Virtual Headcam: Pan/tilt Mirror-based Facial Performance Tracking

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**Introduction**

High-end facial performance capture solutions typically use head-mounted camera systems which provide one or more close-up video streams of each actor’s performance. These provide clear views of each actor’s performance, but can be bulky, uncomfortable, get in the way of sight lines, and prevent actors from getting close to each other. To address this, we propose a virtual head-mounted camera system: an array of cameras placed around the performance capture volume which automatically track zoomed-in, sharply focussed, high-resolution views of the actor’s face from a multitude of directions. The resulting imagery can be used in conjunction with body motion capture data to derive nuanced facial performances without head-mounted cameras.

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**Ongoing Work**

We are developing 3D reconstruction techniques to convert the multi-view video data into 3D models of dynamic facial performances. We are constructing additional facial tracking cameras in order to provide sufficient views. More units will be built in order to yield a robust input data into the software pipeline for successful 3D reconstruction.

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**References**