HCI

- Human Computer Interaction
- HCI studies the design of effective interfaces between computer software and a human (or humans).
- An “effective” interface allows a system to deliver its functionality.
- A poor interface can prevent even the world’s greatest software from being effective.
- Ineffective interfaces cause software not to be used.
- Effective interfaces can save huge amounts of money.
  - e.g., faster, fewer errors, satisfied users.

DESIGN

- The subject of Algorithms is concerned with the *design* of processes.
  - {small scale structure and behavior}

- Software Engineering is concerned with the *design* of programmed systems.
  - {large scale structure and behavior}

- HCI is concerned with the *design* of interfaces to such systems.
  - {the delivery of functionality of the programmed systems}

DESIGN FACTORS

What factors influence a design?

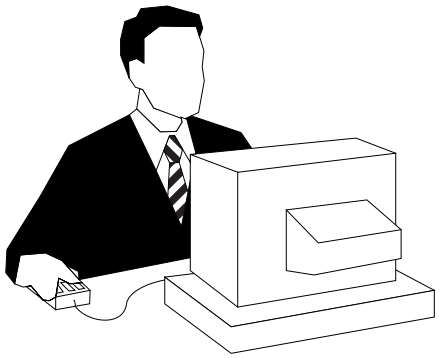
- General properties of the human user.
  - Memory, Perception, Motor skills.
  - Natural abilities and limitations.
- The characteristics of the user.
  - e.g., personality, education, etc.
- The user's task.
  - e.g., stressful, repetitive, etc.
- The interaction hardware.
  - e.g., screen, mouse, etc.
- The interaction and display methods used.
  - menus, layout, colors, icons, etc.
  - strengths and weaknesses of methods.
- The implementation of the methods.
  - e.g., speed, tool selection and use, etc.
- Graphical design.

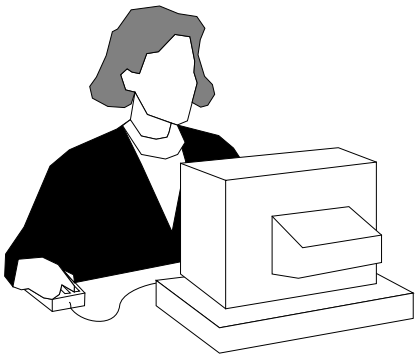
IT'S OBVIOUS!

- Good HCI is very hard, and requires:
  - a lot of knowledge of HCI research;
  - knowledge of interaction techniques;
  - design skill;
  - experimental evaluation;
  - knowledge of what can be programmed;
  - experience;
  - good taste.
- Good HCI requires "trade-offs":
  - It's rare that a particular method is ideal.
  - It's rare that one choice is independent of another.
  - An interface is often more than the sum of the parts.
  - The quality of an interface is in the details.
- Experimental results show what techniques work under which circumstances.
  - When is it bad to use a Mouse?
  - When should you use red letters?

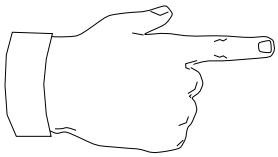
OTHER USERS/TASKS

- The majority of interactions with a computer are not for programming.
- Your computer use is *not* typical.
- You are *not* a typical computer user.
- Designing interfaces that you like is *not* a good way to design interfaces in general.
- Interfaces need to be developed for all User/Task combinations.





These are NOT *normal* people!!



Normal people do not use computers.

When you design interfaces you are not designing them for yourself. You design them for people doing a task.

DO YOU KNOW?

Reverse Engineering...

... is concerned with figuring out why an artifact was designed to be that way.

You need a lot of knowledge to do it!

So... try to reverse engineer the WPI Home Page on the Web.

- Can you figure out what all the requirements were for the Home Page?
- Why does it look like that?
- Why is it arranged in that manner?
- Why does it include that text?
- Why are things in that order?

COURSE GOALS

Some of the goals of this course are to:

- ❒ Provide you with web page design and development skills.
- ❒ Have you read and analyze articles from the recent HCI literature.
- ❒ Have you do an HCI experiment.
- ❒ Have you design and build an interface using event driven programming.
- ❒ Have you go through a group-based creative design process for an interface.
- ❒ Provide you with the HCI knowledge that you'll need for effective interface design.