Samer Al Moubayed

TMH (Speech, Music and Hearing)
sameram@kth.se

Line of work in connection to Embodied Cognition

Thesis and Research Interests

Multi-modal speech interaction:

How do we, cognitively, manage interaction by facial motion and speech (simple example: when do we decide to make a headnod instead of saying “yes”)

How can we represent intonation in speech using motion instead of voice

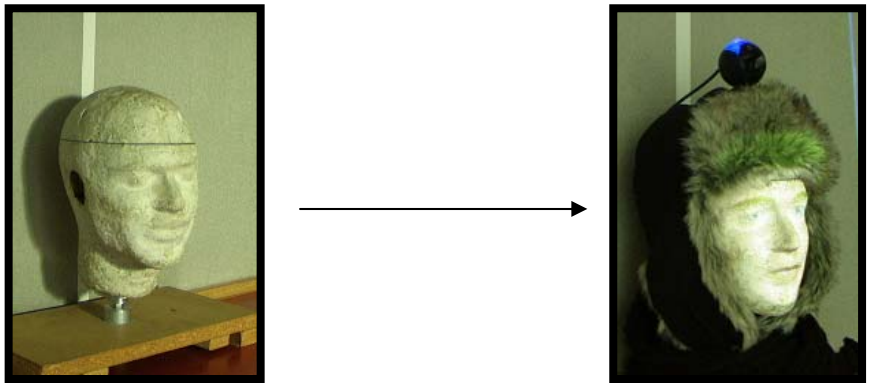
Purpose:

What features/abilities/representations of talking heads (avatars) should we embody to enhance natural communication between virtual agents and human companions

Recent work on robotics:

- Projection of Facial animation over static head models
- Provides embodiment of 3D animated agents on physical models
- Provides very natural appearance for robotic faces compared to mechanical heads
- Optically based, not mechanical

Static head model Projector Face



Before After

•Can be looked at as taking the talking head our of its 2D screen prison into the 3D world, and embedding it into a physical shape which exists in our 3D environment

•(question: how can we compare embodiment between this in the virtual world (avatars in 3D games) and these in our world (avatars in robots)

Studying embodiment

How can we evaluate embodiment in terms of interaction (perception by others)

What are the embodiment effects when using avatars embodied in 2D screens or when using robotic heads?

How should a robotic head be consistent with a robotic “brain” (should embodiment reflect cognitive behavior and how?) how can we evaluate the embodiment of an agent in terms interaction with a human conversant