

## **Description of Additional Supplementary Files**

File Name: Supplementary Movie 1

Description: Mouse running/walking in a tactile virtual reality setting. This example video shows a head-restrained mouse running along a textured wall in 'Closed-loop' condition where the rotation speed of the textured wall is coupled to the animal's running speed.

File Name: Supplementary Movie 2

Description: Example whisker tracking video during a 'Closed-loop' trial.