?

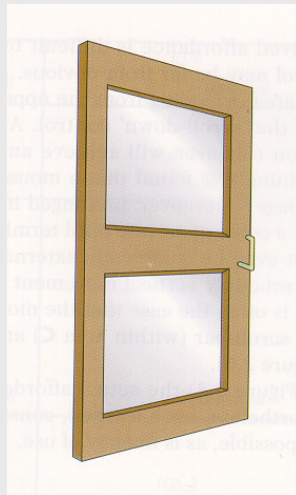


image: Robert Spence

## How many people share this sentiment?

**SHERMAN'S LAGOON** by Jim Toomey

ERNEST, CAN I BORROW ONE OF YOUR COMPUTER BOOKS? I'M STUCK ON SOMETHING.

SURE, HERE'S ONE CALLED "COMPUTER BASICS."

THIS LOOKS A LITTLE ABOVE MY PAY GRADE.

HOW 'BOUT THIS ONE... "COMPUTERS FOR DUMMIES."

WELL, IT'S NOT THAT I'M A DUMMY, REALLY.

HERE'S ONE CALLED "COMPUTERS FOR PEOPLE WHOSE COMPUTER MAKES THEM FEEL LIKE A DUMMY."

GETTING WARM.

TRY THIS... "COMPUTERS FOR PEOPLE WHO THINK COMPUTERS WERE DESIGNED BY DUMMIES."

OOH, I LIKE THE SOUND OF THAT ONE.

I'VE GOT THE PERFECT BOOK...

"COMPUTERS FOR PEOPLE WHO SCREAM AND CURSE AND THREATEN TO THROW THEIR COMPUTER OUT THE WINDOW."

THERE'S A CHAPTER DEVOTED TO ANGER MANAGEMENT.

I'LL TAKE IT.

www.shermanslagoon.com ©2004 Jim Toomey. All rights reserved. Dist. by King Features Syndicate

## Which image would you associate with a phone?



## Which of these would make a better “phone” icon?



## Where might you click for info on the IC400C?

Micro Innovations Online - Microsoft Internet Explorer

Address: [http://www.mic-innovations.com/micro\\_inv/micro\\_innovations\\_pc\\_cameras.htm](http://www.mic-innovations.com/micro_inv/micro_innovations_pc_cameras.htm)

Company Products: Micro Innovations, IBM, Kensington

Support Topics: Drivers / Software, Manuals, FAQs

Company Info: Warranties, Latest News, Contact Us

Find a Store: Micro Home

**PC Cameras**

- Blue Tooth Products
- USB 2.0 Products
- PDA Accessories
- PDA Chargers
- PDA Upgrade Kit
- PDA Faceplates
- PDA Gaming
- PDA Holders
- PDA Hot Sync
- PDA Keyboards
- PDA Leather Cases
- PDA Screen Protectors
- PDA Styluses
- PC Cameras
- Digital Cameras
- Connectivity
- USB Adapters
- USB Cables
- USB Docking Stations
- USB Hubs
- USB Reader/Writers
- USB Switches
- Pointing Devices
- Keyboards
- Speakers
- Microphones

**Webcam Mobile IC400C**  
Click here for more info!

**Webcam Pro 350 IC3501**  
Click here for more info!

**Webcam Plus IC200C**  
Click here for more info!

## Some History of HCI: Input / Output devices

	<u>Input</u>	<u>Output</u>
<b>Early days</b>	connecting wires paper tape & punch cards keyboard	lights on display paper teletype
<b>Later days</b>	keyboard (different types) cursor keys mouse (different types) microphone	scrolling glass teletype character terminal bit-mapped screen (different types) audio
<b>Next Wave</b>	fancier keyboards and mice touchscreens and pens better voice recognition natural language commands digital cameras simple biometric devices simple computer vision	higher resolution screens multiple screens “retina” displays audio video “force feedback”

## Some History of HCI: Input / Output devices

	<u>Input</u>	<u>Output</u>
<b>“Modern”</b>	fancier keyboards/mice touchscreens and pens better voice recognition natural language cameras computer vision biometric devices wearable sensors	higher resolution screens multiple screens retina displays audio video haptic feedback head-mounted / VR wearable displays

### **Bleeding Edge?**

OLEDs, data gloves, implanted devices, more advanced biometrics, autonomous agents, ...

## **What's a computer? What's a peripheral device?**

**If you asked someone to draw a computer, what parts would they draw?**

**Would the CPU be among them?**

- are keyboards & terminals are just artifacts of today's technologies?
- how will new input/output devices continue to change the way we interact with computers?

**Is an iPhone a computer? An iPad? A dSLR?**

**Is a FitBit a computer? A peripheral device?**

## **Everything old is new again?**

**The first mouse was in the early 1960s – 20 years before the Xerox Star or Apple Mac or Microsoft Mouse. Are today's mice significantly different from Douglas Engelbart's? How? Will tomorrow's mice be significantly different from today's? Will we even still have them?**

**Pen-based input dates back to the late 1950s – almost 40 years before the Apple Newton and almost 50 years before the Microsoft TabletPC push and 60 years before the stylus resurgence.**

**Alan Kay presented the idea of a "DynaBook" in 1968, almost 40 years before the successful wave of tablets.**

**What moves technology from research labs and pet projects into the business world and home use?**



## Empathy



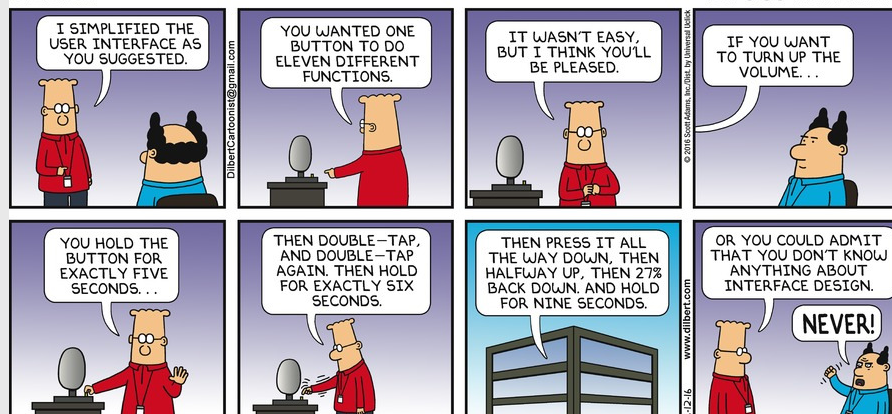
<http://dilbert.com/strip/1994-09-30>

## Human needs and thoughts: Crucial to Understand

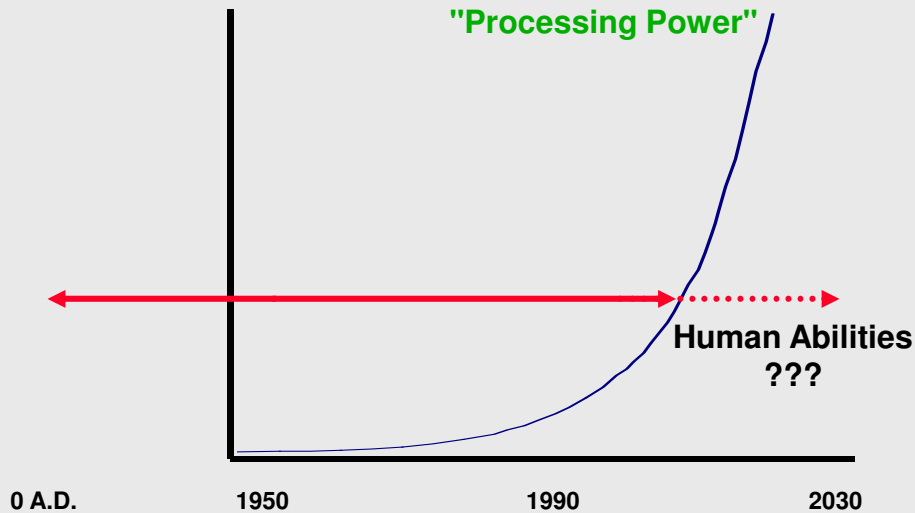
User-centered design  
Task-centered design  
Joy-centered design

DILBERT

BY SCOTT ADAMS



## “Moore’s Law” -vs- Human Psychology



( This slide is a variation of one presented by Bill Buxton )

### For example, how do we create a menu?

**Do we want a simple design or a complex design?**

**Should it be narrow and deep or should it be broad and shallow?**

**Some questions to ask:**

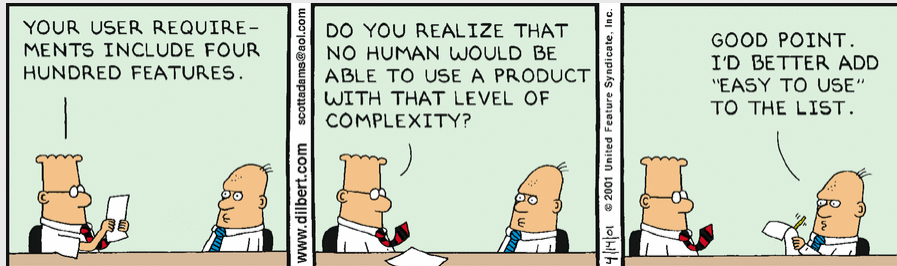
how many things can the typical user remember

- there can be speed advantages for expert users that have learned where things are on a menu

are there costs associated with loading a new page

- an application such as Microsoft Word
  - how much memory does the machine have
- a series of web pages
  - how much latency if there in the connection

## “Make it Usable” can’t be an add-on thought...

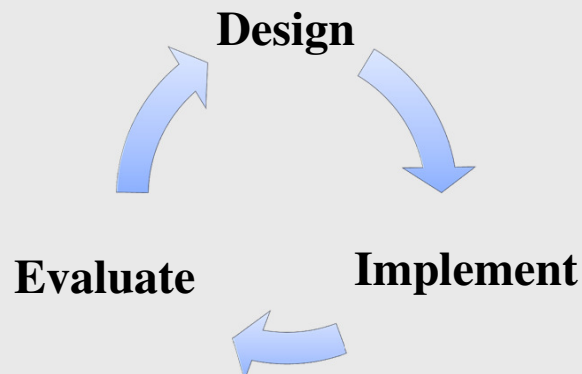


<http://dilbert.com/strip/2001-04-14>

## Human Computer Interaction

A discipline concerned with the design, implementation, and evaluation of interactive computing systems for human use.

Ideally, this is an iterative process:



## Course Team Project Structure

Projects will be done in groups of 3 or 4 students and have multiple graded phases and sub-phases.

As each phase is assigned, its value towards the whole will be published as well.

Each phase will have peer assessment and that will impact individual student grades.

Planned phases posted at

<http://www.cs.umd.edu/class/spring2018/cmsc434-0301/project-overview.shtml>

## Why have an interface design process?

**Many (most?) large software projects go over cost...**

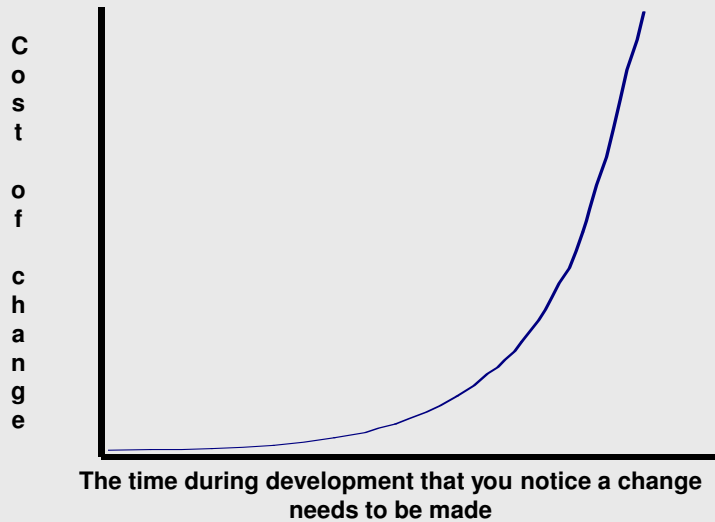
When asked, managers gave four usability-related reasons:

- users requested changes
- designers overlooked tasks
- users did not understand their own requirements
- insufficient user-developer communication and understanding

**Usability engineering is *part of* software engineering (ie: CMSC435)**

- pay a little now, or pay a lot later!
- far too easy to jump into detailed design that is:
  - founded on incorrect requirements
  - has inappropriate dialogue flow
  - is not easily used
  - is never tested until it is too late

## Cost to fix a problem?



## Some Foundations for Interaction Design

### Understanding *users* and their *tasks*

#### Designing *with* the user

- User centered design and prototyping
- Evaluating interfaces with users: qualitative and quantitative

#### Understanding issues in visual interfaces

- Psychopathology/psychology of everyday things
  - what makes visual design work
- Beyond screen design
  - representations and metaphors
- Graphical screen design
  - the placement of interface components on a screen

#### Implementing Graphical User Interfaces (GUIs)

#### Understanding the past and thinking about the future of HCI

## Some Course Objectives

**By the end of this course, outcomes should include...**

- having a better definition of what “good design” means.
- being more familiar with a variety of design guidelines and models and how to apply them.
- understanding the value of understanding users and their tasks and the different methods for involving the user in the design process and have applied them in your work.
- having created the specifications for, and built a prototype of, an application using good design methods.
- knowing how to evaluate an interface design’s quality.
- having learned enough about HCI to learn *even more* about HCI!

## How you will be evaluated

**Team Project: 40%**

- Projects will be done in groups of 3 or 4 students and have multiple graded phases and sub-phases.

**Exams: 40%**

- There will be a midterm and a final.
- The final might have some material that was covered earlier in the term.

**Homework, class participation, polls/quizzes: 20%**

Various things will contribute to this portion of the grade.

Examples include:

- Participation in various exercises done during class time.
- The Hall of Fame presentations (details to be given in class).
- Likely 4-6 homework assignments, accounting for roughly half of these points.

See posted syllabus for more details...

## **Text and additional references**

### **Required readings:**

Will be posted to the class site and ELMS site associated with the course as the term progresses.

### **Primary course web site:**

<http://www.cs.umd.edu/class/spring2018/cmsc434-0301/index.shtml>

Some recommended readings will come from:

*Designing the User Interface: Strategies for Effective Human-Computer Interaction, 6<sup>th</sup> Edition* Shneiderman/Plaisant/et.al.

Note: Some of the things in the 5th edition are in different places and there are some new things in the 6th edition, but I think for the types of readings that would be optional from DTUI and the goals, it feels like the 5th edition could be ok too. I'd say if you have a strong interest in HCI, it might be more worthwhile having the newer one since reading beyond just what I cover could be useful in a larger scope.

## **Readings for the week:**

**Excerpts from Don Norman's *The Design of Everyday Things* (excerpts on ELMS in the Readings folder under Files)**

If you find these of interest, I recommend the book in general.