

Supplementary Material

for

Virtual and Actual Humanoid Robot Control with Four-Class Motor-Imagery Based Optical Brain Computer Interface

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Contents

- **Table S1:** Post-hoc analysis of Task, Robot Type, and Task*Robot Type
- **Table S2:** Post-hoc analysis of Robot Type

- **Table S1:** Post-hoc analysis of Task, Robot Type, and Task*Robot Type. Effect of Task (4 levels: left hand, left foot, right foot, right hand), Robot Type (2 levels: virtual, DARwIn-OP) and their interaction on HbO activation for individual optodes. Significant effects ($p < 0.05$, FDR corrected) are highlighted in bold.

Optode	Task		Robot Type		Task*Robot Type	
	F-value	p-value	F-value	p-value	F-value	p-value
1	0.9408	0.5522	0.2924	0.6941	0.4105	0.8948
2	0.9346	0.5522	1.0982	0.5463	0.8245	0.7127
3	1.7630	0.4717	1.8804	0.4580	2.4475	0.5186
4	0.9346	0.5522	5.9306	0.1258	0.8028	0.7127
5	0.9963	0.5522	0.0479	0.8812	0.2471	0.9298
6	2.6925	0.3333	1.2457	0.5463	0.0336	0.9917
7	0.7741	0.6119	0.8556	0.6107	1.4346	0.6509
8	2.3763	0.3400	8.7333	0.0829	1.0739	0.6931
9	3.0851	0.3333	0.6942	0.6223	1.6322	0.6509
10	0.5928	0.7089	1.1857	0.5463	1.4265	0.6509
11	0.9551	0.5522	2.9775	0.2942	0.2902	0.9298
12	0.9441	0.5522	0.2649	0.6941	0.8360	0.7127
13	1.2165	0.5522	0.6673	0.6223	1.5536	0.6509
14	0.9103	0.5522	0.0014	0.9703	1.4005	0.6509
15	0.1481	0.9308	0.0386	0.8812	0.6334	0.7922
16	1.7515	0.4717	5.3634	0.1286	4.0993	0.1764
17	0.1912	0.9308	3.5790	0.2393	0.2076	0.9298
18	3.3699	0.3333	1.5520	0.5145	1.2026	0.6924
19	1.1593	0.5522	0.3174	0.6941	1.0408	0.6931
20	2.0345	0.4397	0.4267	0.6941	2.4621	0.5186
21	0.9798	0.5522	7.3015	0.0894	0.4121	0.8948
22	0.2200	0.9308	0.4009	0.6941	1.1818	0.6924
23	2.5623	0.3333	2.0236	0.4580	1.8086	0.6509
24	1.1079	0.5522	4.0037	0.2237	0.7825	0.7127

Table S2: Post-hoc analysis of Robot Type. Effect of Robot Type (2 levels: virtual, DARwIn-OP) on HbO activation for individual optodes and tasks. Significant effects ($p < 0.05$, FDR corrected) are highlighted in bold.

Optode	Left Hand	Left Foot	Right Foot	Right Hand
1	0.9807	0.6630	0.5577	0.8224
2	0.1448	0.1358	0.9004	0.3222
3	0.4626	0.5369	0.0642	0.2045
4	0.5086	0.4521	0.0194	0.4521
5	0.8119	0.6378	0.2193	0.9781
6	0.2530	0.7184	0.8019	0.0261
7	0.5958	0.3246	0.8019	0.4311
8	0.1304	0.7213	0.6216	0.5574
9	0.7780	0.4521	0.0386	0.5442
10	0.7267	0.5878	0.5574	0.9004
11	0.5574	0.1464	0.2451	0.3952
12	0.4785	0.3536	0.0532	0.5369
13	0.8224	0.6638	0.2451	0.5086
14	0.0261	0.0386	0.6216	0.5574
15	0.8655	0.8119	0.4961	0.8119
16	0.0261	0.6216	0.0396	0.1740
17	0.7856	0.8576	0.5369	0.6354
18	0.2451	0.4455	0.0325	0.5574
19	0.8119	0.4961	0.9807	0.6216
20	0.9334	0.1308	0.0261	0.9614
21	0.4723	0.8052	0.5087	0.7267
22	0.5146	0.4521	0.6216	0.5442
23	0.6636	0.4961	0.0261	0.6493
24	0.4740	0.5756	0.1308	0.5577