The Virtual Maestro - The Creation of an Immersive, Interactive Orchestral Experience

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Who are BBC R&D?
BBC Philharmonic Maestro
Aims - Audio

- The audio should be immersive - using surround sound that provides 3D audio - sound from all directions.

- The audio should be captured from the point of view of the conductor.

- Any tempo change should not result in a change of pitch.

- It should be possible to control the dynamic (loudness) of different parts of the orchestra e.g. left and right sections.
Aims - Video

- The video should be large enough to cover a substantial area of the user's field of view.

- The video should be captured from the point of view of the conductor.

- The video should remain synchronised with the audio regardless of the current tempo.
Aims - Interface

• There should be no ‘on’ button - the orchestra should ‘come to life’, i.e. begin tuning up, on the detection of the presence of a user.

• The orchestra should begin their performance when the user instructs them, perhaps by raising their arms.

• The user should be able to vary the tempo of the performance based on the left and right movements of the arms.

• The user should be able to control the dynamic of the performance of difference parts of the orchestra by lowering or raising their hand in the direction of that part of the orchestra.
First Prototype - Capture
First Prototype - Recording
First Prototype - Interface
First Prototype - Demonstration
Production Version - Capture
Production Version - Capture
Production Version - Capture
Production Version - System
Production Version - Calibration
Production Version
Manchester International Festival
Manchester International Festival
Results

- The novelty of the system was the ability to conduct an orchestra without the need to hold a controller.

- The current iteration is a fun and educational tool.

- The potential exists to develop the system to recognise more specific gestures e.g. ‘textbook’ conductor movements.

- Professional conducting styles vary so wildly, that the development of a universal virtual orchestra aimed at professional conductors would be a significant challenge.
Thank you

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