Video annotation of rodent behavior

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Careful analysis of the behavior of rodents in standardized laboratory tests is necessary to be able to draw conclusions about the functional outcome of genetic alterations and other treatments. However, observing and analyzing behavior is notoriously difficult and it has repeatedly been discussed that standardization of tests and analyses is crucial for comparing data across laboratories. Ideally, to optimize inter-observer reliability and to reduce subjective observer bias, a fully automated system for behavioral recognition should be developed. Although this issue has been recognized for many years, standardization efforts have been hampered by a) a lack of consensus about the categorization of rodent behavior (ethogram), b) poor inter-observer reliability of annotations of training material and c) problems to find the algorithms.

A Video Annotation Booth will be present at the conference venue in which participants can annotate the behavior of a rat in a Phenotyper cage from a short video file. Additionally, a small attention-test can be done that potentially corrects for inter-observer-bias. During the workshop the results of these annotations and those from an earlier project will be presented. Annotations from this earlier project showed a very low inter-observer reliability. Factors that were identified as cause of this poor inter-observer reliability were a) the position of the camera, b) observational errors and c) recording errors.

This workshop will address the following questions:
1. Is there a need within the scientific community to reach a consensus about the ethogram of rodents?
2. Is it possible to come to a 'ground truth' with respect to annotations (either by a human observer or by an automated system)?
3. What is necessary to get an automated annotation system accepted by the scientific community?

Prof. Richard Brown (Psychology Department, Dalhousie University, Canada) will discuss examples of discrepancies between the results of annotations of trained observers and automated equipment. Elsbeth van Dam (Noldus Information Technology) will discuss the development of an automated annotation system in the light of the above-mentioned issues.

This workshop is aimed at people interested in the methodology of recording rodent behavior, people involved in behavioral phenotyping and/or people who on a regular basis carry out both manual and automated annotations of rodent behavior.