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Trends in Multimodal Human-Computer Interfaces

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Trends in Multimodal Human-Computer Interfaces

Presenter:

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Need:
As computer technology becomes increasingly integrated into everyday tasks, new interaction paradigms emerge. The graphical user interface combined with a keyboard and mouse is the predominant way that humans currently interact with computers. However, today we stand on the precipice of a revolution of human-computer interfaces. Touch-screens, wireless gesture controllers, voice command and haptic feedback devices facilitate natural interactions that are precise and easy to learn. Advances in these interface technologies are evolving rapidly, prompting questions about the future of human-computer interaction.

Overview:
This presentation will explore the state of the art of human-computer interfaces considering historical context and potential future directions. We will discuss the usefulness of interface paradigms, where they succeed, and where they begin to break down, citing examples from multiple industries. Finally, the results of a case study in which students used the Leap Motion wireless controller to generate electronic music will be revealed.

Major Points:
- A survey of human-computer interfaces
- Interaction paradigms and multi-modal HCI (visual, audio and beyond)
- The state of the art of interaction hardware (Leap Motion, Kinect, Google Glass)
- Potential industrial applications
- Results of a case study: the Leap Motion to control music

Summary:
Touch screens, voice commands and wireless gesture controllers have the potential to provide a more natural human-computer interface than traditional mice and keyboards. While these technologies are still evolving, the usefulness of such interfaces across industries is undeniable. In this presentation, the state of the art of human-computer interfaces will be explored. We will examine the qualifications necessary for these technologies to replace traditional interface hardware and project how far this interface revolution can take us.