Contribution ID: **42** Type: **Presentation**

Application of a neural network approach to the task of the arena marking for the behavioral test «Open Field»

Thursday 7 July 2022 14:30 (15 minutes)

In the framework of the joint project of LIT and LRB JINR, aimed to the creation of an information system for the tasks of radiation biology, a module is being developed to study the behavioral patterns of small laboratory animals exposed to radiation. The module for behavioral analysis automates the analysis of video data obtained by testing of the laboratory animals in the different test systems. The «Open Field» installation is one of the systems. The considered installation has a form of round arena with the chequered-marked sectors and holes. The observation procedure on the laboratory animals takes 3-6 minutes. The "Open Field" test-system allows to register the general activity of animals. To this aim, we fix the quantity of passed sectors together with the number of intersections of the marked center. Also, we check how many burrows, standings upright with/without supports, standings still and motions on one place the animals did.

Therefore, one of our tasks is to develop an algorithm for the installation field marking. The report presents the algorithms for the field marking of the «Open Field» test system based on computer vision methods together with the method of key points within the neural network approach.

Agreement to place

Participants agree to post their abstracts and presentations online at the workshop website. All materials will be placed in the form in which they were provided by the authors

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Session Classification: Session 3. Machine learning in Biology and Other Natural Sciences

Track Classification: Track 3. Machine Learning in Natural Sciences