

Personal Orchestra

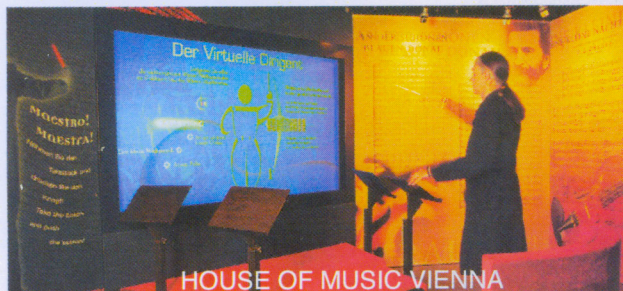
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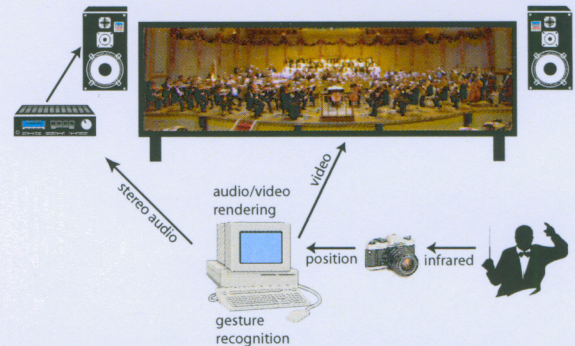
A Series of Interactive Music Exhibits

- **Conducting** is a unique way to interact with time-based media.
- Since 2000, we have done research on how to conduct **real audio/video recordings** of an orchestra.
- Our work has resulted in public interactive exhibits in the **HOUSE OF MUSIC VIENNA**, the **Boston Children's Museum** and elsewhere.



How To Conduct

- Move the baton up and down regularly to **conduct the orchestra**.
- Conduct faster to **increase the tempo**.
- Make larger movements to let the orchestra **play louder**.
- Depending on how well you conduct, you will get **applause** or **complaints**.



Research Challenges

- **Baton Hardware**
Batons need to be untethered, low-latency, lightweight, robust, and easy to replace. Currently we favor using a **camera-based infrared solution**.
- **Gesture Recognition**
The baton position needs to be tracked and interpreted as conducting gestures. We are developing a system that works for **novices** as well as **professional conductors**.
- **Time-Stretching**
The audio and video **playback speed** need to change to follow the conductor—without changing the audio pitch. Our time-stretching algorithms achieve this in **real time** and at a **high quality**.
- **Implementation**
Our systems run on **Power Macintosh** computers under Mac OS X.

<http://media.informatik.rwth-aachen.de/>