ART – Automated Rodent Tracker

This guide shows how to use the Automated Rodent Tracker, available for download at http://www.trackers.bretthewitt.net and source code available at https://github.com/BrettHewitt/ART

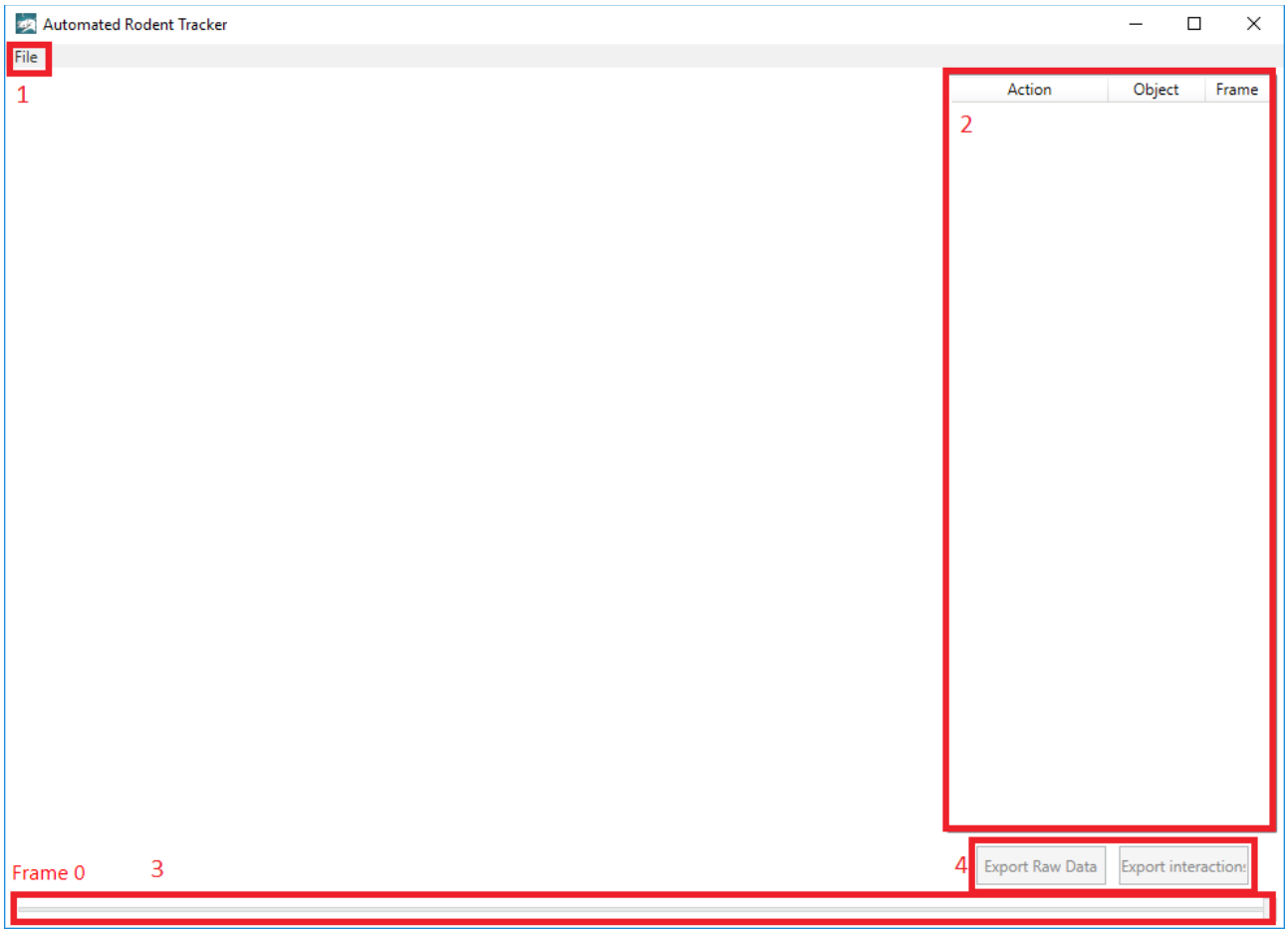

Fig 1 – Software Overview

1) File Menu
2) Behaviours Placer
3) Frame Control
4) Export Options

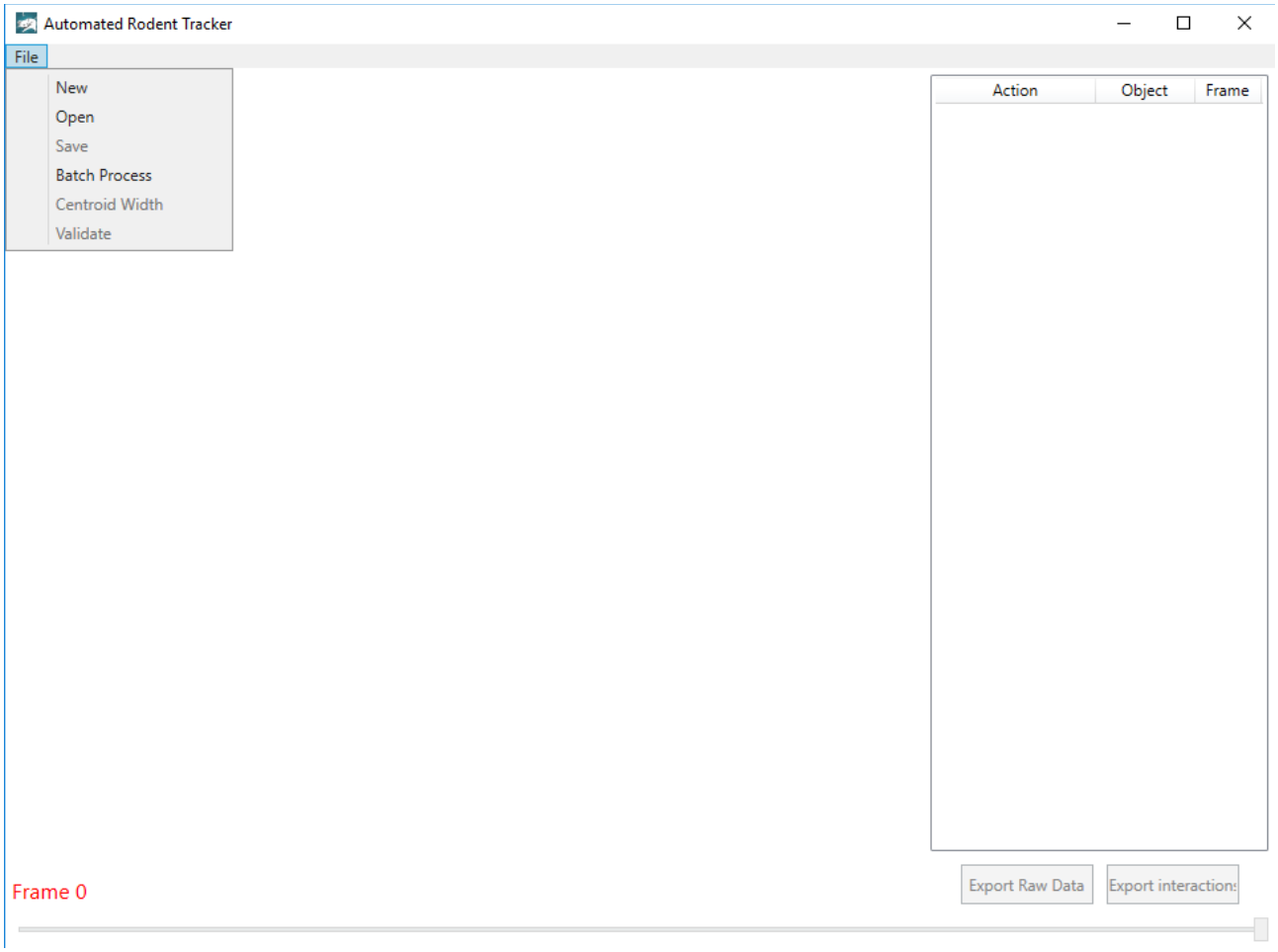

Fig 2 – File Menu

1) New – Start a new session
2) Open – Open an existing session
3) Save – Save the current session
4) Batch Processing – Opens the batch processing interface, used to process large datasets
5) Centroid Width – Opens the centroid width interface
6) Validate – Select an MWA file to validate the automated tracking against manual tracking

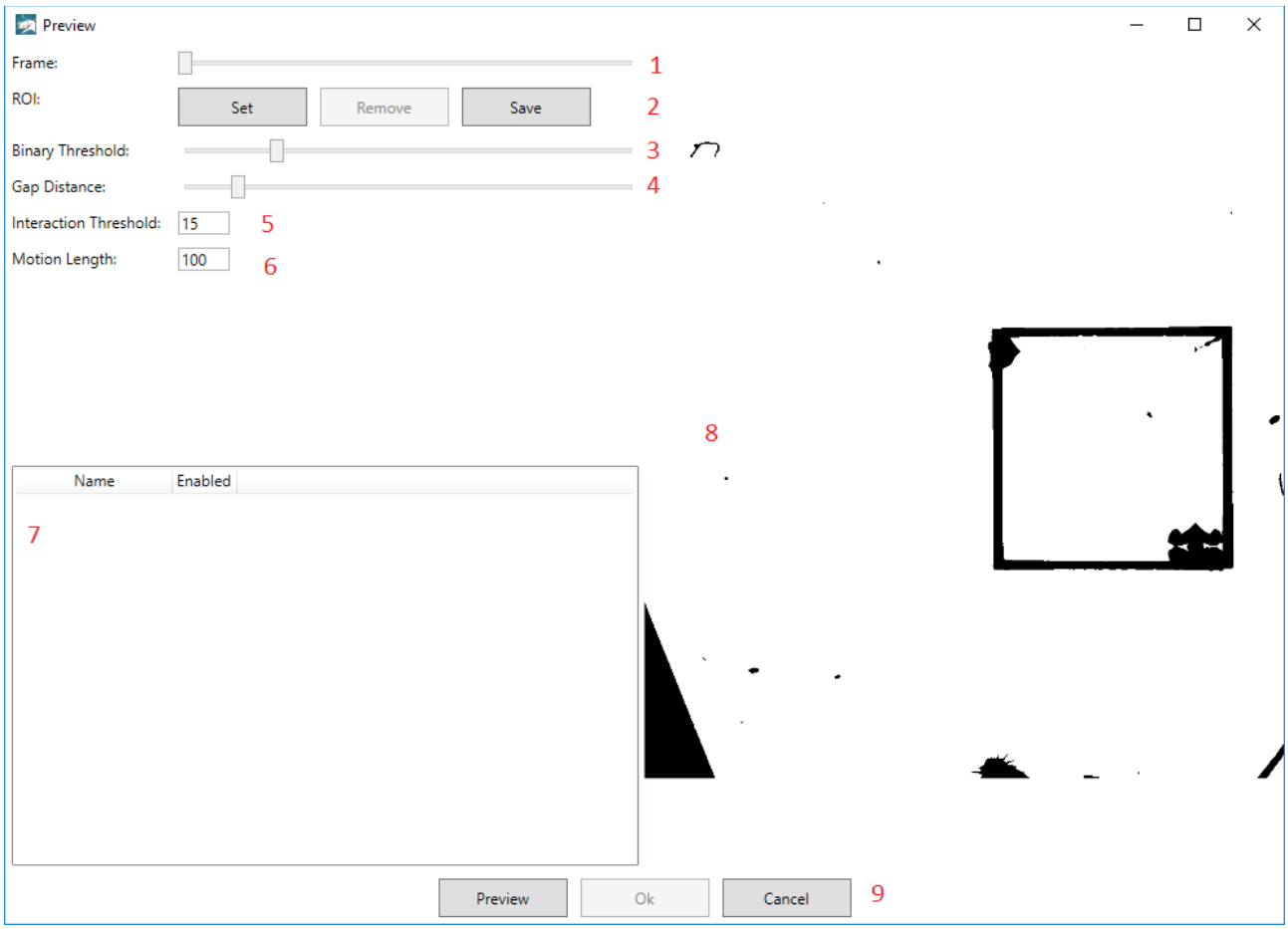

Fig 3 – New Session Settings

1) Frame slider – use this to select an appropriate frame where the mouse is visible.
2) ROI – Opens the ROI interface to select a specific region of the video to track
3) Binary Threshold – Determines the threshold level, NOTE THIS SHOULD BE SET TO THE LOWEST POSSIBLE VALUE WHERE EDGES ARE CLEARLY DEFINED
4) The gap distance between keypoints for nosetip identification, this can be calculated automatically by the software, but can be manually overridden by the user.
5) The distance in pixels for an interaction event to occur.
6) The motion length used to determine what is moving and what is static.
7) The detected boundaries, undesired boundaries can be removed here, or other boundaries can be renamed.
8) Visual feedback.
9) Process, Ok and Cancel buttons. Process must always be run first before the software can begin tracking.

Fig 4 – Example of incorrect Gap Distance

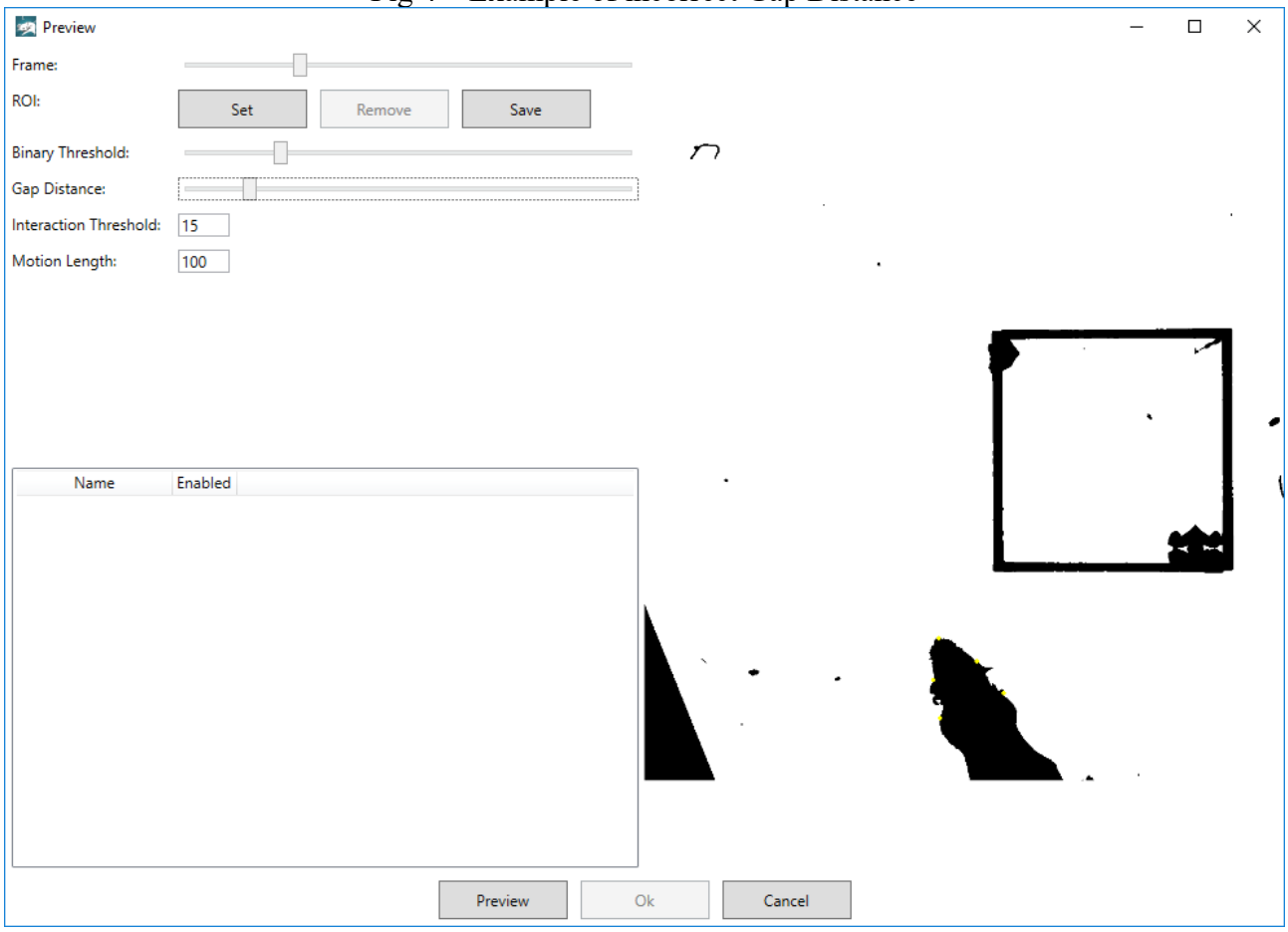

Fig 5 – Example of correct Gap Distance

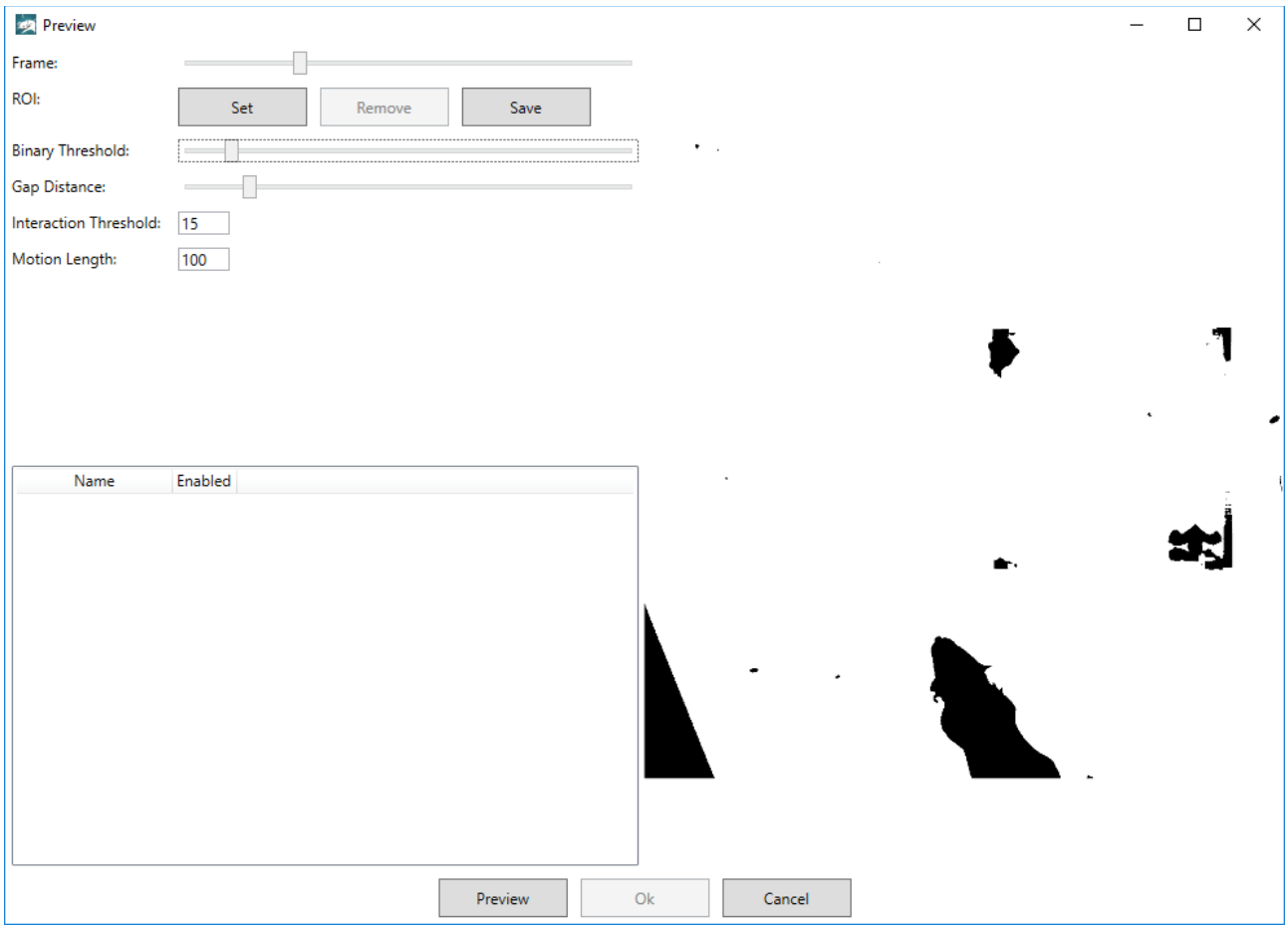

Fig 6 – Example of incorrect Binary Threshold

Fig 7 – Example of correct Binary Threshold

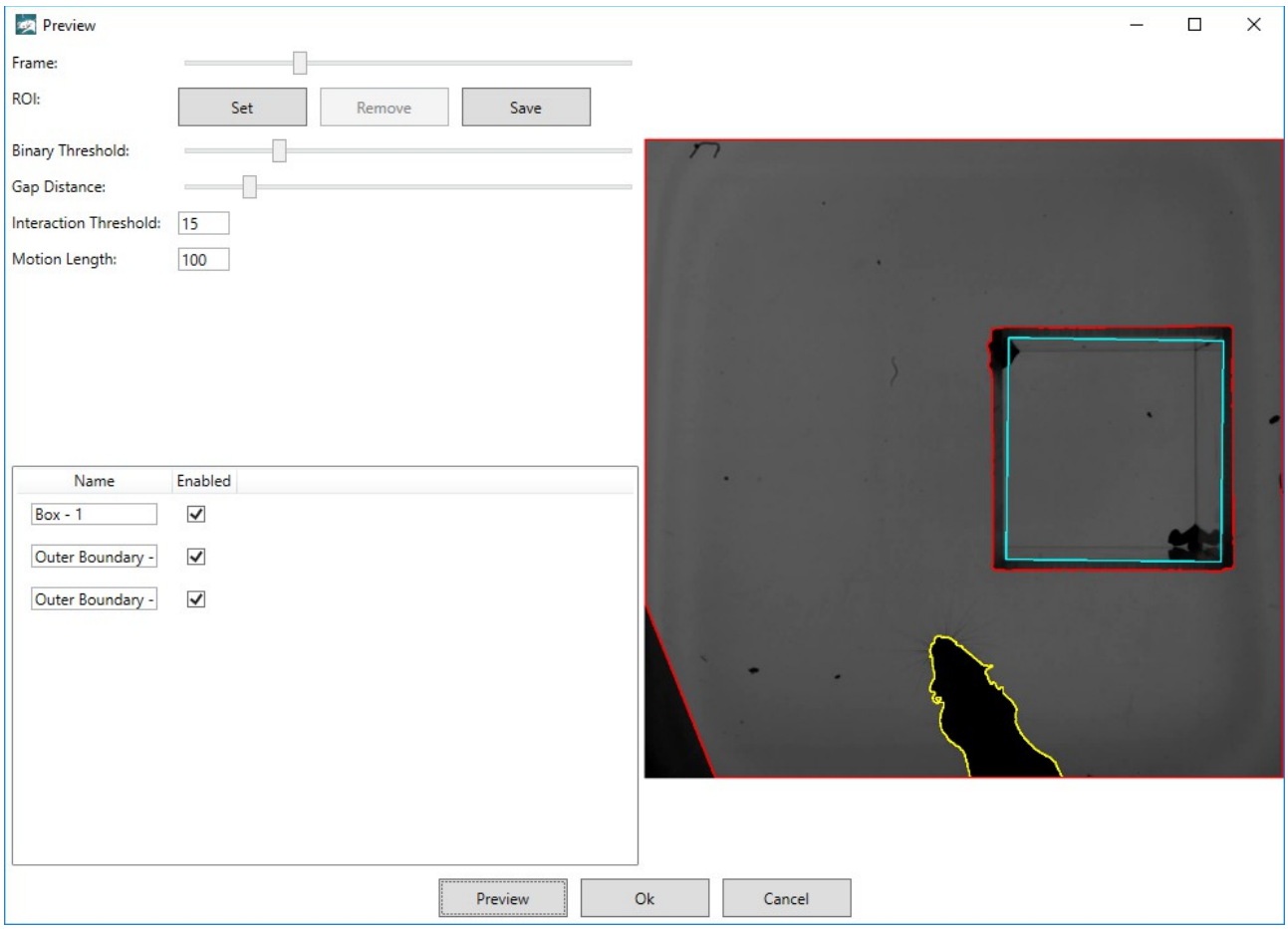

Fig 8 – Result from preview, the mouse (yellow) has been identified, and static objects (red and blue) have also been found.

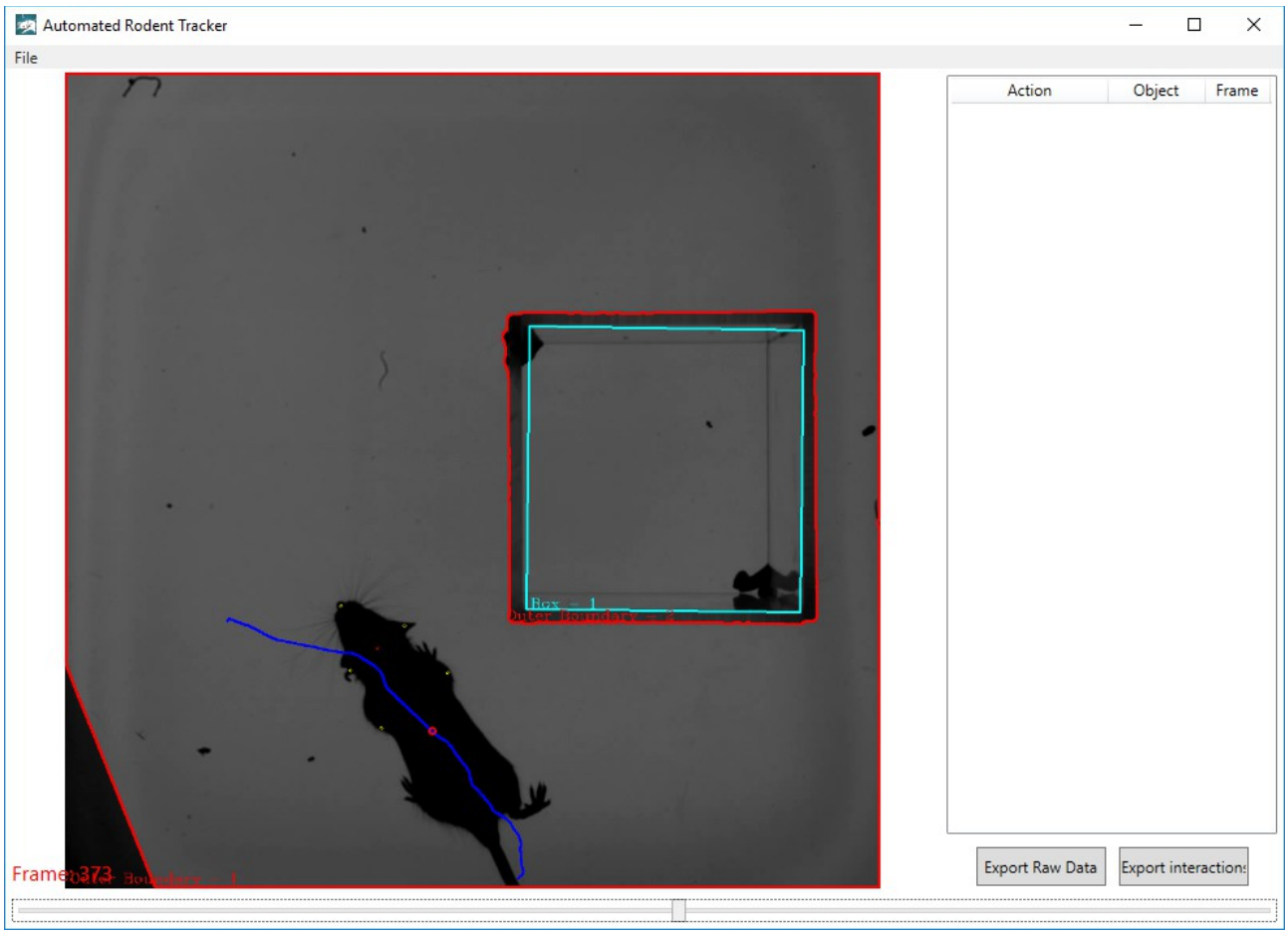

Fig 9 – Result

The result after processing shows the motion track from the center of mass of the rodent, as well as nosetip location.