behavioral sciences

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Behavior as a Window to the Brain: How Fine-Grained Behavioral Modelling Can Advance Neuroscience

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Message from the Guest Editors

In recent years, our knowledge of neural circuitry and its relation to behavior has progressed due to the fast advancement of technologies and computational tools to record, manipulate and analyse neurons in the brain. Indeed, it is particularly challenging to investigate high cognitive functions and complex behaviors, such as decision-making, learning and cognitive flexibility. Another caveat is that most available tools do not take into account individual variations and behavioral idiosyncrasies, focusing instead on group-level behavioral analysis. Furthermore, it is becoming clearer that specifics of the experimental protocol, such as training schedules and food-restriction considerations, introduce another source of variability in behavior and neural activity. In this Special Issue, we invite contributions on fine-grained behavioral modelling that can broaden our understanding of the computational principles of complex behavior, the importance of individual variations, and how behavior can advance our understanding of neural computation. For more information, please visit Special Issue.