

Review Meeting 07. October 2004

FGnet - Facial Expression and Emotion Database

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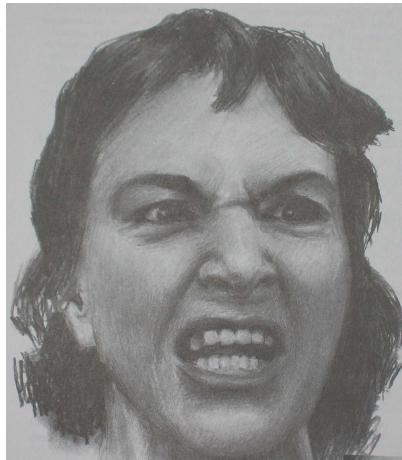
Overview

- Assembly of a consistent Emotion and Facial Expressions database for dynamic algorithms using image sequences rather than static images
- Observation: Prior experiments on unpublished database containing co-operative participants (i.e. no head movement) were “easy”
- Common database for comparison to assist research on human facial expressions
- Allowance of spontaneous and natural expressions
- People are asked not to play a role
- No restrictions regarding head moves
- Inclusion of entire head, not just face
- Determination between 6 basic emotions plus neutral
- Defined conditions: High quality, good lighting conditions, constant background



Six Basic Emotions (Eckman & Friesen)

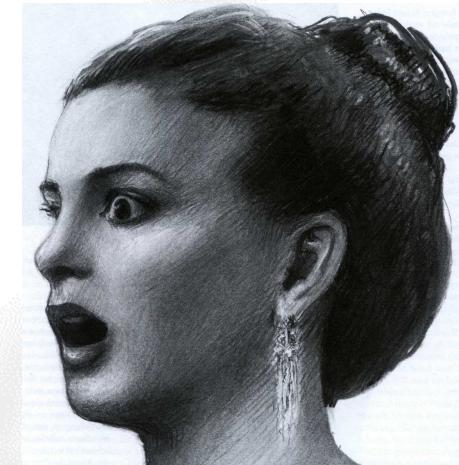
anger



fear



surprise



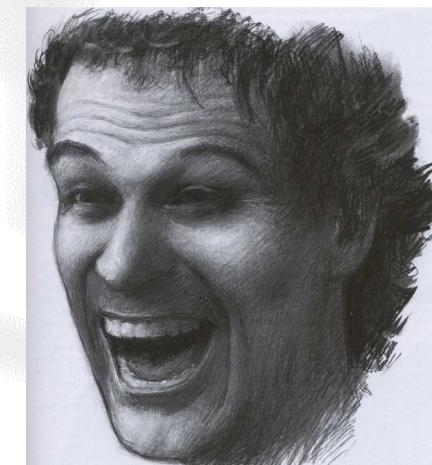
disgust



sadness

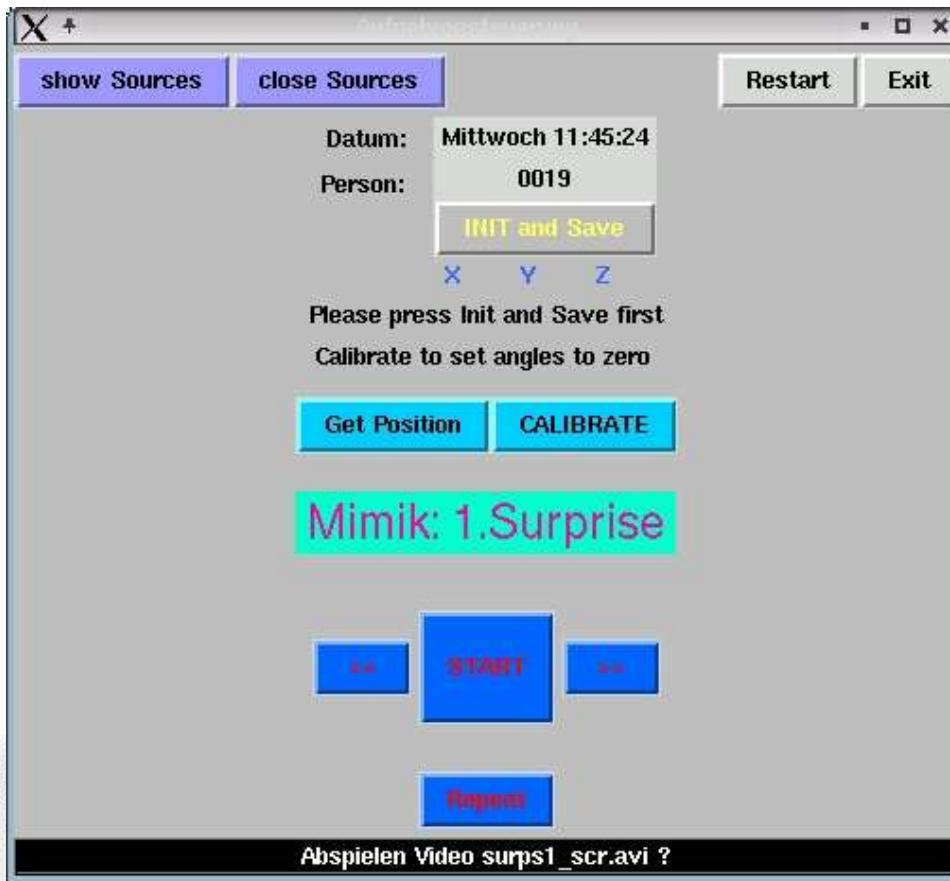


happiness



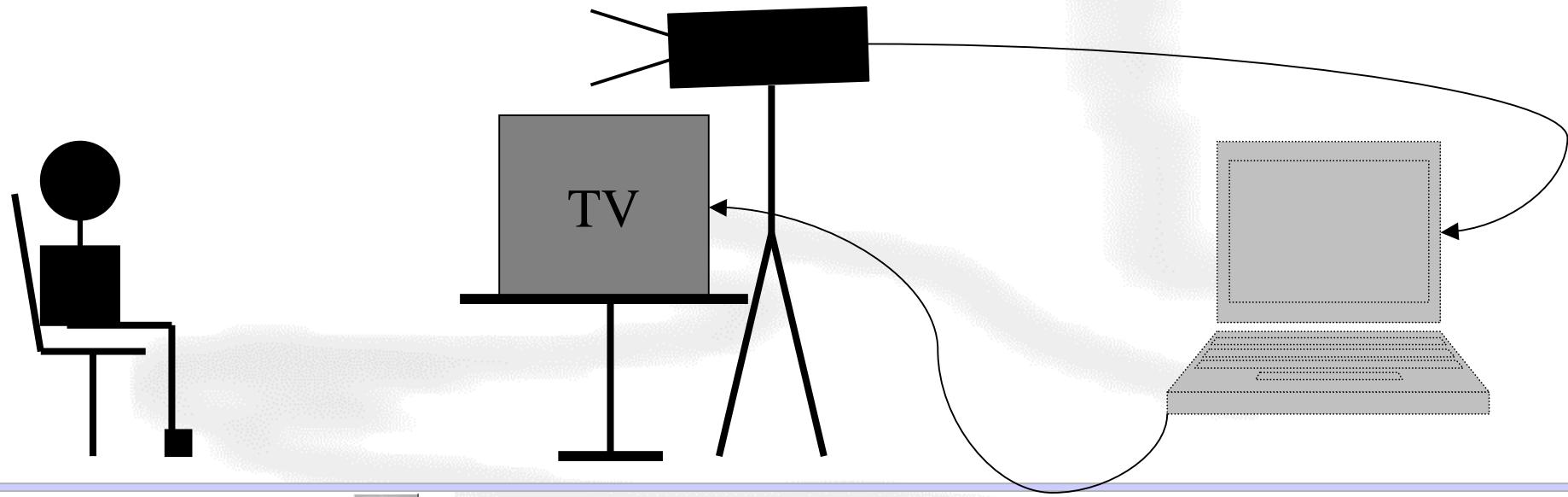
Recording Setup I

- Implementation of a script based, semi-automated recording center
- Control center steers the recording flow



Recording Setup II

- A test person is seated in front of a TV-screen (the second screen of the control computer)
- First a general contextual introduction is presented to the attendant
- Then an actual expression specific example video is played
- Three different clips follow trying to cause (predictable) spontaneous behaviours of the test persons
- Each recording starts at prior defined time



Recording Flow

#What	Description	Video-seq.	Intro-VIDEO	Start	Length
Neutral	1.Neutral	neutr.gif	*	0	30
Neutral	2.Neutral	smiley_mid.jpg	*	0	30
Mimic	1.Surprise	surps1_scr.avi	intro.avi	3	100
Mimic	2.Surprise	surps6of6.avi	*	0	100
Mimic	3.Surprise	surps5of5.avi	*	0	100
Mimic	1.angry	anger_road2.avi	anger_new.avi	0	100
Mimic	2.angry	anger2_scr.avi	*	0	100
Mimic	3.angry	anger_hulk4.avi	*	0	100
Mimic	1.sad	sadness.avi	sadness_i.avi	2	200
Mimic	2.sad	sad_eisk.avi	*	2	200
Mimic	3.sad	sad_arm.avi	*	2	300
Mimic	1.Disgust	disgs.avi	disgust_new.avi	0	150
Mimic	2.Disgust	Ekel_indy.avi	*	2	150
Mimic	3.Disgust	disgs1_13.avi	*	2	150
Mimic	1.Fear	fear_s.avi	fear_new.avi	51	150
Mimic	2.Fear	fear.avi	*	32	150
Mimic	3.Fear	fear_event.avi	*	0	200
Mimic	1.happy	happy_shot.mpg	happiness.avi	2	100
Mimic	2.happy	happy1_scr.avi	*	2	100
Mimic	3.happy	happy2_scr.avi	*	0	150
Neutral	3.Neutral	neutr.gif	*	0	30
End					



Animation sequence and Example

Introduction and Example



Animation to provoke reaction



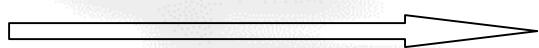
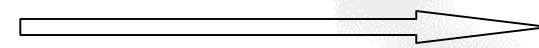
- Depending on the kind of emotion, a single recorded sequence can take up to several seconds.
- Beginning and end of reaction are almost automatically presegmented due to known times of the initiated video clips



Example Image Sequence



neutral



emotion



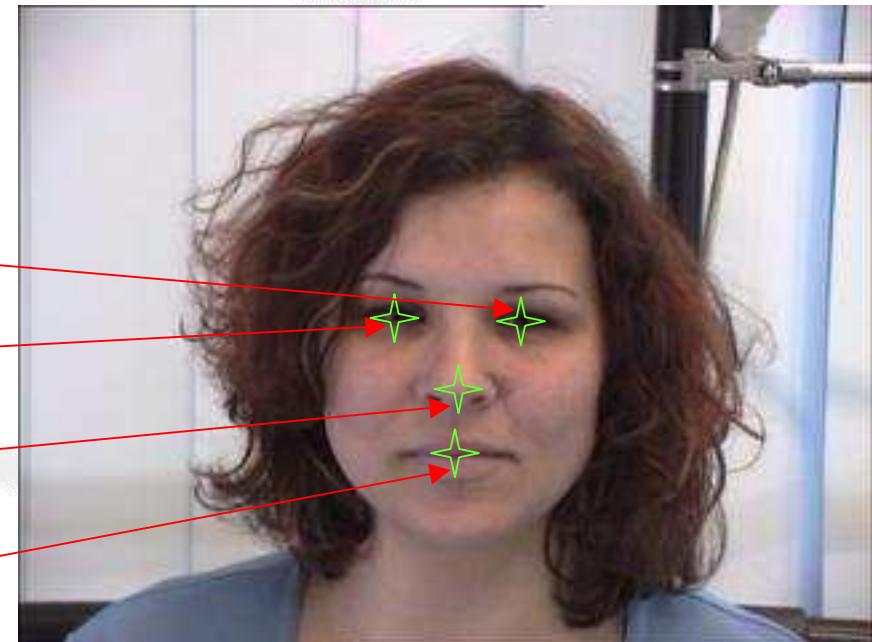
clip



Ground Truth Data

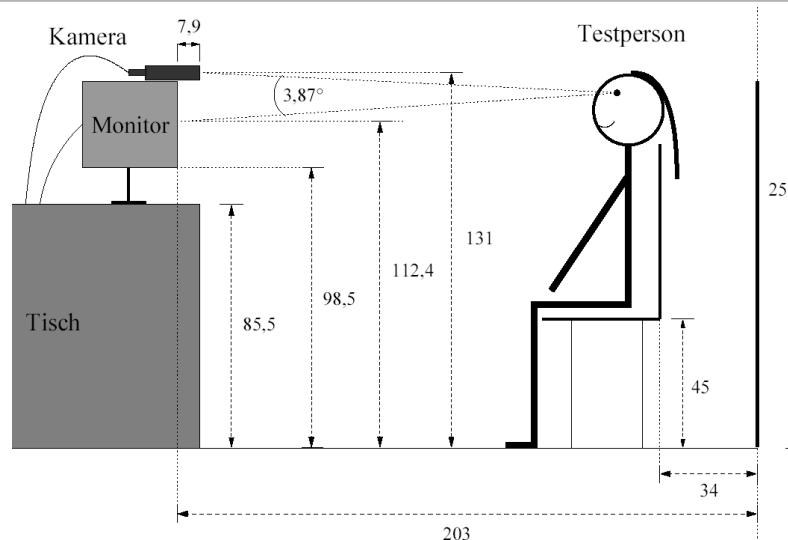
- Currently only the first frame of a sequence is labeled
- The label include the center coordinates of the eyes, the nose and the mouth
- Structure of the label file:

Reye	x	y
Leye	x	y
Nose	x	y
Mouth	x	y



Technical Details of Setup

- System overview:



- Camera: Sony XC-999P
- 8mm Cosmicar 1:1.4 lens
- Use of a BTTV 878 frame grabber
- 640x480 pixel images
- 24 bits colour depth
- 25 frames per second
- Due to capacity reasons, conversion to 8 Bit JPEGs ,320x240 pixels

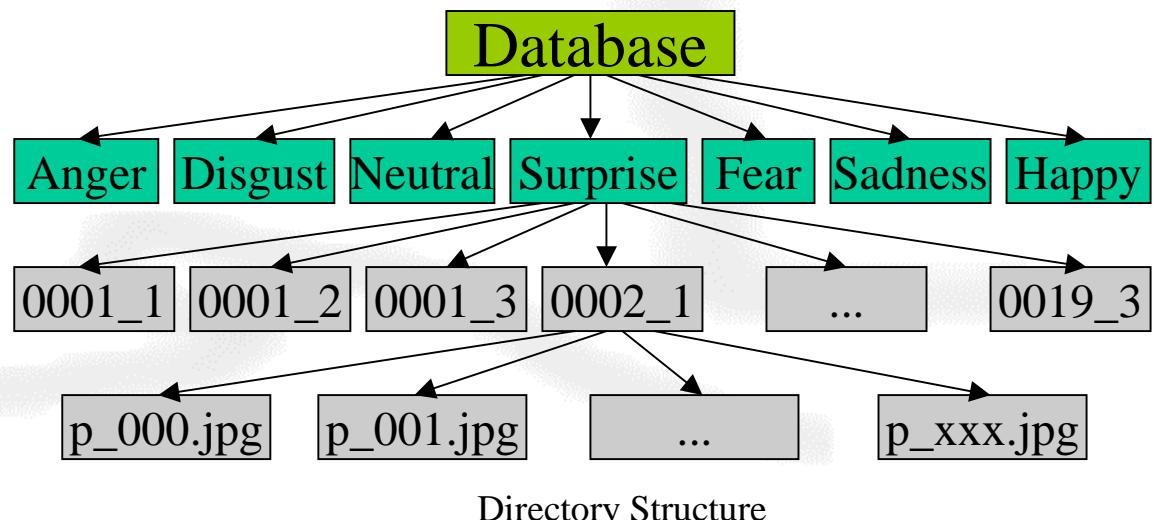


Structure of the Database

- The database contains material gathered from 19 different individuals, each performing all six desired expressions and an additional neutral sequence three times.
- Hence, 21 sequences were recorded for each individual, to give a total of 399 sequences in the database (so far).
- The database will be distributed in the form of an ISO-9660 image.
- The image can be put onto a CD, or read using appropriate utilities.
- The images are stored separately in subdirectories using following notation: { anger,disgs,fears,happy,neutr,sadns, surpr }/%.4d-[123]/p %.3d.pgm



Example: surpr/0014_2/p_121.jpg



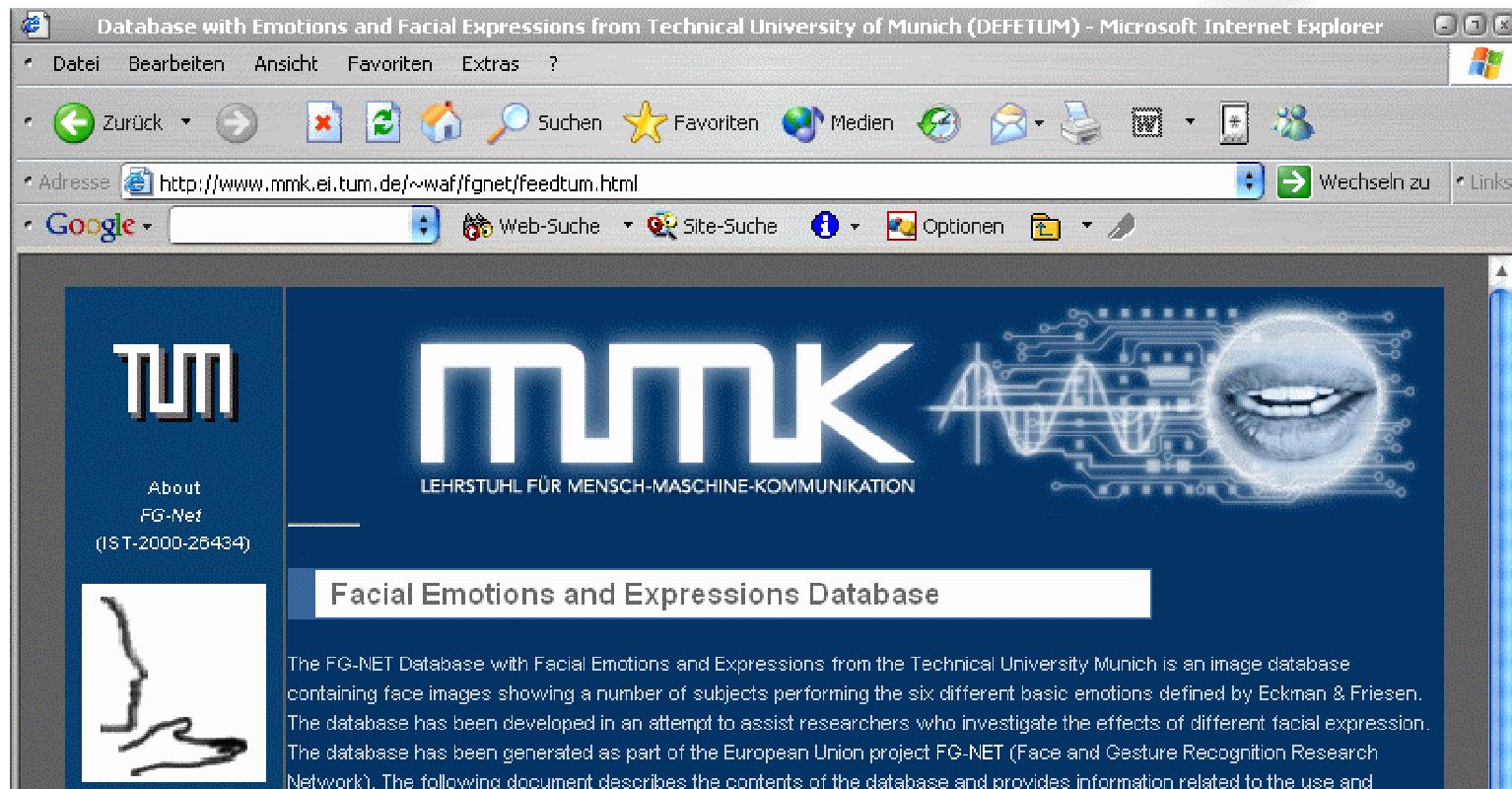
Conditions and Acknowledgements

- The database can be made available to researchers upon request
- The database must only be used for research purposes
- Researchers using the database may publish example images in scientific journals and conference proceedings
- The database may not be used for commercial purposes
- Users of the database are expected to acknowledge the FG-NET consortium
- Researchers wishing to obtain the database should send an email to: fgnet@mmk.ei.tum.de
- Together with this mail a filled out copy of the letter of agreement has to be send
- In return the researchers are given a password and a link to the download place



Web Presence

- Further information is available online:
<http://www.mmk.ei.tum.de/~waf/fgnet/feedtum.html>
- Possible extensions and updates will also be announced here



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Emotion Database
Slide 14

