XDMyo

Protocols

Subject

There were 21 able-bodied participants in this study. Approval of the experiment was granted by the Research Ethics Committee of Xidian University.

MYO

A Myo armband, equipped with sEMG and IMU sensors, was used to capture gestures activity. After wearing the Myo armband, each participant was required to perform a hardware calibration procedure. The procedure is to straighten the five fingers together and bend the wrist outward by 90 degrees until the MYO armband cease vibrating.

Signal

The eight-channel sEMG signals were collected at a 200-Hz sampling rate. The three-channel acceleration signals (Acc) and three-channel gyroscope signals (Gyro) were captured at a 50-Hz sampling rate.

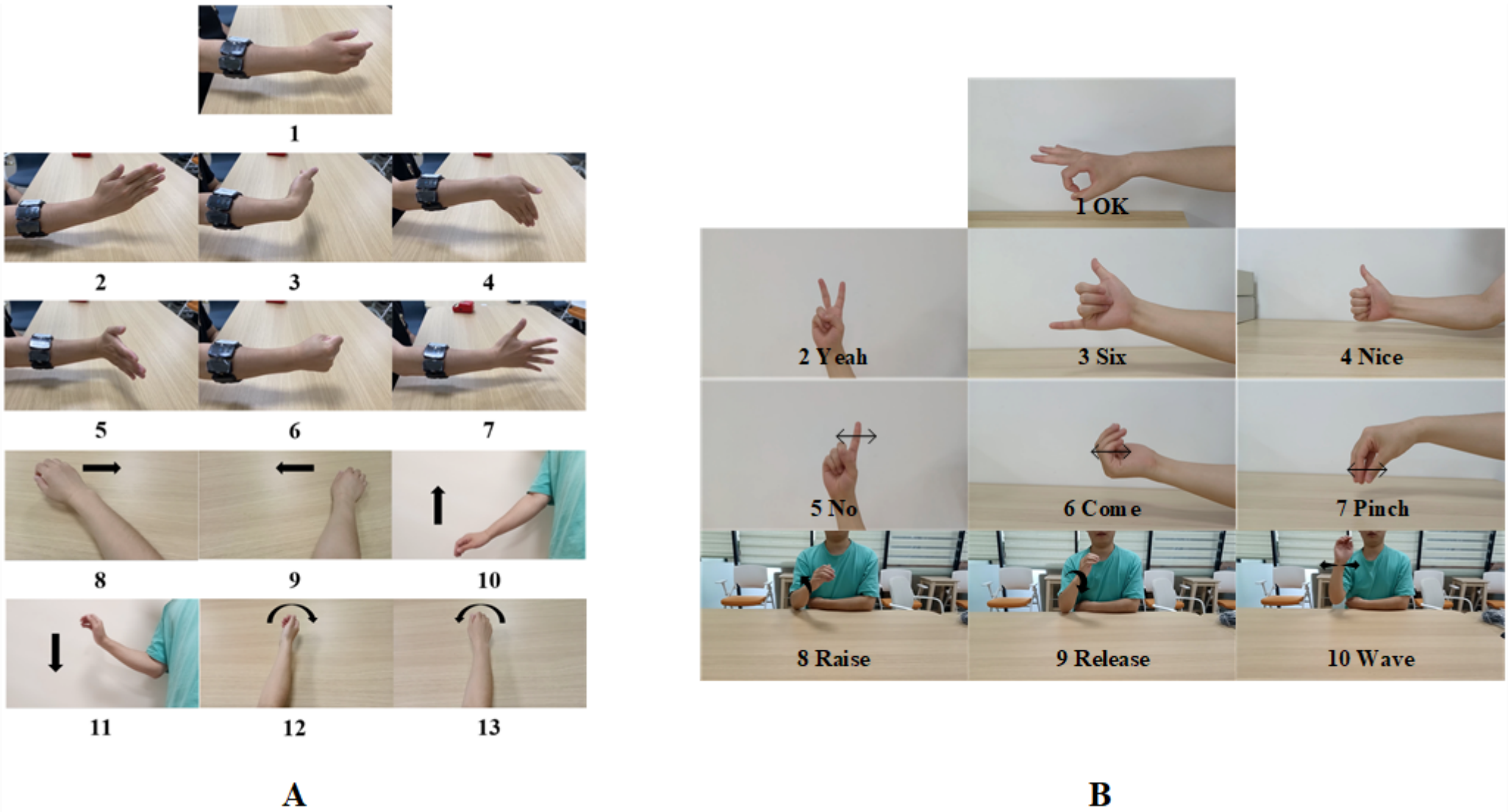
Sequence

During the data acquisition, each type of gesture was executed in six repetitive trials. To prevent muscle fatigue, there was a 5 s rest between trials.

Participants performed each static gesture within 5 s and each dynamic gesture within 3 s.

Gesture

Folder	Label	Class	Name	Duration(s)
A	1	static	Neutral	5
A	2	static	Redial Deviation	5
A	3	static	Flexion	5
A	4	static	Ulnar Deviation	5
A	5	static	Extension	5
A	6	static	Hand Close	5
A	7	static	Hand Open	5
A	8	dynamic	Yaw Right	3
A	9	dynamic	Yaw Left	3
A	10	dynamic	Pitch Above	3
A	11	dynamic	Pitch Below	3
A	12	dynamic	Roll Exterior	3
A	13	dynamic	Roll Interior	3
B	1	static	OK	5
B	2	static	Yeah	5
B	3	static	Six	5
B	4	static	Nice	5
B	5	dynamic	NO	5
B	6	dynamic	Come	5
B	7	dynamic	Pinch	5
B	8	dynamic	Raise Hand	2
B	9	dynamic	Release Hand	2
B	10	dynamic	Wave Hand	2



`0` indicates a rest phase between the same gestures, and `-1` indicates a rest phase between different gestures.

Paper

The Paper is currently under submission to IEEE Sensors, and utilized Dataset A.

In XDMyo-A, the raw signal data of the 21 subjects included 1,638 (13 × 21 × 6) gestures. The dataset was partitioned into the source-dataset and the target-dataset. The source-dataset comprised data from 15 participants.

Authors

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