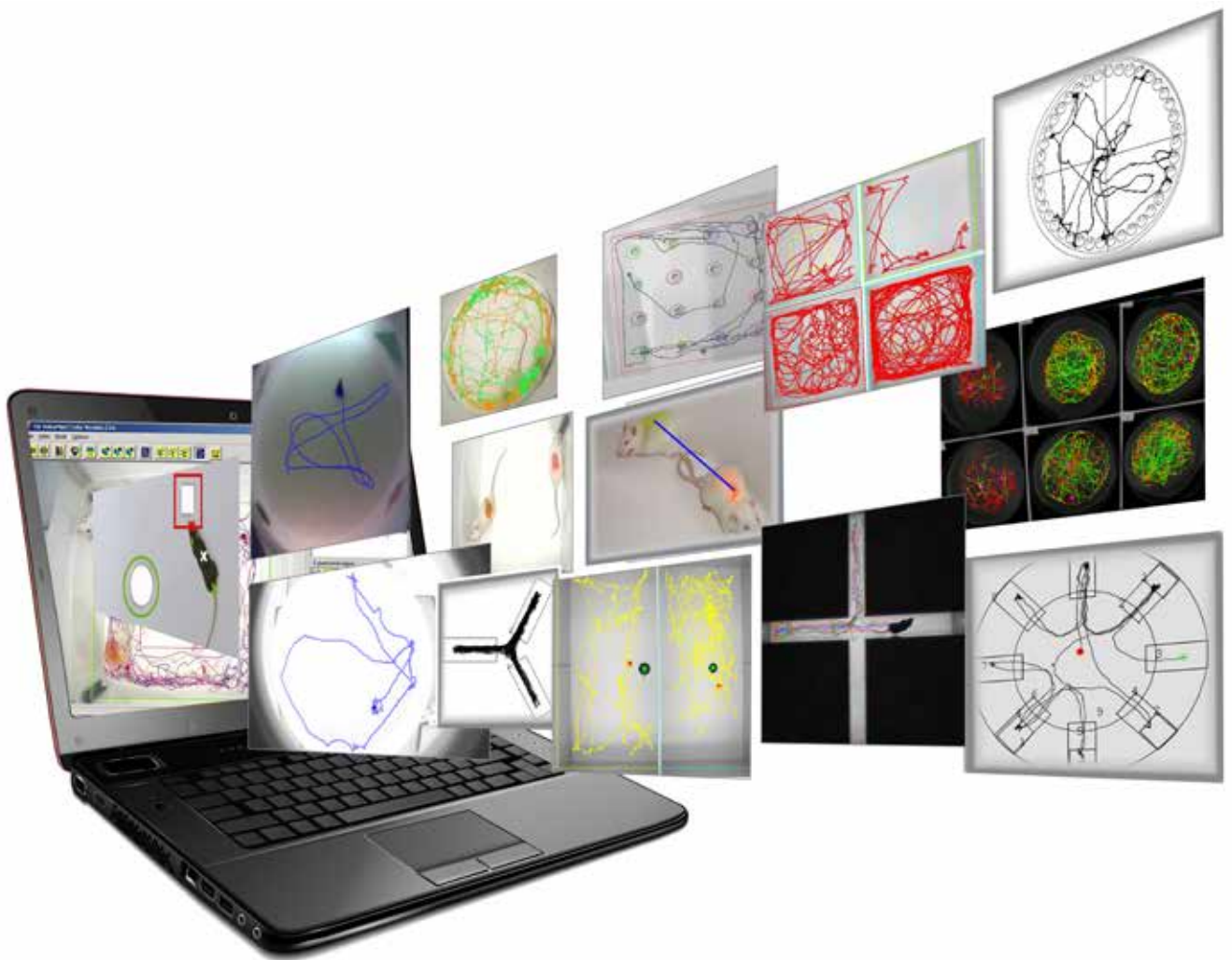


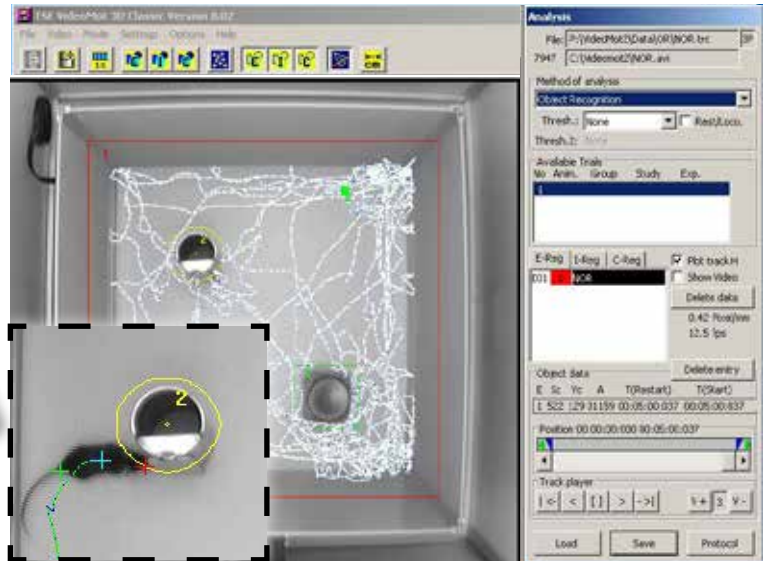
# VideoMot2

Universal Video Tracking System for  
Automated Behavioral Analysis





Experimental Setup



Trial Manager - Object Recognition

## VideoMot2: Tracking Features

**VideoMot2 software - specialized for automated tracking and behavior recognition of small laboratory animals, such as rats, mice, fish and flies** in several test arenas at the same time. Convenient trial configuration options for all standard paradigms automatize large parts of the experiment creating standard conditions for all animals and saving valuable time. No more human error and tedious hand scoring even for complex paradigms, such as object recognition. Using single or three body point detection and proven algorithms, VideoMot2 calculates a large variety of behavioral parameters based on XY coordinates resulting in highly reproducible data. Hundreds of experimental groups worldwide use VideoMot2 - try it and convince yourself!

### TRACKING

#### Online and Offline Tracking

- Online tracking mode: live tracking during an ongoing experiment; a video file (in WMV format) can be generated in parallel, which will be saved on the computer's hard drive
- Offline tracking mode: tracking from a digital video file that has previously been recorded; all common formats supported

#### 3 Point and Single Body Point Tracking

- 3 point tracking (rodents only) registers the nose point, center of gravity, and tail base; ideal for e.g. zone entry analysis
- Single point tracking is based on the center of gravity only

#### Multiple Arenas of Any Shape

- Tracking of several arenas simultaneously
- Arenas can be of any customized shape

#### Multiple Zone Definition

- Any number of zones can be defined for zone-specific analyses
- Start/stop/pause zones can be defined to automatize data acquisition
- Zone entries can trigger TTL outputs to control external hardware e.g. injection pump or optogenetic light source

#### Manual Event Scoring

- An integrated keyboard event recorder allows synchronous scoring of behavioral events that cannot be analyzed automatically
- Manually scored events are automatically integrated into raw data and the data analysis

#### MULTIPLE ANIMALS IN ONE ARENA

- Social interaction / contact analysis with up to two animals per arena using the classical "Black & White Version" of VideoMot2
- **Simultaneous tracking of up to 8! animals per arena** using the "Color Version" of VideoMot2, including movement tracks, locomotor statistics, and social contact analysis for each animal



#### REARING DETECTION

- A rearing frame of adjustable height with up to 64 infrared sensor pairs (number depends on the size of the frame) can be placed around the arena
- Sensor interruptions indicate rearing events
- **Rearings are automatically integrated** into movement tracks and data analysis



# VideoMot2: Software Features

## USER FRIENDLY & FLEXIBLE

- Behavioral analysis of rodents, fish, flies and other small laboratory animal species in standard or customized setups
- Default settings and a multitude of configuration options allow customized analysis

## AUTOMATED BEHAVIOR RECOGNITION

- Social contact analysis
- Novel object recognition analysis
- Analysis of all standard temporal and spatial parameters
- Path and zone entry analysis
- Exploration pattern analysis, e.g. Hole Board, Barnes Maze

## PARAMETERS

- Locomotor statistics; zone specific or for the total arena (e.g. distance, speed, time resting / active, number of stops)
- Zone statistics (e.g. latency to enter, number of entries, time, distance, speed in zone / total arena)
- Event statistics (latency, frequency, time of events such as social contact, object exploration, or manually scored events)

## DATA OUTPUT

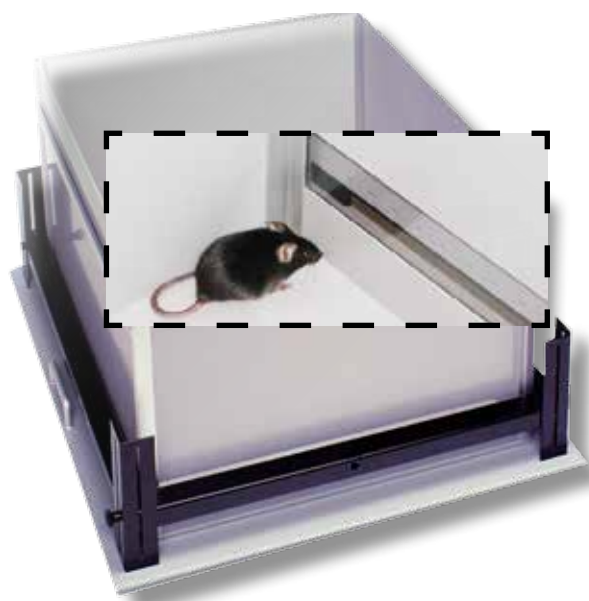
- Data are summarized in pre-configured paradigm-specific reports
- Reports are exportable to excel or other data processing programs
- Raw coordinate data are stored for personalized analysis
- Playback of movement tracks for any time interval at variable speed
- Movement tracks can be stored as .bmp files to allow convenient integration in presentations or word processors

## CAMERA OPTIONS

- USB cameras that support direct-show standards
- Analog CCD cameras
- Analog cameras require a USB converter or frame grabber
- Multiple cameras allow preparation and configuration of several different setups – to allow fast switching from one paradigm to the next

## ADVANTAGE

- TSE Systems is expert in life science instrumentation and provides customized, complete solutions with all necessary system components including test apparatus, cameras, and software
- Highly trained service technicians install the system on-site and provide qualified training and support



Open Field with Rearing Frame

Monitor  
..\Radial Maze 4 Baited Arms.trc  
Flag Rest/Locomotion ON

|                 |                |
|-----------------|----------------|
| Study No.:      | 1              |
| Experiment No.: | 2              |
| Code:           |                |
| Operator:       | XY             |
| Substance:      | Riva/Scop      |
| Dose:           | 0,02/0,05mg/ml |
| Comment:        | 20m            |

|           |       |        |        |
|-----------|-------|--------|--------|
| Animal No | Group | Strain | Age(d) |
| Rat       | b     |        |        |

|                      |                  |
|----------------------|------------------|
| Start:               | Tue May 02 20    |
| Stop:                | Tue May 02 20    |
| Calibration:         | 0.25 Pix         |
|                      | 24.8 fps         |
| A:                   | 20 .. 2000 pixel |
| Min. visit time:     | 0 ms             |
| Radial Maze Analysis |                  |
| Baited               | 2/4/5/6 (4/8)    |
| El:                  | Radial Maze      |

|           | Time<br>(h:m:s.ms) | Visits | Distance<br>(cm) | Time<br>(%Global) |
|-----------|--------------------|--------|------------------|-------------------|
| 1 No Food | 00:00:23.77        | 3      | 227.00           | 17.98             |
| 2 Food    | 00:00:20.03        | 2      | 170.01           | 15.16             |
| 3 No Food | 00:00:01.13        | 1      | 16.69            | 0.85              |
| 4 Food    | 00:00:05.88        | 1      | 52.61            | 4.45              |
| 5 Food    | 00:00:09.92        | 1      | 67.66            | 7.51              |
| 6 Food    | 00:00:08.81        | 2      | 102.50           | 6.67              |

Data Report - Radial Maze

## Recent Publications

- **Seo J et al. (2014)** Activity-dependent p25 generation regulates synaptic plasticity and A $\beta$ -induced cognitive impairment. *Cell*; 157(2):486-98; **Group of LH Tsai, Broad Institute of Harvard University and Massachusetts Institute of Technology, Cambridge, USA**
- **Zhan Y et al. (2014)** Deficient neuron-microglia signaling results in impaired functional brain connectivity and social behavior. *Nat Neurosci*;17(3):400-6; **Group of CT Gross, European Molecular Biology Laboratory (EMBL), Monterotondo, Italy**
- **Issler O et al. (2014)** MicroRNA 135 is essential for chronic stress resiliency, antidepressant efficacy, and intact serotonergic activity. *Neuron* [Epub ahead of print]; **Group of A. Chen, Weizmann Institute of Science, Rehovot, Israel**
- **Bhattacharya S et al. (2014)** Galantamine slows down plaque formation and behavioral decline in the 5XFAD mouse model of Alzheimer's disease. *PLoS One*;9(2):e89454; **Group of D. Montag, Leibniz Institute for Neurobiology, Magdeburg, Germany**
- **Byrns CN et al. (2014)** Mice lacking selenoprotein P and seleno cysteine lyase exhibit severe neurological dysfunction, neuro degeneration, and audiogenic seizures. *J Biol Chem*; 289(14):9662-74; **Group of MJ Berry, John A. Burns School of Medicine, University of Hawaii**



## Service & Warranty

TSE Systems offers a Two (2) Years ALL-IN Premium Warranty with all new products, including:

- 24/7 technical hotline
- Remote maintenance and update function
- On-site visits upon necessity
- Free replacement parts during warranty

After the expiry of the warranty period, TSE Systems offers comprehensive extensions of the warranty or economical maintenance and repair contracts to ensure the continued smooth running of your instruments. Please contact us for further details.