



Neuroscience Core A

Behavioral Assessment Core Director Dr. Thomas van Groen

Some of what we provide:

BASIC BEHAVIOR

SHIRPA, an assessment of neurological dysfunction in newly created Tg mice, e.g., we measure body weight, temperature, several neurological reflexes (including pain), **tail flick**, motor skills and quality, e.g., walking, hanging, etc, etc.

Open Field, video tracking of activity in an open field, motor-related and anxiety.

Elevated Plus maze and Zero maze, video tracking of activity in maze, consisting of 2 open (exposed) and 2 parts with high walls (i.e., safe), anxiety related.

Porsolt Forced Swim test, rodents are observed while forced to swim in a water filled cylinder.

Hot/Cold Plate, Tail Flick, pain sensitivity.

Visual cliff, testing vision of mice, i.e., will they walk over a table's edge or not.

Acoustic Startle, a test to measure acoustic startle, a measure of PTSD and other stress disorders (rat and mouse version).

MOTOR TESTING

Beam walking, tests motor coordination of mice (or rats) walking on a small beam, many beams available.

Rotorod, an assessment of basic motor skills, both increasing rotations and fixed rotation models are possible, we have two Rotorods, with different rods, i.e., smooth, ribbed, large size).

Rotometer, an assessment of left/right turning movement in mice (rats) that have received unilateral brain damage.

Automatic Foot misplacement apparatus, the mis-stepping of the mouse on a horizontal ladder is measured (related to beam-walking).

The Montoya staircase test of skilled forearm reaching in rodents, tests motor coordination (both rat and mouse version available).

Cylinder test, the "preferred" forearm reaching of the mouse/rat is observed.

Dynamic weight bearing, the weight placed on each foot of the mouse is measured, motor problems, stroke, etc.

Catwalk, the stepping pattern of a mouse or rat can be analysed.

ACTIVITIES (long term)

Activity, simple measurement of photobeam breaking, 20 cages.

Improved Activity, video tracking of activity in "home cage", 8 cages, simple learning and memory can also be measured (stimuli are available), we can also track eating and drinking patterns.

Laboras system, 8 Cages, mice live in their home cage, the computer tracks activity, eating, drinking, grooming, epilepsy etc.

Running Wheel Cages, mice live in their home cage with a running wheel in it, a computer tracks activity, very good for circadian rhythms.

COGNITION

T-maze and Y-mazes, testing simple Pavlovian learning skills, such as spontaneous reversal, forced choices, etc, etc.

Figure 8 maze, the maze is used for testing delayed alternation (similar to the T-maze).

Shuttle boxes, testing basic memory skills (Pavlovian learning), either food rewards or shock as stimulus, e.g., passive (active) avoidance, etc.

Object Recognition and Social Recognition, testing memory for objects or conspecifics/strangers, other sex etc.

Fear conditioning, operant conditioning using shock and sound, i.e., simple Pavlovian learning and memory tests, both auditory and contextual fear conditioning are possible, and, of course fear extinction.

Holeboard task, the mouse learns which of the 16 holes are baited with rewards, spatial learning and memory, this system can also be used for anxiety.

8-arm radial maze, testing spatial learning and memory, with food deprivation as stimulus, this takes 3-4 weeks.

Water maze with or without 8-arm insert, testing spatial learning and memory, with drowning as stimulus, this takes 1 week.

Star maze, an insert in the water maze to test learning patterns of the mice in the water maze escape task.

Double H maze, a water filled maze to test learning patterns (e.g., path, left-right choices or location of escape platform) of the mice in a water maze escape task.

Barnes maze, testing spatial learning and memory, with bright light as stimulus, this takes 1 week, we have different versions available.

Intelligence, cages where several mice can live together can be used for regular and social learning, other social living patterns can also be measured.

Touch screens for mice, a preconfigured set of tests is available and includes: Five choice serial recognition task, Paired Associate Learning (PAL), VisuoMotor Conditional Learning (VMCL), Three-choice Visual Discrimination Reversal, etc, etc.

EXERCISE

Forced Running Wheel, 10 mice can be forced to exercise for a defined period of time.

Treadmill, forced exercise, multiple lanes and speeds, fixed speed and increasing speed, incline is possible, shock is available (both mice and rats).

ANALYSIS

Clocklab, a software program designed to analyse circadian activity.

Sonotrack, a system for measuring ultrasonic vocalizations of rodents, we can record, and, replay the recorded sounds.

Theme, a software program to detect "themes" in activity or other recorded behaviors.

Observer, a software/hardware coding system to encode behaviors or activities, either live or from recorded activity, NOTE: *this system is not limited to animals!*

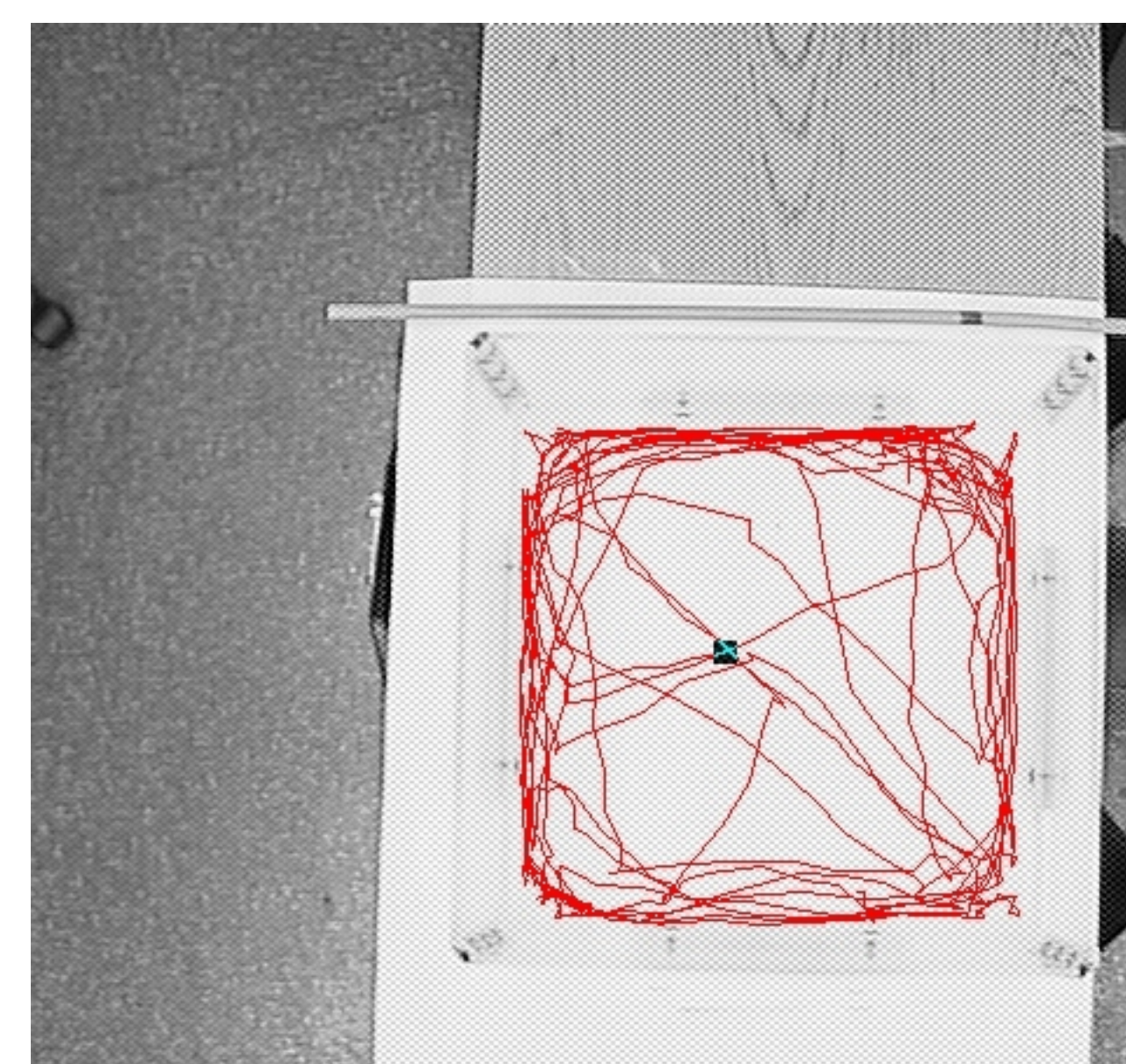
TELEMETRY

Blood pressure (direct and indirect), blood pressure can be measured, either direct by implantation of pressure probe(8 probes), or indirect by tail-cuff.

EEG and/or EMG can be measured with implantable probes, 8 probes.

Heart rate and body temperature, implantable probes measure heart rate and body temperature or only body temperature of mice (and rats), 8 and 8 probes.

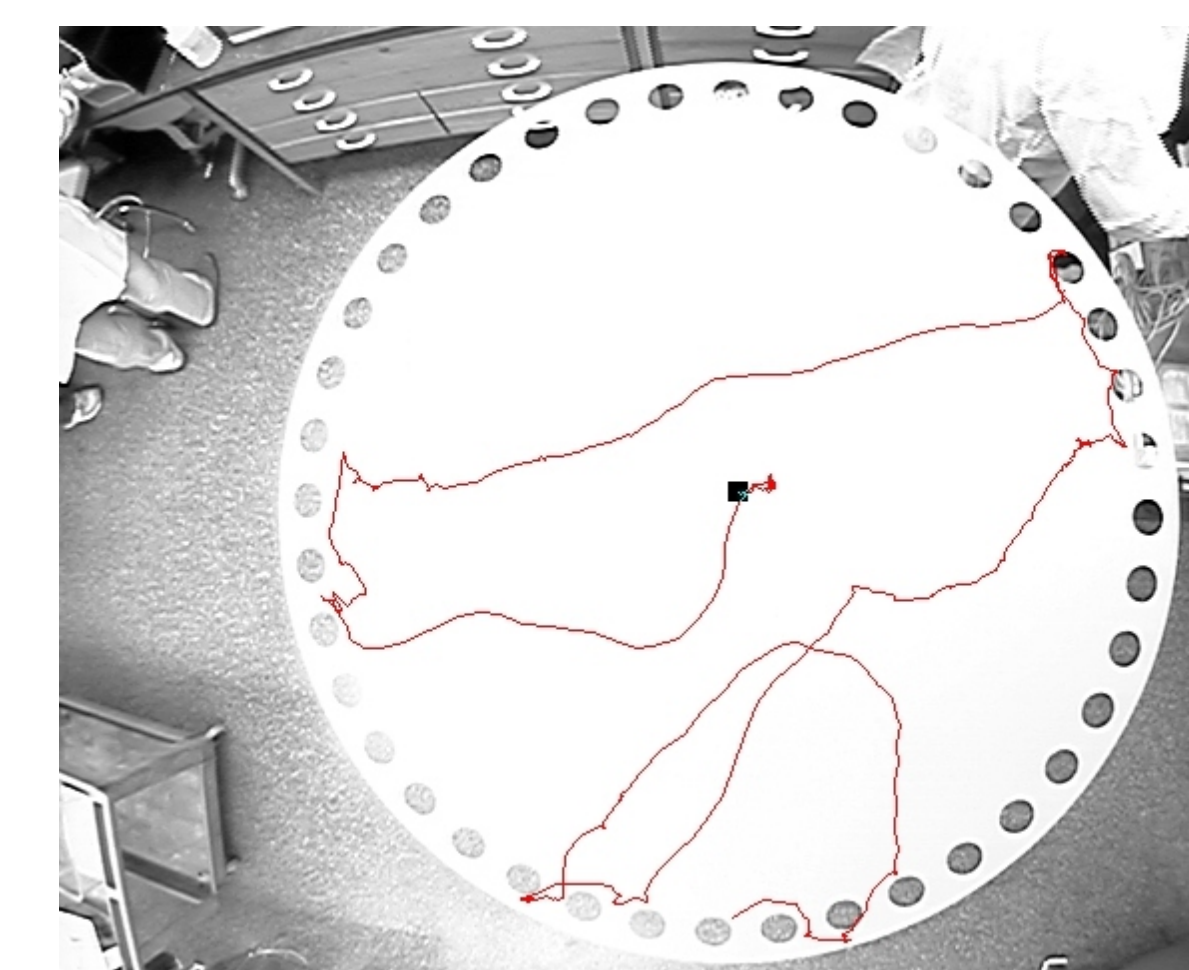
Please note, if we don't have it, most likely we can develop it for you!



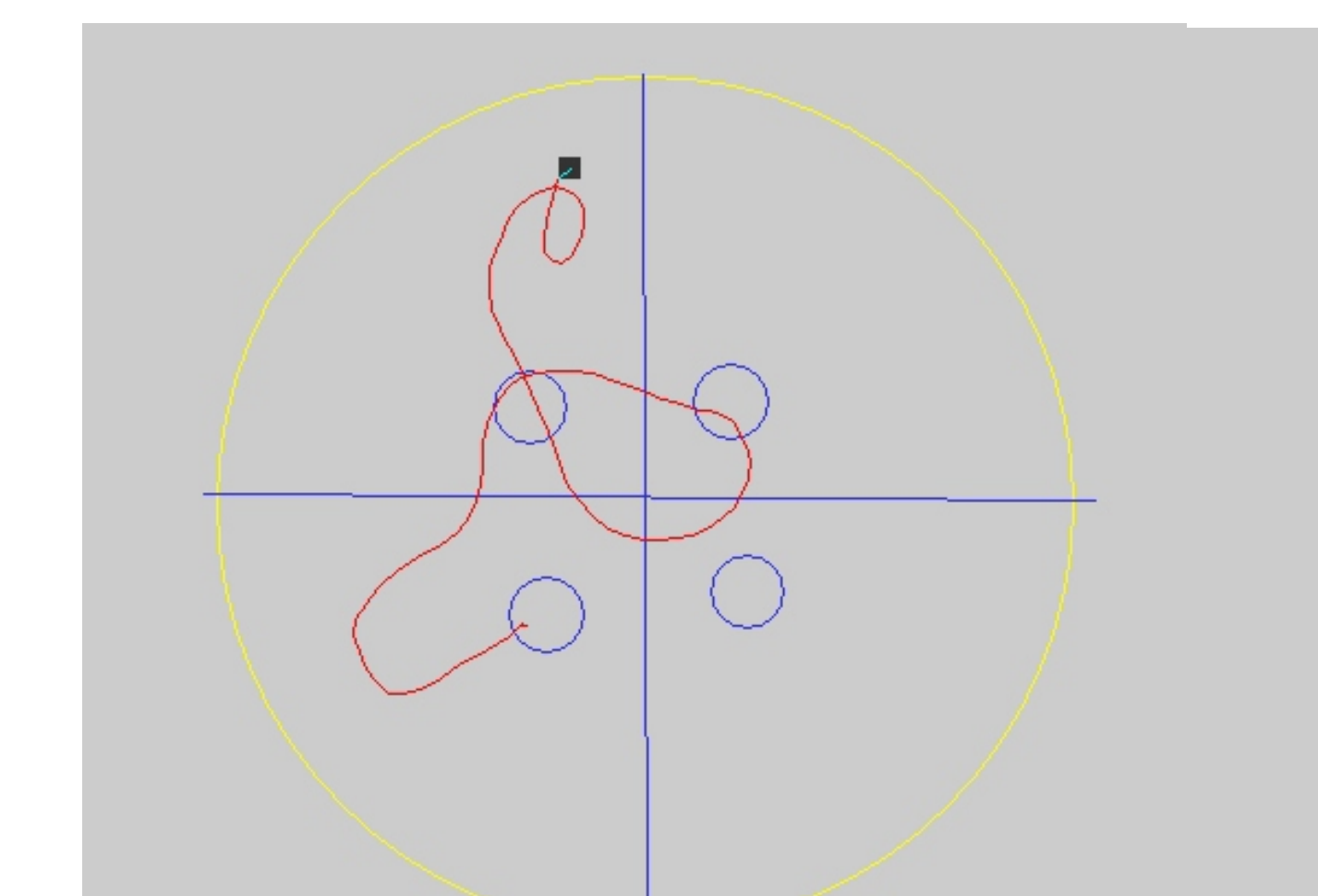
OpenField



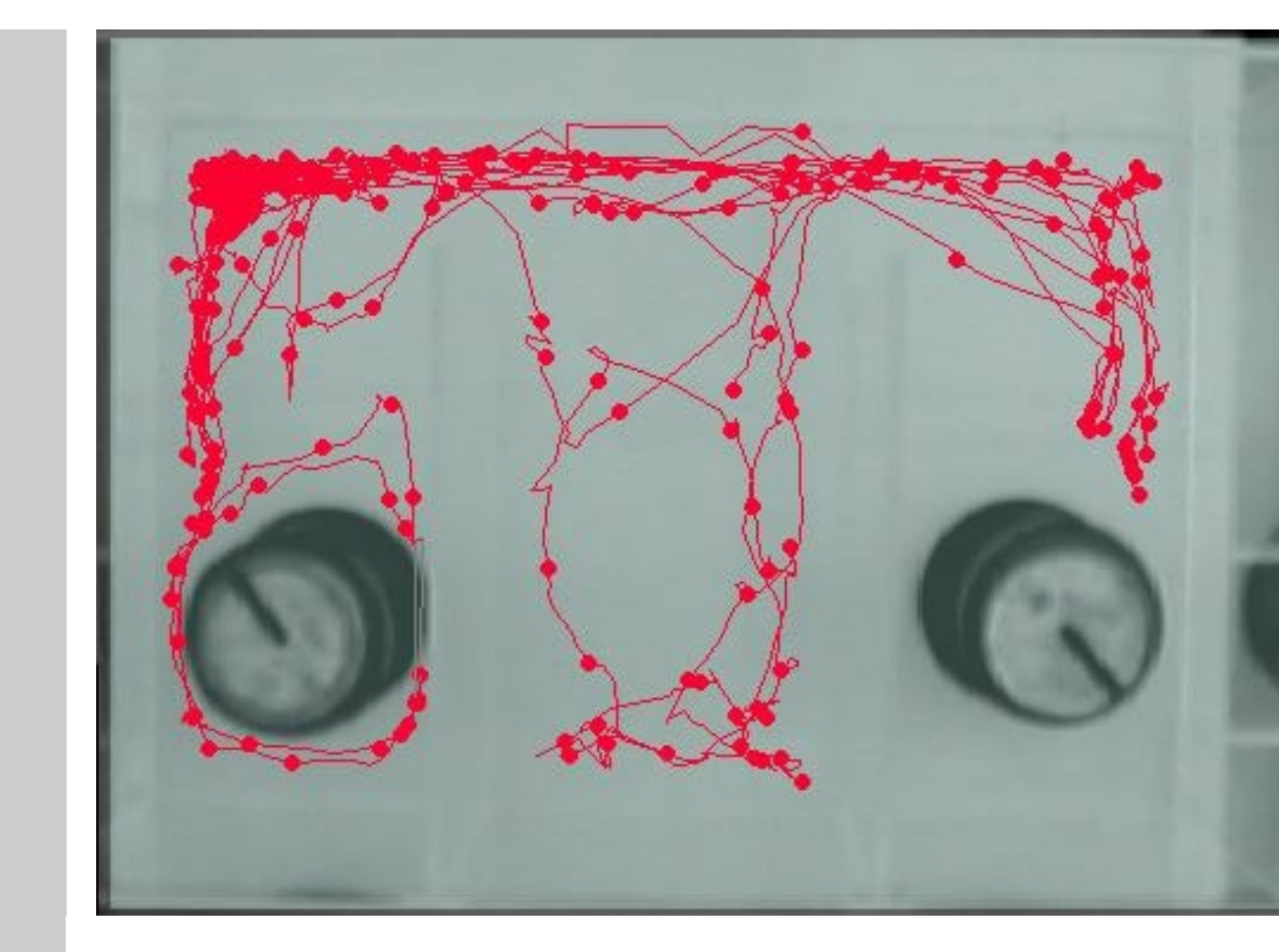
Zero Maze



Barnes maze



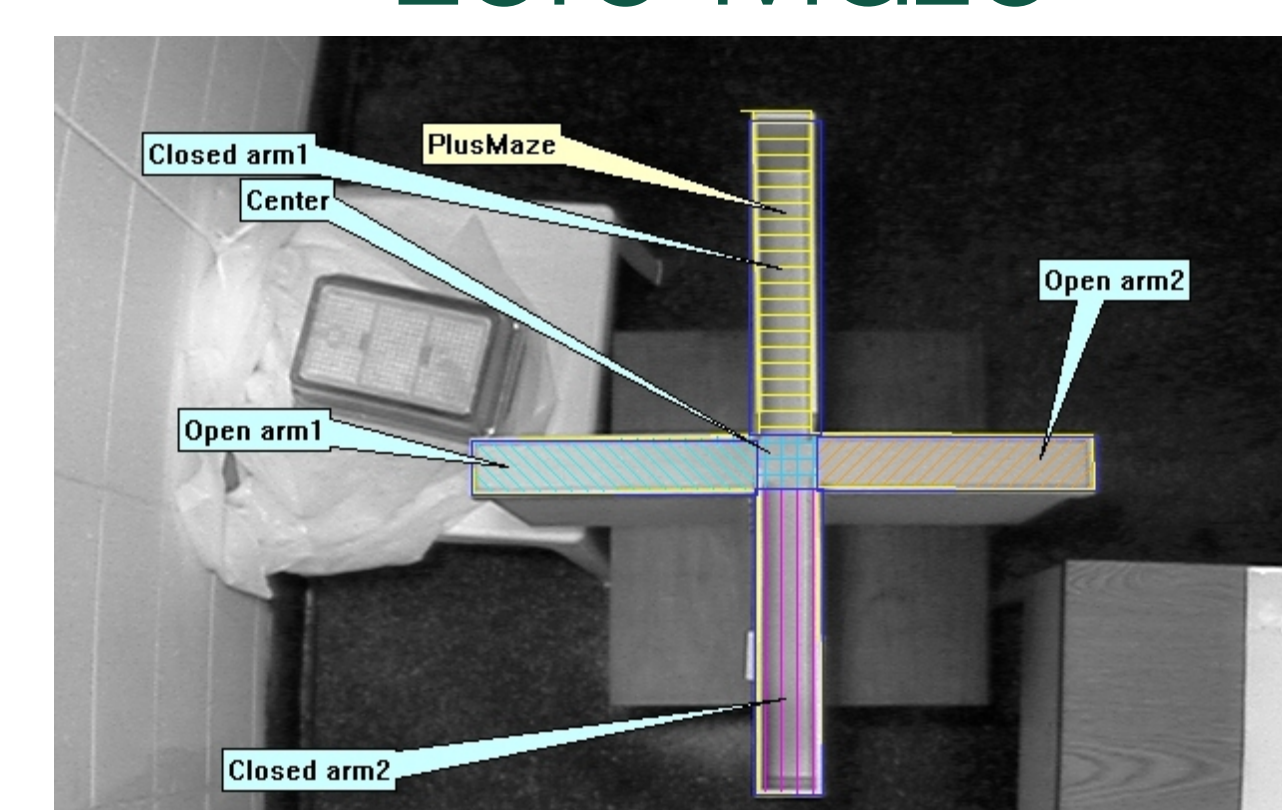
Water Maze



Object Recognition
Social Recognition



Foot misplacement

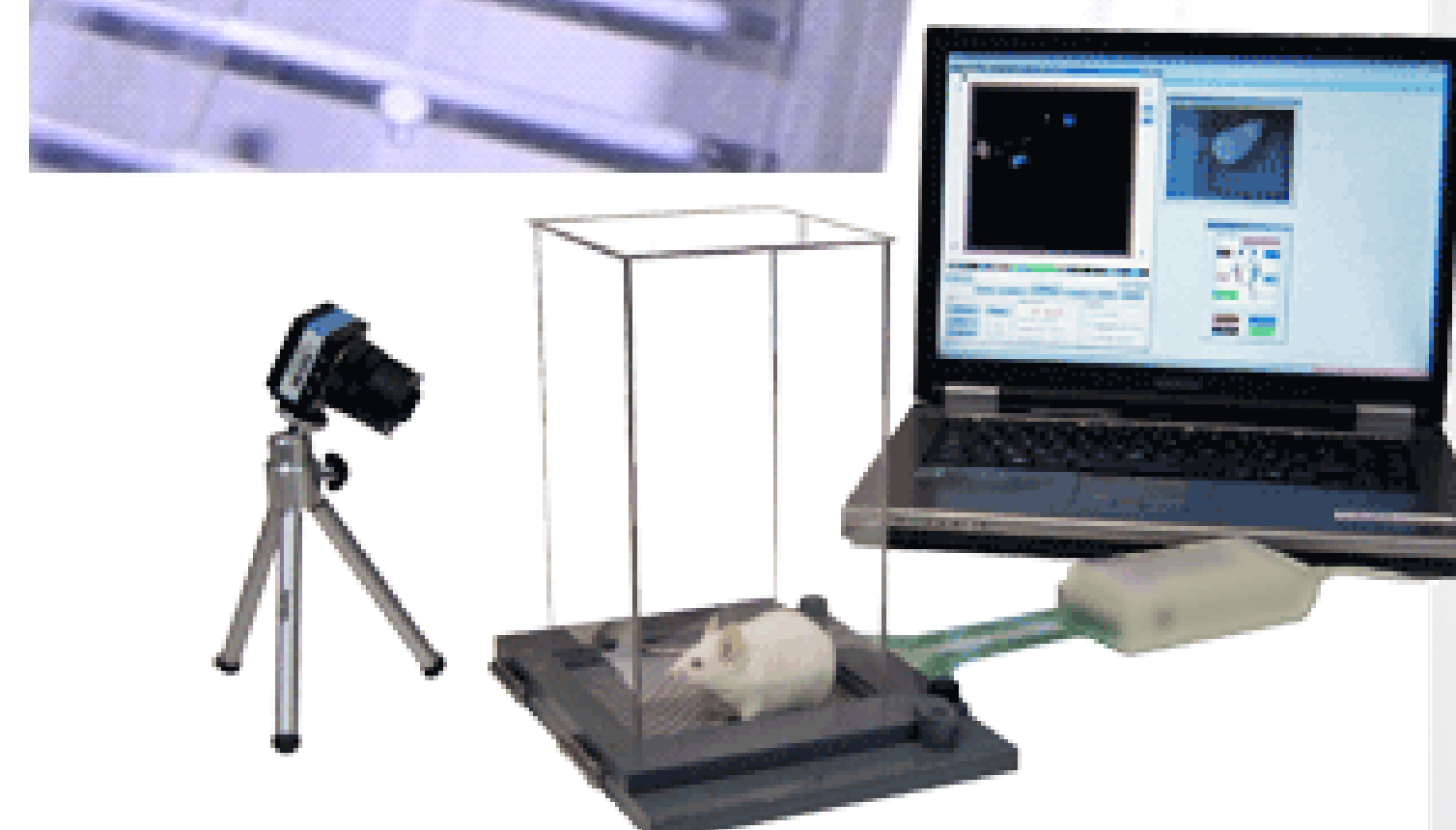
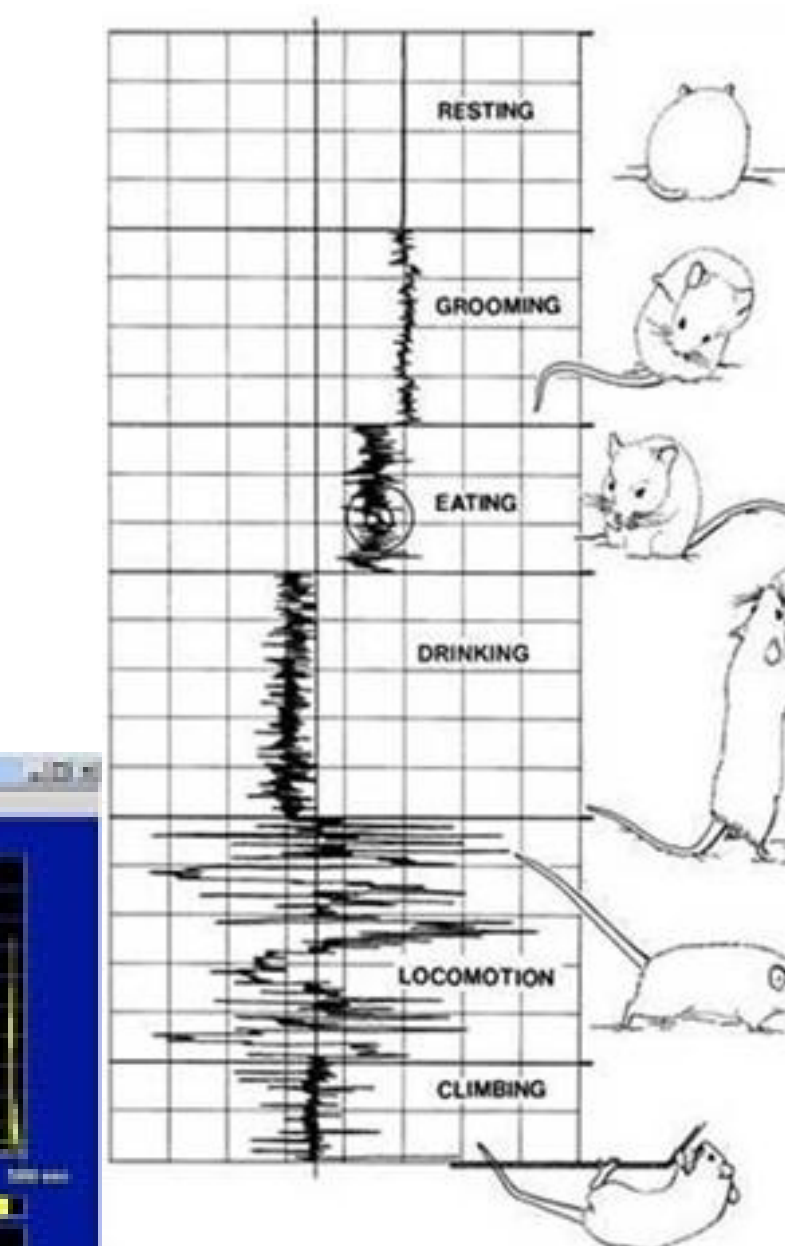


Elevated Plus Maze

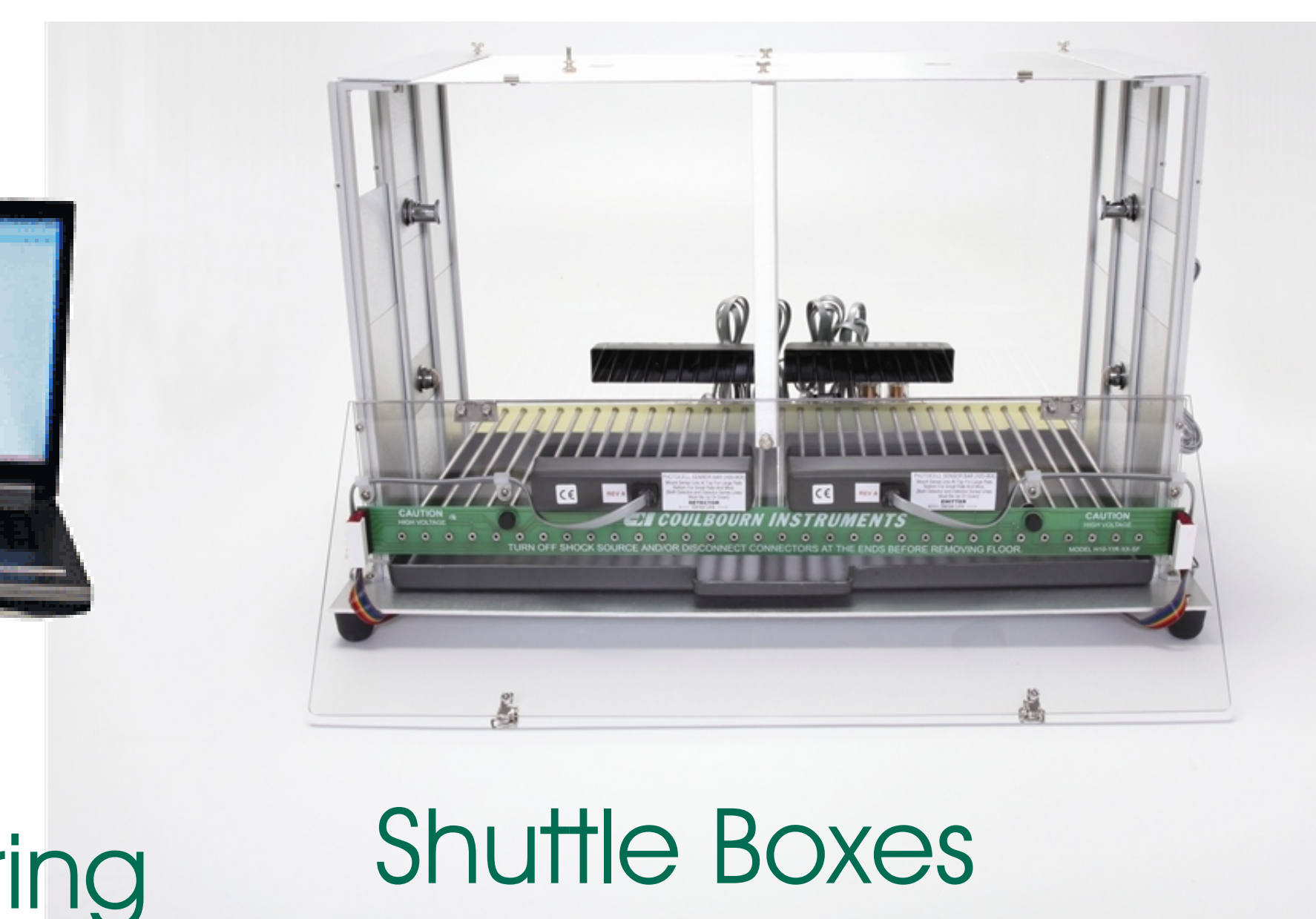


Phenotypers

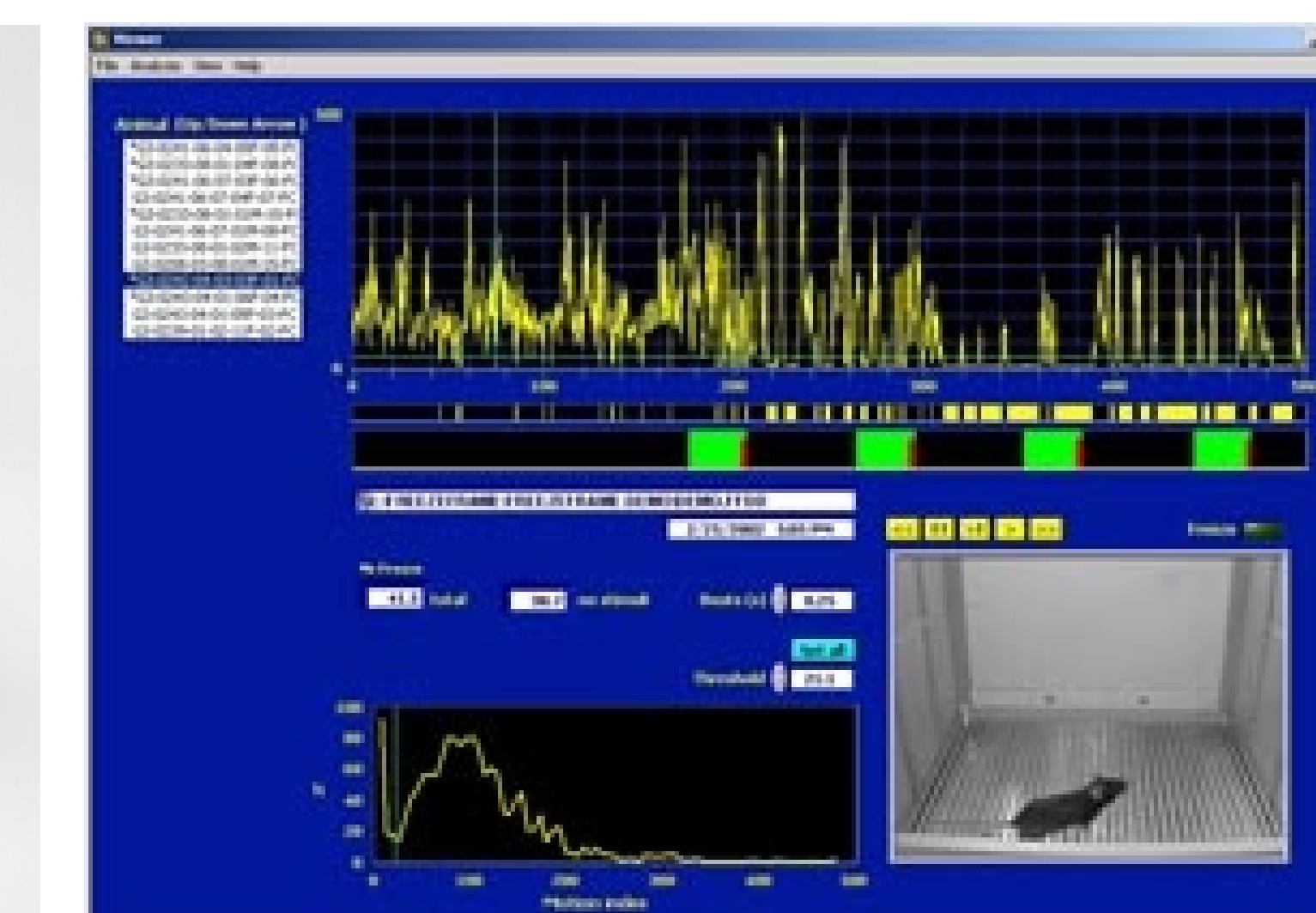
Laboras system
activity characterization



Dynamic Weight Bearing

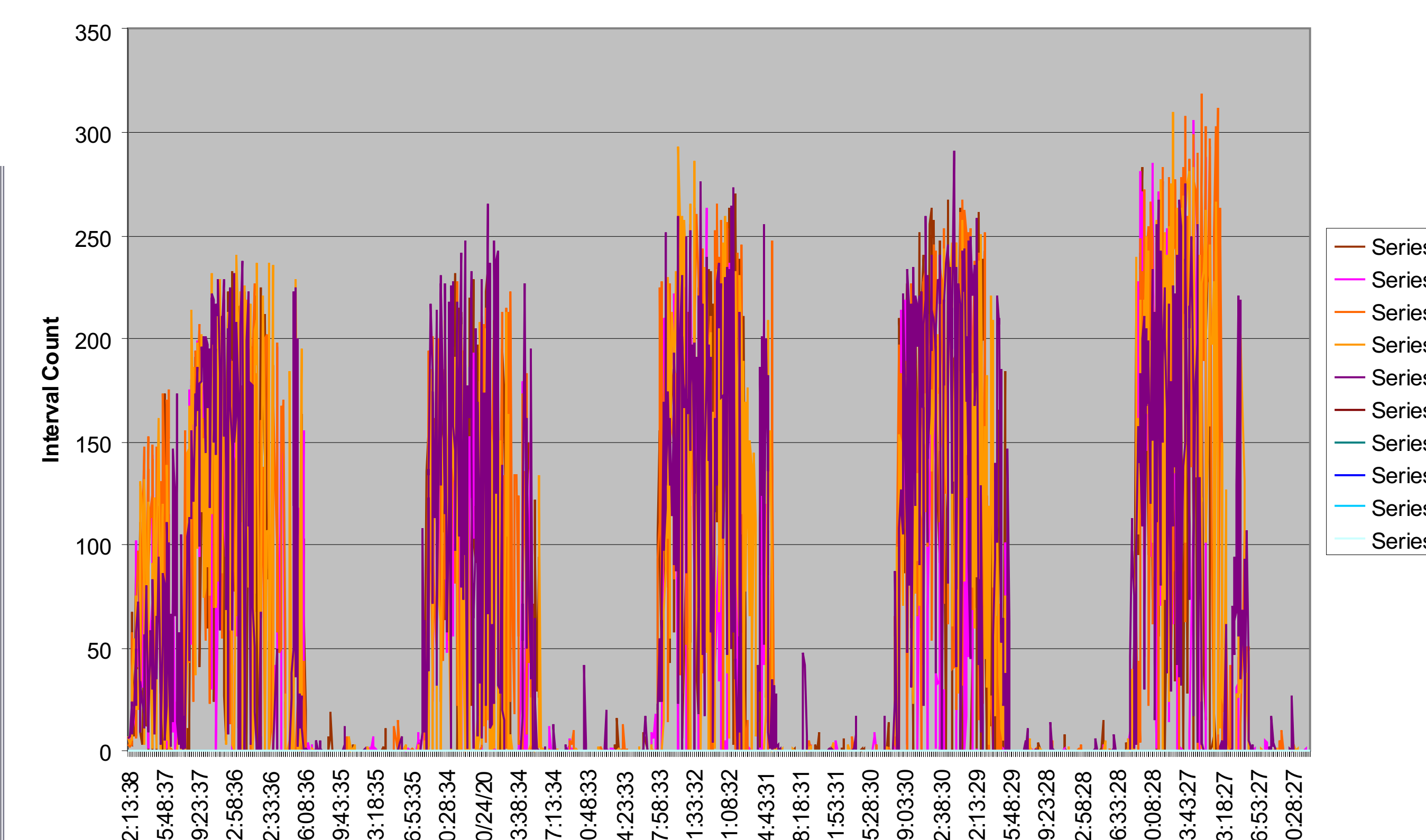
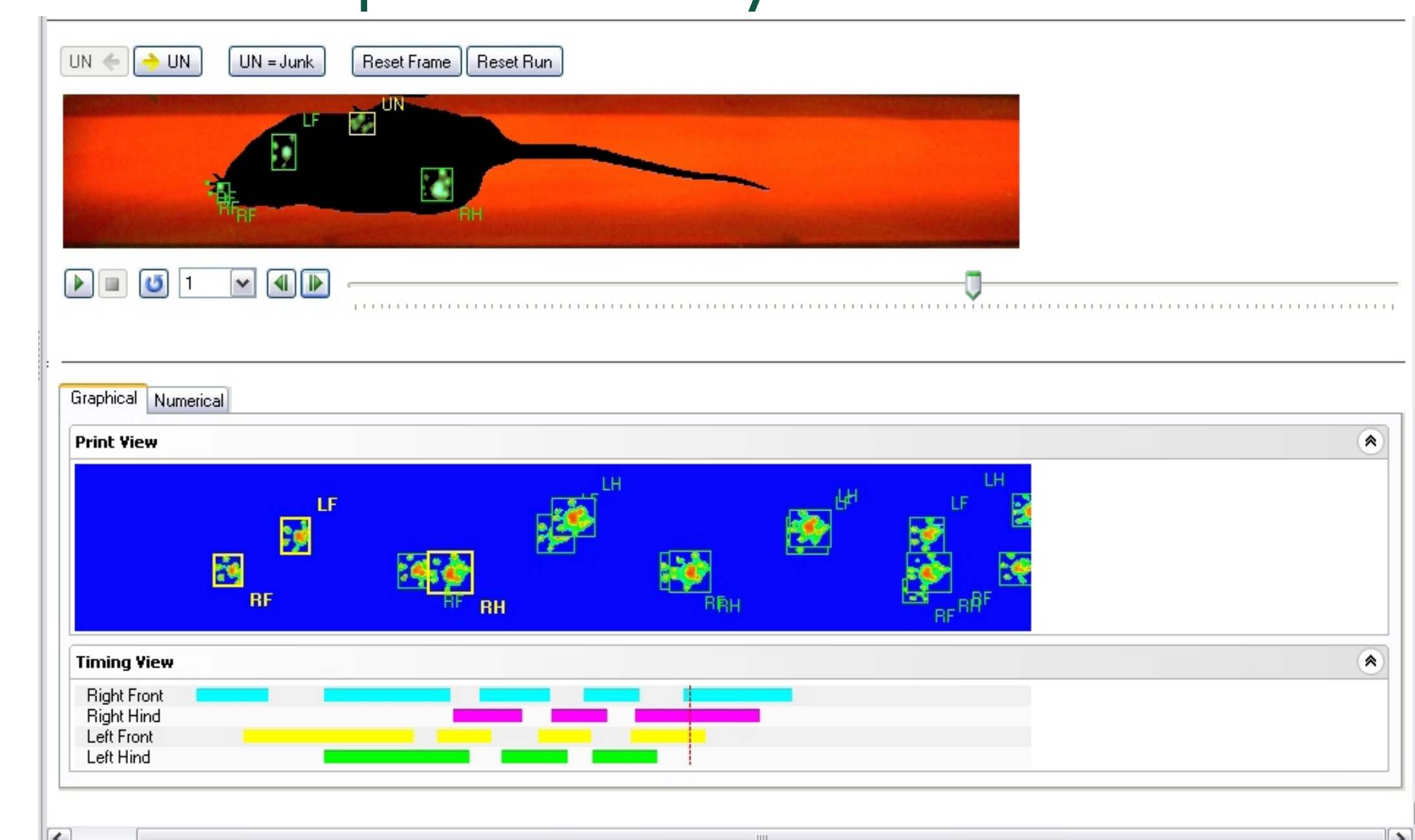


Shuttle Boxes

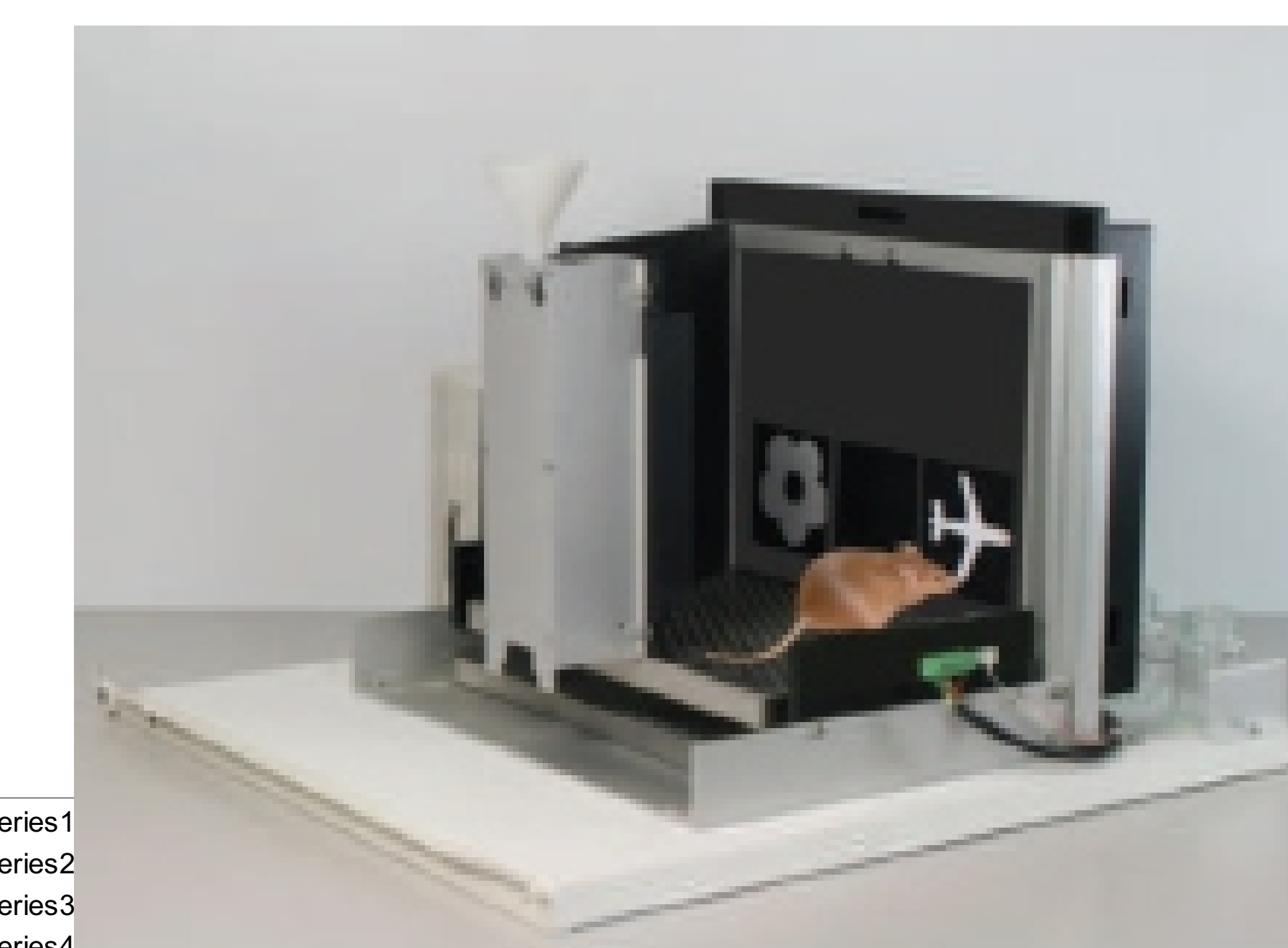


Freeze Frame
Fear Conditioning
Interval Count Chart

Catwalk,
footprint analysis and more



circadian activity



Touch screen

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