

# **Human Computer Interaction**

## **Using**

### **Universal Speech Interface**



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## Presentation Outline

1. What is HCI ????
2. Why Speech for HCI ???
3. Current Approaches to creation of speech systems....
4. Limitations of Current Approach
5. Solution to these limitations.
6. Difference between an Intelligent m/c and Simple m/c Speech Interface.
7. Why use USI in "Mav Home" project ???
8. Conclusions



## What is HCI ????

From computer science perspective, the HCI focuses on interaction and specifically on interaction between one or more humans and one or more computational machines.

In other words.....

Human-computer interaction is a discipline concerned with the design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them.



## Why Speech for HCI ???

1. Naturalness of communication

Others..

2. Ambient Medium rather than attentional one.
3. Descriptive rather than referential.
4. Requires less and cheaper physical resources.
5. Ubiquity of speech.



## Current Approaches to creation of speech systems

1. Natural Language .
2. Dialog Trees.
3. Command and Control.



## Properties of the 3 approaches

Speech Interface Approach	Unconstrained Natural Language	Dialog Trees	Command and Control
User's Effort	Low	Moderate	High(moderate with use)
Developer's Effort	Very high	Moderate	Moderate
User Training	None	None	Required to each application
Supports Discovery?	No	Yes,inefficiently	possibly
Scales to Complex Tasks	Unknown	No	No
Scales to Hundreds of Application	Yes,but effort not amortized	Yes	No
Stress on speech recognizer & parser	High	Low	moderate



## Limitations of Current Approach

1. Recognition Performance.
2. Accessible Language.
3. Ease of development



**Solution to these limitations**

# **Universal Speech Interface**



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8

# Difference between an Intelligent m/c and Simple m/c Speech Interface



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9

## How is USI different from Current Approaches

1. Follows GUI paradigm.
2. Focuses on Standardizing the "sound and say" .
3. Focuses on uniform structure ,terminology, and input behavior.



## Standardizing the “Sound and Say”

1. Universal Metaphor.
2. Universal User Primitives.
3. Universal Machine primitives.



## Characteristics of good USI System

1. A shallow learning curve.
2. Standardized ways to accomplish standardized tasks.
3. Reliable and predictable handling of the vagaries of speech recognizers.



## Why use USI in “Mav Home” project ???



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13

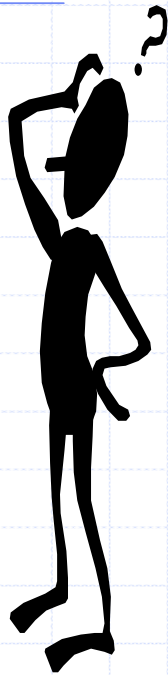
# Conclusion



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14



OR



Anyway Thanks for listening

