

Supplementary Materials

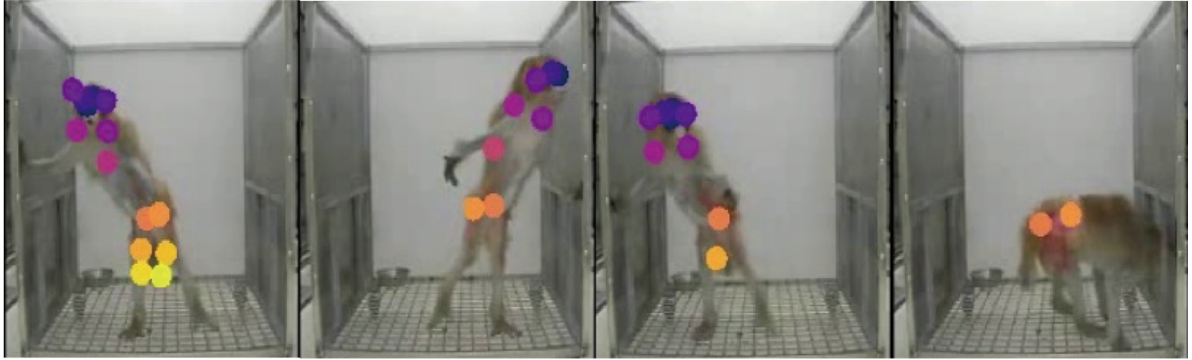
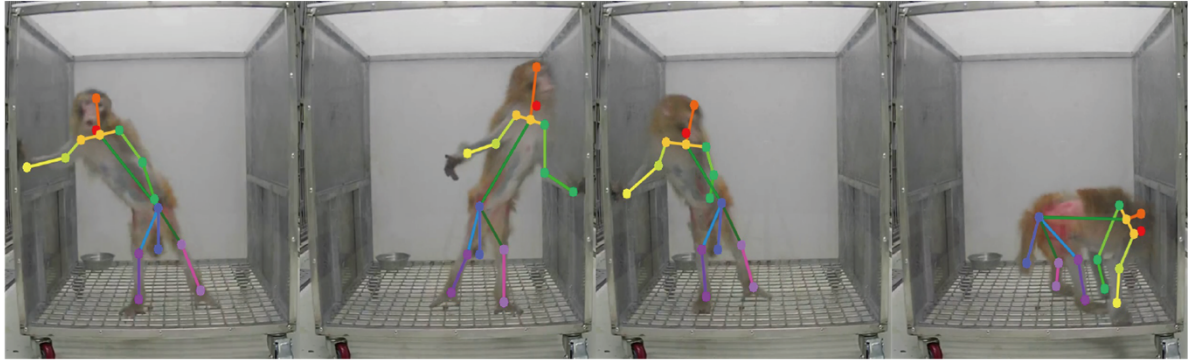
Deep learning-based activity recognition and fine motor identification using 2D skeletons of cynomolgus monkeys

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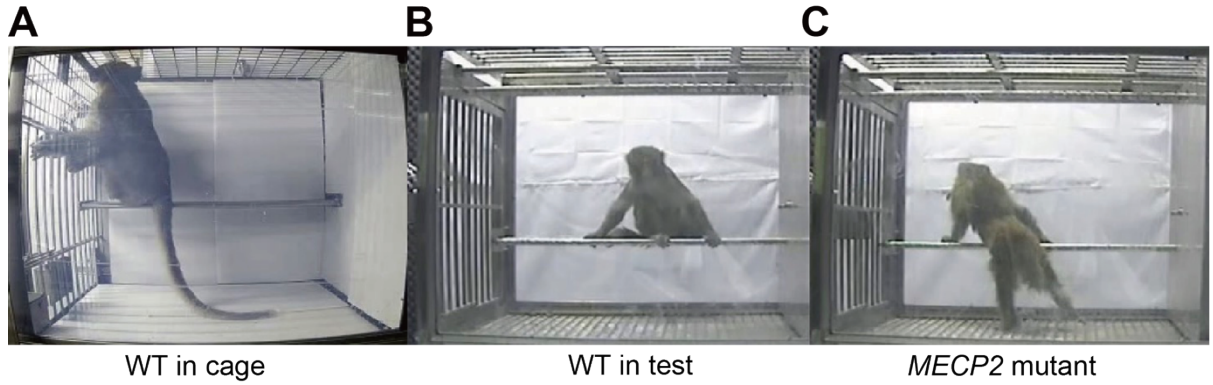
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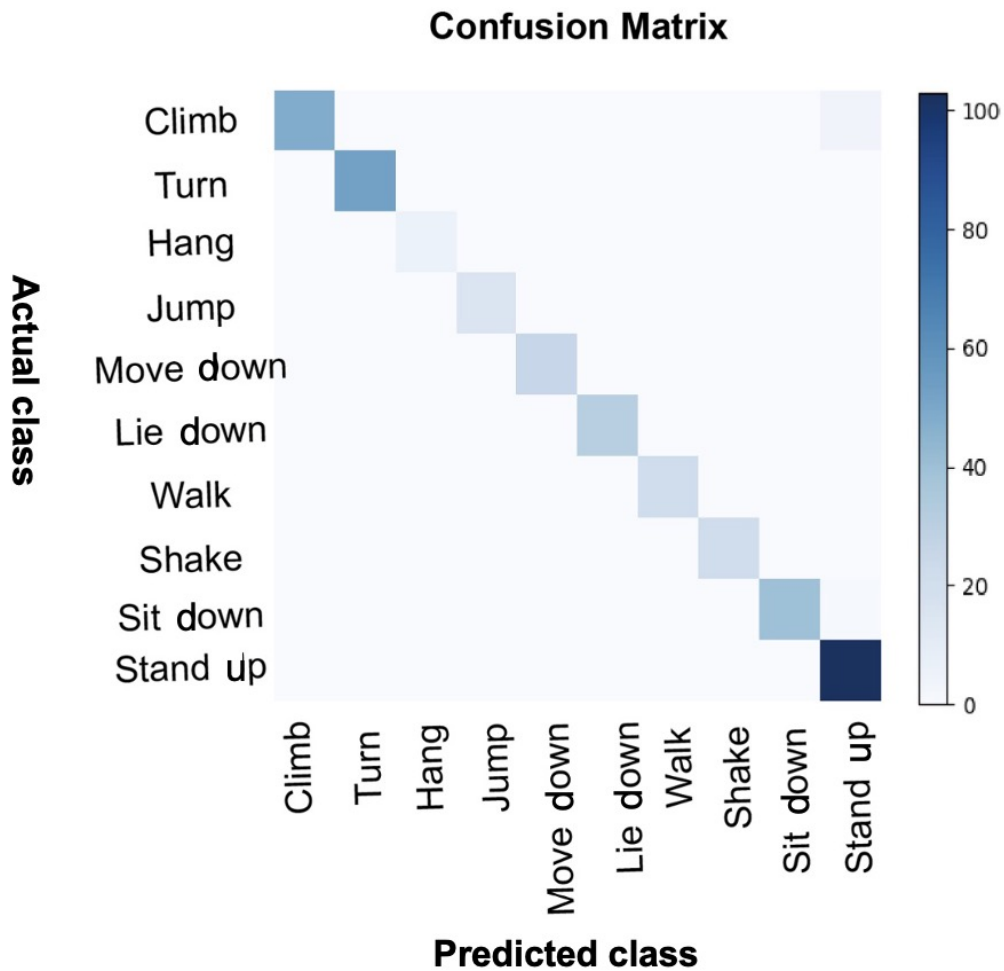
A**B****C****Supplementary Figure S1 Comparison between DeepLabCut and MonKit**

A: Keypoint recognition from DeepLabCut. B: Keypoint recognition from MonKit in this study. C: Keypoint recognition of DeepLabCut with marks in error points. Red circles with yellow arrows point to correct positions. Solid circles are joints of monkey identified by DeepLabCut, with most misidentified.



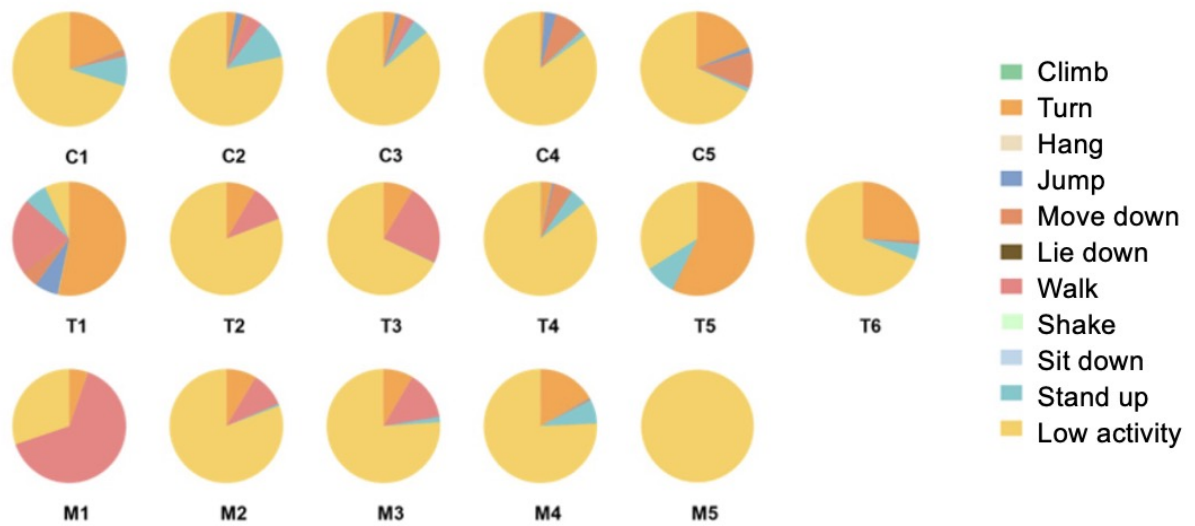
Supplementary Figure S2 Home and test cage environments

A: WT monkey in home cage. B: WT monkey in test cage. C: *MECP2* mutant monkey in test cage.



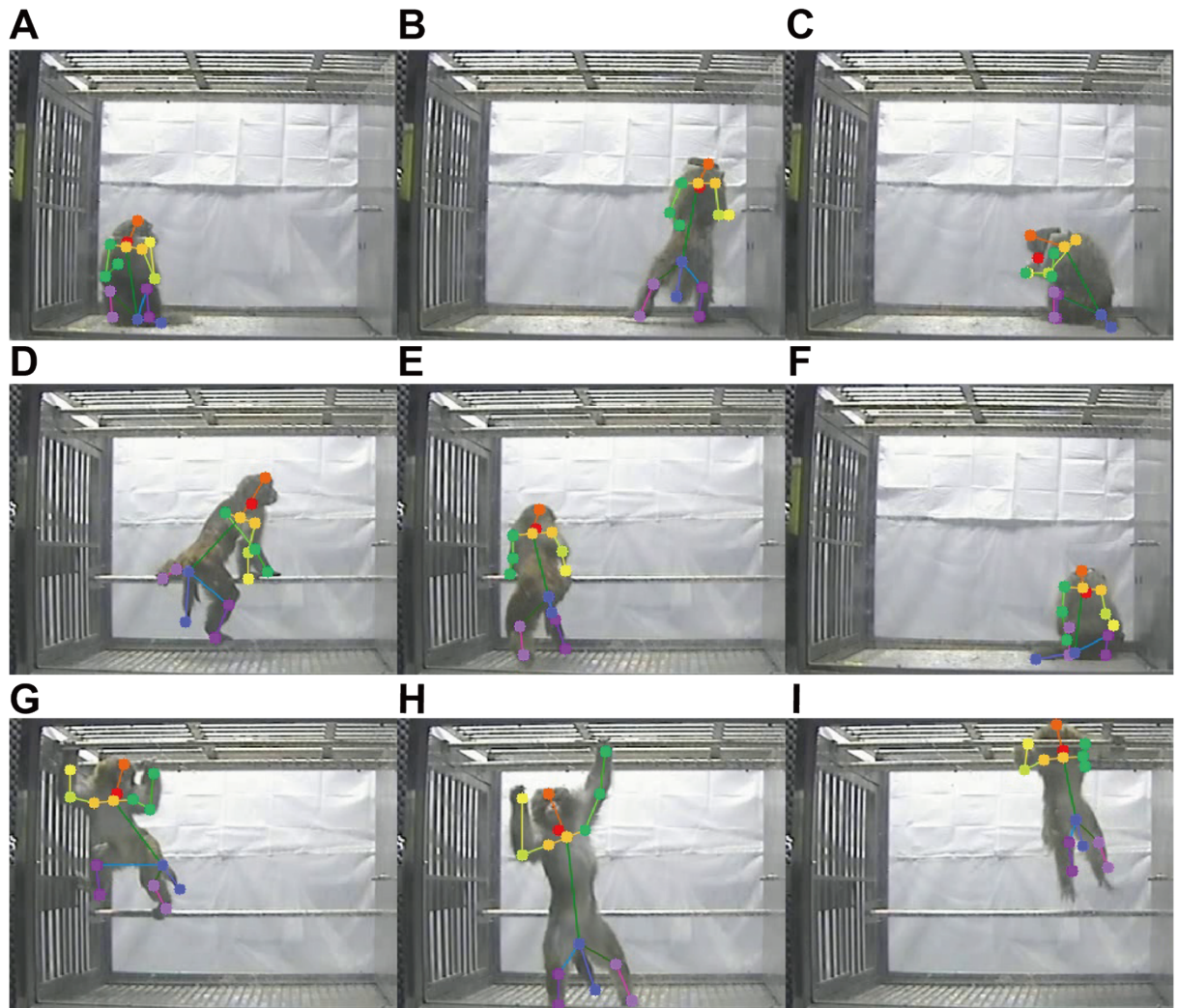
Supplementary Figure S3 Confusion matrix results of action recognition

Horizontal sum is true result, vertical sum is predicted result.



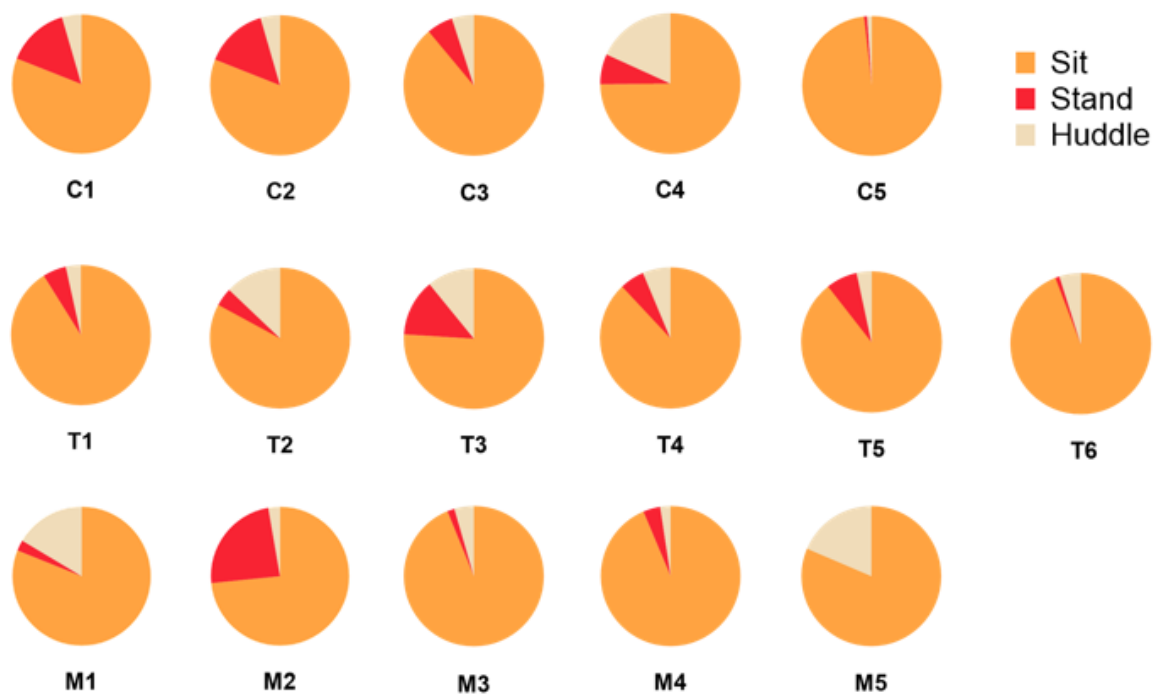
Supplementary Figure S4 Percentage of time spent by individual monkeys in different action categories

Time spent in Climb, Hang, Turn, Walk, Jump, Move Down, Lie Down, Stand Up, and Low Activity categories. C1–C5: Monkeys in home cages; T1–T6: Monkeys in test cages; M1–M5: *MECP2* mutant monkeys in test cages.



Supplementary Figure S5 Keypoint recognition by MonKit during back and side positions to camera

A-F: Keypoint recognition for back or side of monkey. G-I: Keypoint recognition for front of monkey



Supplementary Figure S6 Percentage of time spent by individual monkeys in posture categories

Time spent in huddle, sit, and stand categories. C1–C5: Monkeys in home cages; T1–T6: Monkeys in test cages; M1–M5: *MECP2* mutant monkeys in test cages.

Supplementary Table S1 Accuracy, precision, and recall of stereotyped, head-down, sit, stand, and huddle behaviors

	Accuracy	Precision	Recall
Stereotyped Behaviour	96.19%	85.08%	90.05%
Head Down	98.72%	53.07%	85.41%
Sit	95.71%	99.05%	97.31%
Stand		100%	100%
Huddle		66.09%	95.61%