

Supplementary Table S1. List of all blendshape weights from f-clone system

| # 1~15 | Blend Shape Weights | #16~29 | Blend Shape Weights |
|--------|-----------------------|--------|-----------------------|
| 1 | Head rotation X | 16 | Mouth Left Spread |
| 2 | Head rotation Y | 17 | Mouth Right Spread |
| 3 | Head rotation Z | 18 | Mouth Left Frow |
| 4 | Brow Left Up | 19 | Mouth Right Frow |
| 5 | Brow Left Down | 20 | Mouth Left Centerize |
| 6 | Brow Right UP | 21 | Mouth Right Centerize |
| 7 | Brow Right Down | 22 | Cheek left Up |
| 8 | Brow Centerize | 23 | Cheek Right Up |
| 9 | Left Brow Outer Down | 24 | Left Eye rotation X |
| 10 | Right Brow Outer Down | 25 | Left Eye Rotation Y |
| 11 | Eye close Left | 26 | Left Eye Rotation Z |
| 12 | Eye close Right | 27 | Right Eye rotation X |
| 13 | Mouth Open | 28 | Right Eye rotation Y |
| 14 | Mouth Left Smile | 29 | Right Eye rotation Z |
| 15 | Mouth Right Smile | | |

Supplementary Table S2. List of all facial gestures reconstructed in this study and blend shape weights related to each facial expression.

| # 1~8 | Facial expressions | BSW and v-BSW |
|-------|-----------------------------------|--|
| 1 | Neutral | - |
| 2 | Mouth open | Mouth open, Mouth left spread, Mouth right spread |
| 3 | Smile | Mouth open, Mouth left spread, Mouth right spread, Cheek left up, Cheek right up |
| 4 | Raise the left corner of the lip | Mouth left spread, Cheek left up |
| 5 | Raise the right corner of the lip | Mouth right spread, Cheek right up |
| 6 | Raise the eyebrows | Brow left up, Brow right up |
| 7 | Eye blink | Eye lid close |
| 8 | Horizontal eye motion | Right eye rotation X, Left eye rotation X |

Supplementary Table S3. Detailed structure of fEMG dataset for calibration. Note that the eye-blink detection does not require training.

| Details of fEMG dataset | |
|-----------------------------------|----------------------|
| # of trial per facial expression | 1 |
| Length of single trial | 3 sec |
| Length of each signal window | 100 ms |
| Length of overlap between windows | 50 ms |
| # of signal windows per trial | 59 |
| # of channels | 10 |
| # of facial expressions | 7 (except eye blink) |