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Development of a system for automated recognition of cell types of the cerebral cortex of small laboratory animals in images of micro-preparations for the subsequent calculation of the neuroglial index

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A model for recognizing neural and glial cells in images of histological sections of the sensor cortex of small laboratory animals obtained using light microscopy has been developed. The model is based on the use of the publicly available YOLOv11 neural network, developed for recognizing objects in images. The neural network was trained on a set of images and high accuracy was achieved on training and verification datasets. The model was then tested on a test dataset, and its effectiveness was 88% for recognizing neural cells and 67% for glial cells. A web shell has been developed for users of the model, which allows them to upload images, analyze them and display their results.

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