

3. Штучний інтелект як інструмент боротьби з дезінформацією. *Детектор media*. URL: <https://detector.media> (дата звернення: 18.03.2026).
4. Lazer D. J. et al. The science of fake news. *Science*. 2018. Vol. 359. P. 1094–1096.

UDC 004.8:004.932

DETECTION OF BEHAVIORAL STATES BASED ON SENSOR DATA USING MACHINE LEARNING

Levchenko. S.S.
lev4enkostanislav@gmail.com
Cherkasy State Business College
Ivanova. I.V.
Cherkasy, Ukraine

The presented work is dedicated to question classifications behavioral states participants based on analysis multimodal data from sensors. This study was implemented within the framework of a specialized English-language Python programming course [1]. A feature teaching was full integration technical English languages in education process: from study documentation machine learning libraries for communication with teachers and colleagues exclusively in English in the language for discussion architecture models and results experiments [2].

Development technologies Internet of Things and mobile devices allows collect big volumes data that much increases efficiency monitoring human activities in medicine, sports and security systems. At the same time complexity structures sensory data creates new challenges in the field processing information and recognition patterns.

In the conditions work on the project «CMI – Kaggle Competition» an analysis was conducted sequences data obtained from accelerometers, sensors rotation and time- of-flight (TOF) sensors. Main task was to predict four types behavior: execution gestures, movement towards the target, holding the hand near goals and state of rest [3].

Among main factors that provided high precision developed systems, you can to highlight the following:

- Using the Random algorithm Forest Classifier, which demonstrated noise immunity in indicators sensors.
- Thorough previous processing data, which included deletion irrelevant or empty values and balancing samples.
- Detection most significant signs, such as indicators orientations and temporary counters sequences.
- Application of multiclass metrics scores (Accuracy, F1-score) for analysis qualities models [4].

An important role in the implementation of the project was played by possession technical in English language, which allowed for effective use global resources, such as the Kaggle platform, and integrate modern deep learning techniques analysis data in your own development. According to the results of testing was achieved high equal accuracy classification (0.92), which confirms efficiency chosen one approach.

In this way you can make conclusion that combination skills Python development from free possession in English language in professional environment is a key factor in successful implementation complex IT projects. Effective recognition behavior requires a comprehensive approach that includes using modern machine learning technologies and constant improve professional competencies specialist.

References:

1. Child Mind Institute. Detect Behavior with Sensor Data. Access mode: <https://www.kaggle.com/competitions/cmi-detect-behavior-with-sensor-data>
2. Python Software Foundation. Random Forest Classification Documentation. Access mode: <https://scikit-learn.org>
3. Breiman L. Random Forests. – Machine Learning, 2001. Vol. 45. P. 5–32.
4. Standard Practice for Signal Processing in Sensor Systems. Gaithersburg: NIST, 2022.