

软件交互设计

基本概念、设计目标、设计原理、设计过程
可用性 (usability)



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可用性 Usability



Human Factors

Usability means **easy to learn, effective to use**
and provide an **enjoyable experience**



可用性 Usability



Human Factors

- 人机工程 **Ergonomics**: fitting to the physical body



- **Size?**
- **One hand operation?**
- **Visibility?**
- **Icon size and arrangement?**



What's Apple's Golden Rule?

可用性 Usability



Human Factors

- 人机工程 **Ergonomics**: fitting to the physical body
- 交互感知 **Perception**: sensing the world
 - **Physical**: *vision, sound, touch*
 - **Chemical**: *smell, taste, pain*
- Vision
 - Frequency: 100ms
 - Discrimination: $\sim 10^4$ Colors
 - *Remember: $< 10^2$ Colors*

blue	slate	sky	navy
indigo	cobalt	teal	ocean
peacock	azure	cerulean	lapis
spruce	stone	aegean	berry
denim	admiral	sapphire	arctic



What's Video frame rate?

可用性 Usability



Human Factors

- 人机工程 **Ergonomics**: fitting to the physical body
- 交互感知 **Perception**: sensing the world
- 交互认知 **Cognition**: attention to the world

Properties	Conscious 意识	Unconscious 潜意识
<i>Engaged by</i>	<i>Novelty Emergencies Danger</i>	<i>Repetition Expected Events Safety</i>
Used in	New Circumstances	Routine situations
<i>Can handle</i>	<i>Decisions</i>	<i>Nonbranching tasks</i>
Accepts	Logical propositions	Logic or inconsistencies
<i>Operates</i>	<i>Sequentially</i>	<i>Simultaneously</i>
Controls	Volition	Habits
<i>Capacity</i>	<i>Tiny</i>	<i>Huge</i>
Persists for	Tenths of seconds	Decades (lifelong)

Attention, Learning, Remembering and forgetting

可用性 Usability



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Differences among the UIs of Google, Yahoo, Bing?

可用性 Usability



ISO 9241 (可用性标准) 定义用户完成任务时的

- **effectiveness**
 - can you achieve what you want to?
- **efficiency**
 - can you do it without wasting effort?
- **satisfaction**
 - do you enjoy the process?

参考此类规范、根据软件任务，建立交互设计规则和启发式评测框架

- ID的目标和验证评测依据
- 规则(Principles)及其度量