

Description of Additional Supplementary Files

File Name: Supplementary Data 1

Description: The LLM interpretation of gene functions in 3 fly behaviors across the genome.

File Name: Supplementary Data 2

Description: The accuracy of LLM prompt-responses for interpreting genes that function in the 3 behaviors.

File Name: Supplementary Data 3

Description: Experimental design for studying the 3 behaviors using LLMs.

File Name: Supplementary Data 4

Description: Accuracy statistics for tracking varying sizes of fly groups.

File Name: Supplementary Data 5

Description: Strains used in this study.

File Name: Supplementary Data 6

Description: Enrichment analyses of genes that regulate the 3 behaviors.

File Name: Supplementary Data 7

Description: List of qRT-PCR primers used in this study.

File Name: Supplementary Data 8

Description: Constructing a signal web that regulate the 3 behaviors.

File Name: Supplementary Movie 1

Description: Tracking videos of fruit flies with error pattern of deviation.

File Name: Supplementary Movie 2

Description: Tracking videos of fruit flies with error pattern of overlap.

File Name: Supplementary Movie 3

Description: Tracking videos of fruit flies with error pattern of mislocation.

File Name: Supplementary Movie 4

Description: Tracking videos of *Camponotus japonicus*.

File Name: Supplementary Movie 5

Description: Tracking videos of *Bombyx mori*.

File Name: Supplementary Movie 6

Description: Tracking videos of *Danio rerio*.