

Image Understanding Thema 9

FaceShift, SCITOS „Look at me!“

Thiemo Frank

Jens Wagner

Agenda

- Aufgabenstellung
- FaceShift SDK
- Anlegen und Tracking einer Person in FaceShift
- Probleme
- ToDo

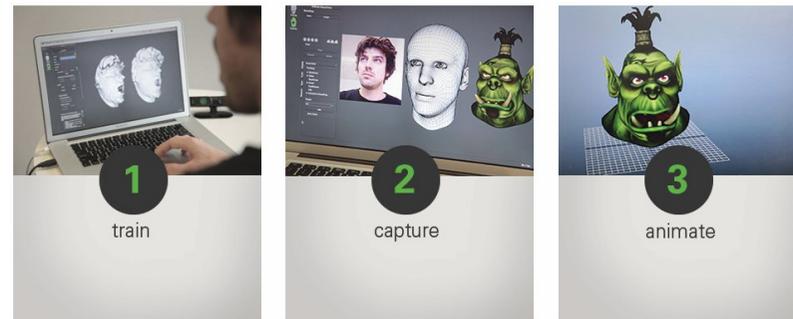
Aufgabenstellung

- **Ziel:** Gaze und Headpose Estimation mit dem SDK von FaceShift mit einer ASUS Xtion
 - Einarbeitung FaceShift SDK
 - Ermitteln der 6 Freiheitsgrad des Kopfes
 - Ausrichten des Roboterkopfes auf diese Person
 - Dokumentation



FaceShift SDK

- Analyse der Bewegung und Gesichtsausdrucks eines Schauspielers
- Mix aus Gesichtsausdruck, Position des Kopfes und Blickrichtung



- Daten werden zum animieren von virtuellen Charakteren in Spielen oder Filmen verwendet

Quelle: <http://www.faceshift.com/product/>

FaceShift SDK

TRACKING

- Expressions
- Gaze Tracking
- Head Pose Tracking
- Realtime Tracking
- Offline Refinement
- 30fps

Quelle: <http://www.faceshift.com/product/>

FaceShift SDK: Anlegen eines Profils

File Mode View Training Help

Rescan

	Scanned	Fitted
Neutral	✓	✓
Open	✓	✓
Smile	✓	✓
BrowsDown	✓	✓

Expressions Scans

Build

Save Load

Manual Correspondences

Display Options

Eyes

Help

Description of the Modelling Process:

Before being able to track, we need to set up a custom profile. You can set up a profile for each actor by capturing a set of expressions. To capture an expression perform the following steps.

1. Select the expression from the list in this window.

press and hold to scan a facial expression

0.0 fps

Einlernen verschiedener Gesichtsausdrücke

Fertiges Profil

FaceShift SDK: Tracking einer Person

The screenshot displays the FaceShift SDK interface, which is split into two main panels. The left panel, labeled "Livebild", shows a live video feed of a man's face with tracking markers (green and red dots) and a 3D model of a head. The right panel shows a similar view but with a different head orientation and a graph of facial expressions.

Tracking Information:

- Tracking OK (500-650-900 scale)
- yaw/pitch/roll: -45.7/-3.0/-3.5 (Left Panel)
- yaw/pitch/roll: 0.0/1.6/-0.8 (Right Panel)

Facial Expression Analysis:

- trial version
- EyeBlink_R (0.29)
- EyeDown_L (0.00)

Annotations:

- 1. yaw/pitch/roll: 0.0/1.6/-0.8
- 2. EyeBlink_R (0.29) EyeDown_L (0.00)

Text Labels:

- Erkannte Ausrichtung auf Modell übertragen
- 1. Ausrichtung des Kopfes
- 2. Gesichtsausdrücke

FaceShift SDK: Weitergabe der Daten

The screenshot displays the FaceShift SDK interface. At the top, it shows "Tracking OK" with a color scale from 500 to 900 and "yaw/pitch/roll: -5.7/-2.2/1.7". The main area is split into two panels: a 3D model of a face on the left and a video feed on the right. The 3D model is labeled "trial version". The video feed also shows "trial version" and "EyeBlink_R (0.43) (0.43) EyeBlink_L". Below the video feed, there is a bar chart and a waveform. At the bottom left, a Windows PowerShell window displays a list of tracking data for head translation and rotation. At the bottom right, a video playback window shows a sequence of frames with a "Trim" button and a "28.3 fps" indicator.

Datenausgabe per Netzwerk-Stream

- TCP/IP
- UDP

Ausgabe von

- Kopfausrichtung
- Expressions

```
Windows PowerShell
head translation: 64.910812 -72.005058 -797.983337
head rotation: -0.053942 -0.123467 0.026802 0.990510
head translation: 64.837517 -72.030823 -798.013611
head rotation: -0.053706 -0.123519 0.026664 0.990520
head translation: 64.835625 -72.069756 -798.019104
head rotation: -0.053450 -0.123492 0.026434 0.990545
head translation: 64.852394 -72.021637 -798.062988
head rotation: -0.053260 -0.123459 0.026325 0.990562
head translation: 64.878654 -71.980545 -798.103577
head rotation: -0.053037 -0.123474 0.026250 0.990575
head translation: 64.927078 -71.880196 -798.242554
head rotation: -0.052728 -0.123575 0.026038 0.990585
head translation: 64.937996 -71.885803 -798.279358
head rotation: -0.052580 -0.123602 0.025890 0.990593
head translation: 64.922096 -71.945343 -798.392578
head rotation: -0.052223 -0.123743 0.025509 0.990605
head translation: 64.888062 -71.926994 -798.443787
head rotation: -0.052002 -0.123901 0.025379 0.990600
```

Kompatibilitätsproblem

- Trial der FaceShift SDK:
 - ▶ Runs on
- MIRA läuft nur auf Linux
 - ▶ Mac
 - ▶ Windows
 - ▶ Linux [not yet released]
- **Mögliche Lösungen:**
- VirtualBox auf Linux Installieren und Positionsdaten:
 - per Stream übergeben
 - per Shared-Folder und .txt File übergeben
- OpenCV kann in Linux verwendet werden

ToDo

- VirtualBox einrichten und Netzwerk-Client für Linux programmieren
- MIRA: Roboterkopf auf Person ausrichten
- Gaze Estimation: Anwendungsfälle?
- Test des Verhaltens auf verschiedene Personen
- Dokumentation

Vielen Dank für Ihre
Aufmerksamkeit