

Supplementary Material for Robots Autonomously Detecting People: A Multimodal Deep Contrastive Learning Method Robust to Intraclass Variations

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Statistical Analysis between our proposed *TimCLR+MYOLOv4* detection method and all comparison detection methods:

A non-parametric Kruskal-Wallis test was performed on the Mobility Aids (MA), Urban Search and Rescue (USAR), and InOutDoorPeople (IOD) datasets, showing a statistically significant difference in AP between the methods *TimCLR+MYOLOv4*, *TimCLR+MFRCNN*, RGB-D CJ-MFRCNN, RGB-D C-FRCNN, RGB-D CJ-MYOLOv4, RGB-D CJ-MEfficientDet, Table A.I. A post-hoc Dunn test with Bonferroni correction showed our *TimCLR + MYOLOv4* had a statistically significant higher AP than all the alternatives.

TABLE A.I KRUSKAL-WALLIS AND DUNN TEST

Kruskal-Wallis Test					
<i>H</i> statistic for AP between these methods (<i>TimCLR+MYOLOv4</i> , <i>TimCLR+MFRCNN</i> , RGB-D CJ-MFRCNN, RGB-D C-FRCNN, RGB-D CJ-MYOLOv4, RGB-D CJ-MEfficientDet), $p < 0.001$					
Mobility Aids		USAR			IOD
Test 1 <i>n</i> =10795	Test 2 <i>n</i> =6238	Test 1 <i>n</i> =913	Test 2 <i>n</i> =905	Test 3 <i>n</i> =315	Test <i>n</i> =2584
523	642	720	1541	814	705
Dunn Test with Bonferroni Correction					
<i>Z</i> statistic for AP between <i>ours</i> and the alternatives, $p < 0.001$					
Mobility Aids		USAR			IOD
Test 1	Test 2	Test 1	Test 2	Test 3	Test
2.88	5.08	0.72, $p=1$	15.94	6.88	2.62
9.84	12.78	3.25	20.88	12.51	17.73
11.73	25.11	22.44	26.72	13.55	26.33
8.24	14.38	2.53	20.83	12.17	10.56
8.39	13.55	4.08	21.22	15.71	10.72