

**Abstract:** This thesis is devoted to the development of software for analyzing ultrasound images for the purpose of diagnosing polycystic ovaries. In this work, the research of computer vision tools was carried out and the peculiarities of ovarian polycystic disease diagnosis were studied. An experimental system has been developed that uses a convolutional self-designed neural network and the Grad-Cam visualization method for classifying and detecting polycystic ovaries on ultrasound images. The results of the study showed the effectiveness of the developed system, which allows to automate the diagnostic process and facilitate the rapid and accurate identification of polycystic ovaries from ultrasound data.