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**Advanced Methods of Forecasting the State of Anthropogenic and Natural Ecosystems Using the Artificial Intelligence**

**Abstract:** The report investigates the advanced methods of forecasting the state of the complex natural and anthropogenic ecosystems, such as the marine coastal ecosystems, based on the 3-D models of the aero- hydrophysical and biogeochemical processes, such as spreading the pollutants, airborne dust, aerosols, petroleum products, and formation of zones of hypoxia and anaerobic contamination, storm-surge phenomena, etc. by means of the intelligent information technologies for establishing the initial and boundary conditions according to the space sensing data. The following aspects have been briefly reviewed: building and analysing the models and their numerical implementation methods, as well as methods for recognizing the objects and processing the pictures of space imagery based on the integration of algorithms: neural network and LBP (Locally-Binary Patterns) type, which ensured promptness and increased capability of correct recognition of the boundaries of the low-contrast formations on the surfaces of water bodies (pollutions, plankton populations, etc.) by 2-3 percent compared to the known algorithms available in the Open CV Python library.