Assessing Stem Cell Therapeutics in Murine Models

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1 Introduction and Problem Statement

2 Related Work

DeepLabCut

3 Data Sets

Table 1: Example of First 10 Rows of Manually Input Data Set Obtained from Ladder Beam Task

animal	total_good	total_bad	ave_good	ave_bad	lb_score	type
1	276	24	46.00000	4.000000	92.00000	w
2	280	20	46.66667	3.333333	93.33333	k
3	255	45	42.50000	7.500000	85.00000	w
4	228	71	38.00000	11.833333	76.25418	k
5	267	33	44.50000	5.500000	89.00000	v
6	279	21	46.50000	3.500000	93.00000	v
7	276	24	46.00000	4.000000	92.00000	k
8	226	74	37.66667	12.333333	75.33333	w
9	227	73	37.83333	12.166667	75.66667	k
10(11)	222	78	37.00000	13.000000	74.00000	v

1

2

3

[1]Mathis, A., Mamidanna, P., Cury, K.M. et al. DeepLabCut: markerless pose estimation of user-defined body parts with deep learning. Nat Neurosci 21, 1281–1289 (2018). https://doi.org/10.1038/s41593-018-0209-y

[2]Weber, R.Z., Mulders, G., Kaiser, J. et al. Deep learning-based behavioral profiling of rodent stroke recovery. BMC Biol 20, 232 (2022). https://doi.org/10.1186/s12915-022-01434-9

[3]Aljovic, A., Zhao, S., Chahin, M. et al. A deep learning-based toolbox for Automated Limb Motion Analysis (ALMA) in murine models of neurological disorders. Commun Biol 5, 131 (2022). https://doi.org/10.1038/s42003-022-03077-6

4 Overall Technical Approach

5 Software

6 Experiments and Evaluation

7 Notebook Description

8 Members Participation

Table 2: Percentage of workload across group members

Task	**Giles**	**Nathan**	**Alex**	**Vinh**	**Owen**
task 1	100%	100%	100%	100%	100%

9 Discussion and Conclusion

What did you learn about the methods and algorithms you worked with? What did you learn about their strengths? And their limitations?

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What ended up being harder than you expected in your project? What was surprising about your project?

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What other lessons did you learn, expected or unexpected (e.g., perhaps about the tools you used, if you used anything out of the ordinary?

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If you were in charge of a research lab, what ideas and directions might you invest in over the next year or two to try to make major progress on this problem? Feel free to be speculative in discussing possible future directions.

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