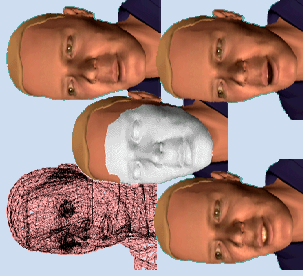


## Dynamic textures for facial animation

- Static textures enhance the realism of static geometry.
- Dynamic textures enhance the realism of moving geometry.



## Synthesis codebook built from training video

- Record training video:
  - one speaker, constant lighting, head-mounted camera for constant pose
  - video contains 279 sentences, containing 6315 different triphone sequences.
- Build face model
  - Hand-label the significant points in a selection of images
  - Use principal components analysis (PCA) to build point distribution model (PDM)
  - Use PCA to build shape-free appearance model (SFAM): parameterises the variation of the texture map.



- Use models to track face in training video
  - gives equivalent model parameters for each frame.
- Build synthesis codebook
  - a continuous trajectory for each sentence passing through the model parameters for each frame.

## Speech to face animation synthesis

Given a new phoneme sequence:

- extract sub-trajectories from original based on phonetic context
- concatenate sub-trajectories and apply to PDM and SFAM

## Gesture notation for body animation

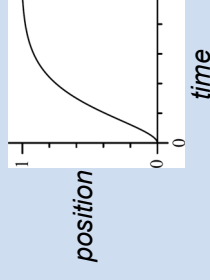
HamNoSys: avatar-independent transcription notation for sign languages, developed at the University of Hamburg.



Left hand points up/out/left, at shoulder level, to the left of the body; head and eyegaze turn left.

Automatic translation to animation data (joint rotations) for a specific avatar, using a description of the avatar's static body geometry.

Movement trajectories precomputed from a simplified control model, for several different sets of parameters.



Body animation data can be generated at up to 1000 frames/second = 2.5% of the time budget for 25 fps animation.

## Further information and publications:

Visual speech synthesis: <http://www.sys.uea.ac.uk/~bjt/>

Synthetic animation for sign language: <http://www.visicast.sys.uea.ac.uk/>