

Modern Psychology Scientific Bulletin, 2024, 2(15)

P-ISSN 2579-2504

E-ISSN 2738-2664

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MODERN PSYCHOLOGY  
SCIENTIFIC BULLETIN

АКТУАЛЬНАЯ ПСИХОЛОГИЯ  
НАУЧНЫЙ ВЕСТНИК

ԵՐԵՎԱՆ 2024, №2 (15)

## FEATURES OF APPLICATION OF MACHINE LEARNING TOOLS FOR PSYCHOLOGICAL ASSESSMENT OF CHILDREN'S DRAWINGS

*Research within the framework of the YSU Grants 2024/25*

*Received: 07.11.2024*

*Revised: 10.11.2024*

*Accepted: 15.11.2024*



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The article presents an analysis of the features of the application of projective methods for testing the psychological state of children, as well as a pilot experiment on the implementation of machine learning tools for the psychological assessment of their drawings. These issues must be considered comprehensively, since most methods of psychological assessment and, in particular, projective technologies impose special requirements for reliability and validity, and also require special training and professional competence for their interpretation. The goal of the research project is to use digitized drawings created by internally displaced children of Nagorno-Karabakh as a tool to identify and assess their psychological state using machine learning methods. We believe that this approach can provide valuable insights into the mental well-being of children affected by the conflict and can serve as a diagnostic tool in times of economic and humanitarian crisis. The proposed feature extraction approach in psychological assessments identifies key visual elements such as object size, color, and spatial relationships that provide insight into emotional and cognitive states. Therefore, the application of machine learning techniques, and in particular feature extraction, classification, clustering, and the use of

large language models (LLMs), offers a transformative approach to the psychological assessment of children's drawings. Using neural networks (NNs) for feature extraction, these models can automatically detect important visual elements such as line intensity, shape proportions, color use, and symbolic objects. This automated extraction reduces the subjectivity and variability associated with traditional manual interpretation, improving the accuracy and scalability of assessments. Furthermore, classification and clustering algorithms provide structured ways to group children's drawings based on similar psychological themes, allowing for more objective analysis.

**Keywords:** *projective method, children's drawings, machine learning tools, large language models, neural networks, psychological assessment.*

**Introduction:** Over the past 30 years, scientific research approaches in psychological diagnostics have been associated with the "simplification" and "acceleration" of obtaining test results through the use of computing technology and digitalization. This trend is permanent, associated with the rapid development of computer technology, operational capabilities of programs and artificial intelligence. At a certain period, this process covered verbal tests and IQ tests, later moving on to projective diagnostics methods. These features of psychological assessment are clearly presented in publications on this topic [30].

These issues cannot be considered one-sidedly, since most methods of psychological assessment and, in particular, projective technologies have special requirements for reliability and validity, and require special training, i.e. professional competence in interpretation. Naturally, the mass character, accessibility, speed of implementation and reliability of processing, and the transition of these techniques to the online space raises many questions, especially ethical ones, which need to be studied and the methodology of computer diagnostics improved.

A historical excursion into the emergence and use of projective methods allows us to evaluate their significant contribution to the acquisition of information with their help both for psychological science and practice, which is associated with a deep understanding of personality. The diversity of projective tests, from the point of view of the methodology of psychological assessment of the structure and measured parameters, indicate that attention should be paid to a specific technique: drawing and childhood. A theoretical analysis of over 250 peer-reviewed articles (mostly from the last 3 years) identified the problem of considering projective tests in research with children. After an aggregated review, the author concluded that projective methods have empirical support for addressing such important clinical issues as the ability to reveal underlying psychodynamics, identify cognitive deficits, and differentiate specific diagnostic groups in children and pediatric populations [4].

An important element of psychological practice is the psychological report, the main purpose of which is to describe and interpret the information collected or discovered in the process of using psychological assessment tests. The authors rightly emphasize that many years of training in psychopathology, interviewing, interpreting psychometric tests, conceptualizing cases, and writing reports are necessary to learn how to interpret and report the results of psychological assessments in a clear, concise, and accurate manner. Lilienfeld, S. O. et al (2000) studied in detail the indicators norms, reliability, validity, incremental validity and treatment utility of three main projective tools (Rorschach and TAT tests and drawings of human figures) summarized the results of a meta-analysis aimed at studying the ability of the main tools of these methods to detect sexual child abuse. The results of this analysis concluded that although some projective instruments were better than chance in detecting child sexual abuse, there was virtually no repeatability of results among independent investigative groups [18].

The article is devoted to the analysis of Kelly's monograph "Psychological Assessment of Abused and Traumatized Children", which describes in detail and empirically confirms the original clinical paradigm for the application and interpretation of indicators of free personality reaction in children who have been abused. In addition to the Rorschach and TAT tests, other methods are added for the psychological assessment of these cases with children. From our point of view, such a universal approach is necessary in studies involving children, since the diversity of projective techniques contributes to the flexibility of diagnosis [32].

The features of psychological assessment of various traumatic effects, the main indicators and their consequences in children are considered in books and scientific articles, which emphasize the relevance of this problem in the context of the situation, the nature and frequency of negative influences, duration, the role of participation in adults and other factors [14].

The experience of using projective methods in research with children has a long history and different approaches depending on age, gender, situation, etc [11]. Analysis of such studies revealed the popularity of some methods of projective techniques, namely, verbal presentation, interpretation of images, associative reactions and, of course, interpretation of drawings [8].

Psychological assessment of children's drawings requires special training, i.e. knowledge of theoretical approaches, basic features, verbalization of symbols, since interpretation has similar difficulties associated with validity. At the same time, it is possible to emphasize the advantages of expressive methods, which are characterized by simplicity of implementation, economy and information content [2]. The authors of the studies emphasize that the specificity of children's drawings is characterized by freedom of self-expression, affective reactions, projection of the inner world, experiences, fears, personality patterns and feelings (Levin-Rozalis, Miri.,2006) [17].

Frequent reference to psychological assessment through children's drawings proves the informativeness of this approach, since this methodology is based on children's spontaneity, associative representations and expression of emotional, social, physical, educational and similar aspects [20]. However, it is important to note that many authors focus on the parameters of reading children's drawings and techniques for their psychological interpretation [1, 21].

Computational methods have gained prominence in psychological diagnostics, improving the speed and reliability of assessments [6, 31]. Children's drawings, traditionally analyzed through subjective projective techniques, are now prime candidates for automation using machine learning due to their time-consuming nature [26].

Advances in deep learning and NLP offer sophisticated tools for visual data analysis, making them applicable to psychological assessments. This paper explores the use of machine learning for analyzing children's drawings, focusing on feature extraction to detect visual patterns, classification and clustering to categorize psychological states, and using large language models (LLMs) to generate interpretable text from images.

Feature extraction in psychological assessments identifies key visual elements like object size, color, and spatial relationships, which offer insights into emotional and cognitive states. Neural networks (NNs), especially convolutional neural networks (CNNs), provide scalable, objective analysis by automating this process [27]. For example, Eitz et al. and Simo-Serra et al. demonstrated the effectiveness of NNs in object detection and feature extraction, which is crucial for assessing children's drawings [7, 28].

Classification models, such as support vector machines and random forests, are used to diagnose mental health conditions like depression by learning from labeled datasets [25]. Clustering, an unsupervised learning technique, identifies subgroups within disorders, providing insights into heterogeneous conditions like depression [5].

The integration of LLMs with vision models (e.g., CNNs, ViTs) enables automatic text generation from visual data, offering structured interpretations of children's drawings. Multimodal models like CLIP and BLIP align visual and language features, allowing for efficient, scalable psychological assessments. LLMs can describe emotional themes in drawings, such as "isolated figures with exaggerated emotions," aiding in quick and detailed analysis. However, challenges around accuracy, bias, and data privacy remain.

In conclusion, machine learning methods such as feature extraction, classification, clustering, and LLMs can enhance the objectivity and efficiency of psychological assessments, providing deeper insights into children's emotional and

cognitive states through their drawings. This paper outlines key methodologies for leveraging these technologies to improve diagnostic processes.

**Applying machine learning to the psychological assessment of children's drawings:** In this section, we outline a practical demonstration of how the methods described—feature extraction, classification, clustering, and large language models (LLMs)—can be applied to the psychological analysis of children's drawings. The following steps provide a clear framework for implementing these techniques in a real-world setting. The first step in analyzing children's drawings is to preprocess the images and extract important visual features. Using a Convolutional Neural Network (CNN), such as VGG16, ResNet, YOLO etc., we can automatically extract key features like objects, object shapes, spatial arrangements, and color usage. The pre-trained CNN is applied to extract meaningful features, such as objects, figure size, line intensity, and object positions, which can indicate underlying psychological conditions (e.g., anxiety, aggression). This automated extraction eliminates the subjective biases of manual analysis, offering a scalable approach to processing large datasets of children's drawings [27, 10, 24].

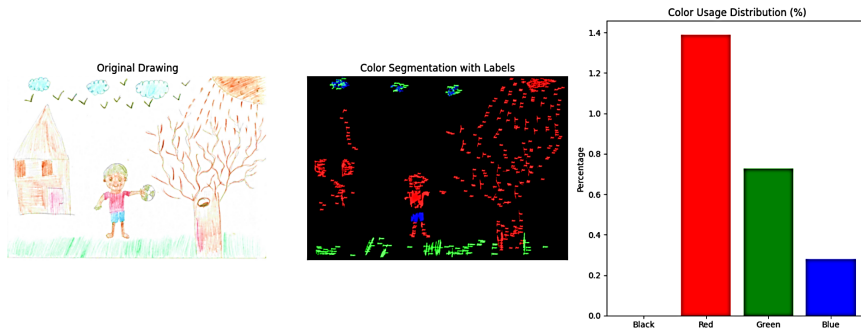
Now let's identify and present examples of the key features that can be extracted using computer vision techniques. As a baseline YOLO drawing dataset and 20 new real-world drawings from children (**Figure. 1**) will be used. For each case we will demonstrate the results of the feature extraction.



**Figure 1** Example of some new children's drawings from real life

These features are related to geometric, symbolic, and technical aspects of children's drawings, which can be relevant for psychological assessments:

**Color Usage:** Black and Red - Often associated with aggression, conflict, or heightened emotional states. Green and Blue - Linked to calmness, security, or contentment NNs or color segmentation algorithms can analyze color usage and dominance in the drawing linking it to the child psychological state [12]. Example of color usage below:



**Figure 2.** Extracting and segmenting key colors from the child drawing

**Stroke and Shading Patterns:** Shading - Heavy shading may signify stress or anxiety. Hatching and Cross-hatching - Can indicate emotional tension, self-control, or frustration. Texture analysis [22] and NNs can detect shading patterns and hatching intensity, identifying areas of the drawing where emotional intensity may be reflected through shading techniques (example below).

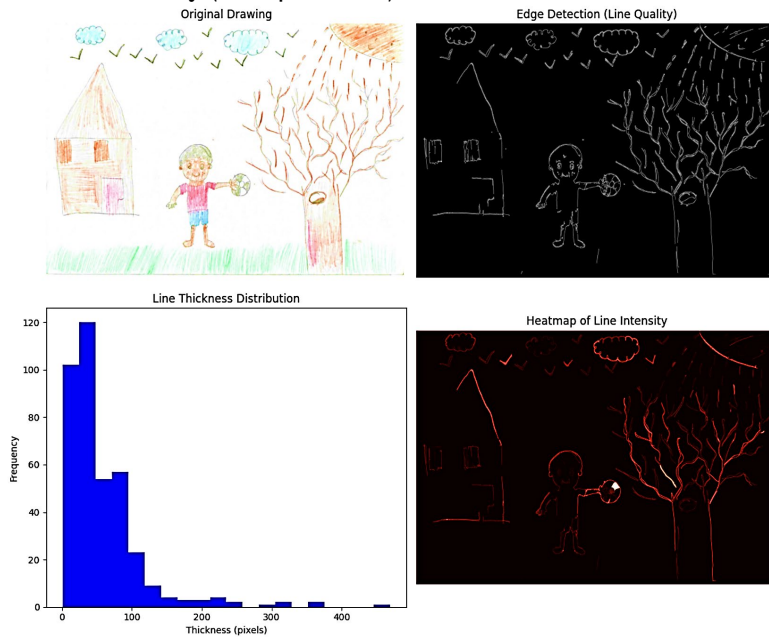


**Figure 3.** Extracting shading patterns and hatching intensity from the child drawing

**Line Quality and Intensity:** Thick Lines - Represents aggressiveness, ambition, or high energy.

Thin or Soft Lines - Indicates uncertainty, fragility, indecisiveness, or low energy. Uneven or Broken Lines: Associated with emotional instability or

impulsiveness. NNs can analyze line thickness, detect breaks, and assess uniformity across the drawing [16]. The edge detection method can be used to quantify line sharpness and continuity (example below).



**Figure 4.** Extracting line quality and intensity from the child drawing

**Geometric Shapes:** Circles - Often represent completeness, unity, or self-centeredness. Squares and Rectangles - Linked to stability, discipline, or boundaries. Triangles - Can symbolize ambition or leadership. Object detection models like YOLO can be used to detect and classify geometric shapes in the drawing. Shape recognition algorithms would help in identifying these specific shapes and associating them with psychological meanings.

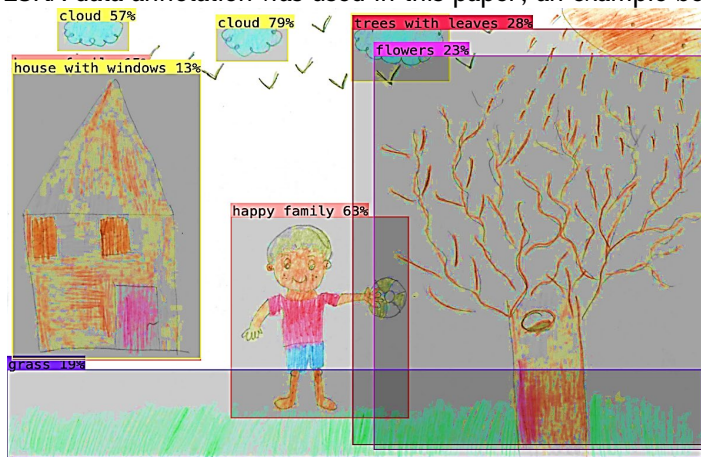


**Figure 5.** Extracting shapes from the child drawing



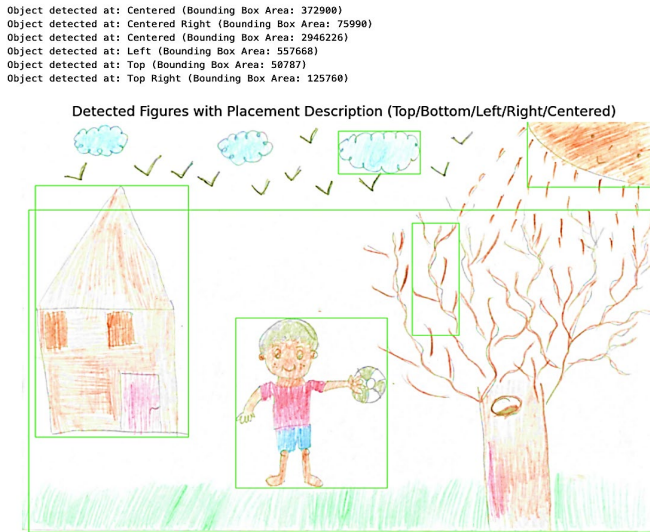
**Figure Size and Proportions:** Large Figures - Reflects self-confidence or ambition, possibly a compensatory behavior. Small Figures - Associated with discomfort, insecurity, or feelings of inferiority. NNs can measure the relative size of figures in comparison to the page and other objects in the drawing [19]. Bounding box algorithms can help in estimating figure sizes (example below).

**Object Detection (e.g., Sun, Trees, and Animals):** Sun or Stars - Often represent positive emotions or aspirations. Trees - Symbolize vitality, growth, or self-perception. Animals - May indicate feelings of fear, vulnerability, or aggression, depending on the type of animal and its posture. Using object detection models like YOLO8 [13], specific objects such as animals, trees, and celestial bodies can be identified and categorized based on their symbolic meanings. Specifically, YOLO8 with ESRA data annotation was used in this paper, an example below:



**Figure 6:** Extracting objects such as animals, trees etc. from the child drawing

**Figure Orientation and Placement:** Centered Figures - Indicates a balanced, confident self-perception. Figures at the Edges - Often reflect withdrawal or social anxiety. Figures Positioned High: Represents optimism or unrealistic aspirations. Spatial analysis tools within NNs or coordinate extraction can be used to determine the placement and orientation of key objects and figures in the drawing, relative to the center or edges of the page.



**Figure 7.** Extracting figure Size and proportion from the child drawing

A significant innovation in this process is the integration of Large Language Models (LLMs) to generate descriptive text based on extracted visual features and contextual prompts from the drawings. Models like CLIP or GPT-3 can transform visual data into coherent, human-readable descriptions. After the neural network (NN) extracts key features from the drawings—such as object shapes, proportions, and spatial arrangements—the LLM generates an interpretation within a psychological framework. For instance, the model might produce a sentence like: "The drawing shows a solitary figure with exaggerated proportions, potentially reflecting feelings of isolation or anxiety".

Moreover, the system can respond to additional prompts or questions to further refine and expand the analysis. In particular, in this work, in addition to the characteristics, 10 questions were also used.

For the generation purpose LLAMA:7b was used for assessing the answer to the question for the drawings discussed before. Particularly for the drawing below answer are enlisted in the table below:

**Table 1.** Extracting the answers from the drawing

Question	Answer
Describe the child drawing, focusing on any visual cues that indicate the child's emotional state.	The child has drawn a small, simple house in the top right corner and a large tree in the center of the image with its branches reaching out towards the bottom right corner. There's a cartoon figure standing in front of the house, seemingly watching it. A bird is flying over the scene. The child has also drawn a small bird flying over the scene, which might symbolize freedom, or an escape from the danger. The tree represents a longing for love and security.
Based on the drawing composition and use of space, what can be inferred about the child's mood or state?	The drawing depicts a child's drawing of a house and a tree. The house is a simple rectangle with a chimney, and the tree is a simple outline with branches. The child has drawn a small figure standing in front of the house, and a bird is flying over the scene. The drawing is simple and lacks detail, suggesting a sense of isolation or loneliness. The child's use of space is minimal, with the house and tree occupying most of the drawing. The overall mood is one of sadness or despair.
How does the child perceive relationships between characters or objects in the drawing, and what does this suggest about their social or emotional connections?	In the child's drawing, there is a house in the background and trees around it. A bird appears to be flying towards or away from the house. There is a figure near the bottom of the drawing, possibly a child or a parent, looking towards the house. The drawing suggests a sense of longing or desire for connection. The child's use of space is minimal, with the house and trees occupying most of the drawing. The overall mood is one of sadness or despair.
Describe the interactions between the figures in the drawing, and what they might indicate about the child's perception of social dynamics.	The drawing depicts a child's drawing of a house and a tree. The house is a simple rectangle with a chimney, and the tree is a simple outline with branches. The child has drawn a small figure standing in front of the house, and a bird is flying over the scene. The drawing is simple and lacks detail, suggesting a sense of isolation or loneliness. The child's use of space is minimal, with the house and tree occupying most of the drawing. The overall mood is one of sadness or despair.
What symbols or objects in the drawing reflect the child's internal emotional state, such as anxiety, fear, or happiness?	The drawing depicts a child's drawing of a house and a tree. The house is a simple rectangle with a chimney, and the tree is a simple outline with branches. The child has drawn a small figure standing in front of the house, and a bird is flying over the scene. The drawing is simple and lacks detail, suggesting a sense of isolation or loneliness. The child's use of space is minimal, with the house and tree occupying most of the drawing. The overall mood is one of sadness or despair.
Describe the child's meaning of recurring objects or themes in the drawing and how they might relate to the child's psychological well-being.	The drawing depicts a child's drawing of a house and a tree. The house is a simple rectangle with a chimney, and the tree is a simple outline with branches. The child has drawn a small figure standing in front of the house, and a bird is flying over the scene. The drawing is simple and lacks detail, suggesting a sense of isolation or loneliness. The child's use of space is minimal, with the house and tree occupying most of the drawing. The overall mood is one of sadness or despair.
How does the use of color and line intensity reflect the emotional state of the child?	The drawing depicts a child's drawing of a house and a tree. The house is a simple rectangle with a chimney, and the tree is a simple outline with branches. The child has drawn a small figure standing in front of the house, and a bird is flying over the scene. The drawing is simple and lacks detail, suggesting a sense of isolation or loneliness. The child's use of space is minimal, with the house and tree occupying most of the drawing. The overall mood is one of sadness or despair.
Describe how the form, structure, and color choices in the drawing suggest specific emotions such as joy, anxiety, or frustration.	The drawing depicts a child's drawing of a house and a tree. The house is a simple rectangle with a chimney, and the tree is a simple outline with branches. The child has drawn a small figure standing in front of the house, and a bird is flying over the scene. The drawing is simple and lacks detail, suggesting a sense of isolation or loneliness. The child's use of space is minimal, with the house and tree occupying most of the drawing. The overall mood is one of sadness or despair.
What cognitive or behavioral patterns can be observed in the drawing, and how might these reflect the child's mental state or developmental level?	The drawing depicts a child's drawing of a house and a tree. The house is a simple rectangle with a chimney, and the tree is a simple outline with branches. The child has drawn a small figure standing in front of the house, and a bird is flying over the scene. The drawing is simple and lacks detail, suggesting a sense of isolation or loneliness. The child's use of space is minimal, with the house and tree occupying most of the drawing. The overall mood is one of sadness or despair.

These generated descriptions can be compiled into structured psychological reports, offering clinicians a detailed, objective assessment of the child's emotional state, supporting more accurate diagnosis and treatment planning.

Once the features are extracted, a supervised learning model can be trained to classify the drawings based on emotional or cognitive categories (e.g., distress, calmness, or developmental delays). In our scenarios where labeled data is unavailable, unsupervised learning methods like clustering can be used to group children's drawings based on visual and text similarities. This allows for the identification of patterns or psychological themes without the need for predefined labels. Psychologists can examine the clusters to detect common psychological themes, such as isolation, fear, or aggression, that emerge across the dataset. Based on the features and text presented in this paper drawings of the child's were clustered using and are presented in the picture below.

This demonstration illustrates the power of combining deep learning, machine learning algorithms, and LLMs to analyze children's drawings in a clinical context. These techniques enable automated, scalable, and objective psychological assessments, reducing the workload for clinicians while improving the accuracy and consistency of diagnoses. By applying these methods, psychological assessments can be conducted more efficiently, providing deeper insights into children's emotional and cognitive states, and allowing for more timely and effective interventions.

**Conclusion:** As demonstrated throughout this paper, the application of machine learning techniques—specifically feature extraction, classification, clustering, and the use of large language models (LLMs)—offers a transformative approach to the psychological assessment of children's drawings. By utilizing Neural Networks (NNs) for feature extraction, these models can automatically detect important visual elements such as line intensity, figure proportions, color usage, and symbolic objects. This automated extraction reduces the subjectivity and variability associated with

traditional manual interpretation, improving the accuracy and scalability of assessments. In addition, classification and clustering algorithms provide structured ways to group children's drawings based on similar psychological themes, allowing for more objective analysis. For instance, clustering can reveal underlying emotional or cognitive states, such as anxiety, isolation, or aggression, even when predefined labels are unavailable. The integration of LLMs further enhances the interpretability of these assessments. By transforming extracted visual features into coherent and contextually relevant descriptions, LLMs can assist psychologists in generating structured reports that offer deeper insights into the child's emotional and cognitive states. These generated descriptions reduce the burden on clinicians while maintaining the richness of psychological interpretation. By automating many aspects of psychological assessment, these technologies provide clinicians with more consistent, reliable, and faster results. As these machine learning methods continue to evolve, their broader adoption in clinical and educational settings could lead to more comprehensive and efficient psychological evaluations, providing timely insights into children's emotional and cognitive development. In particular, the objective analysis of children's drawings using these advanced technologies has the potential to enhance understanding and intervention strategies for various psychological and emotional challenges, ultimately improving outcomes for children in need of psychological support.

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## **ОСОБЕННОСТИ ПРИМЕНЕНИЯ ИНСТРУМЕНТОВ МАШИННОГО ОБУЧЕНИЯ ДЛЯ ПСИХОЛОГИЧЕСКОЙ ОЦЕНКИ ДЕТСКИХ РИСУНКОВ**

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В статье представлен анализ особенностей применения проективных методов для тестирования психологического состояния детей, а также пилотажный эксперимент по внедрению инструментов машинного обучения для психологической оценки рисунков. Эти вопросы необходимо рассматривать комплексно, поскольку большинство методов психологической оценки и, в частности, проективных технологий предъявляют особые требования к надежности и валидности, а также требуют специальной подготовки и профессиональной компетентности для их интерпретации. Целью исследовательского проекта является использование оцифрованных рисунков, созданных внутренне перемещенными детьми Нагорного Карабаха, в качестве инструмента для выявления и оценки их психологического состояния с использованием методов машинного обучения. Мы считаем, что этот подход может дать ценную информацию о психическом благополучии детей, пострадавших от конфликта, и может служить диагностическим инструментом в периоды экономического и гуманитарного кризиса. Предлагаемый подход извлечения признаков в психологической оценке определяет ключевые визуальные элементы, такие как размер объекта, цвет и пространственные отношения, которые дают представление об эмоциональных и когнитивных состояниях. Таким образом, применение методов машинного обучения, и, в частности, извлечения признаков, классификации, кластеризации и использования больших языковых моделей (Large Language Models), предлагает преобразующий подход к психологической оценке детских рисунков. Используя нейронные сети (Neural Networks) для извлечения признаков, эти модели могут

автоматически обнаруживать важные визуальные элементы, такие как интенсивность линий, пропорции форм, использование цвета и символические объекты. Это автоматизированное извлечение снижает субъективность и изменчивость, связанные с традиционной ручной интерпретацией, повышая точность и масштабируемость оценок. Кроме того, алгоритмы классификации и кластеризации предоставляют структурированные способы группировки детских рисунков на основе схожих психологических тем, что позволяет проводить более объективный анализ.

**Ключевые слова:** проективный метод, детские рисунки, инструменты машинного обучения, большие языковые модели, нейронные сети, психологическая оценка.

## ՄԱՆԿԱԿԱՆ ՆԿԱՐՆԵՐԻ ՀՈԳԵՐԱՆԱԿԱՆ ԳՆԱՀԱՏՄԱՆ ՄԵՔԵՆԱՅԱԿԱՆ ՈՒՍՈՒՑՄԱՆ ԳՈՐԾԻՔՆԵՐԻ ԿԻՈՒՐՄԱՆ ԱՌԱՆՁՆԱՀԱՏՎՈՒԹՅՈՒՆՆԵՐԸ

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Հոդվածում վերլուծված են երեխաների հոգեբանական վիճակի ուսումնասիրման պրոյեկտիվ մեթոդների օգտագործման առանձնահատկությունները, ինչպես նաև ներկայացված է նկարների հոգեբանական գնահատման համար մեքենայական ուսուցման գործիքների ներդրման պիլոտաժային փորձ: Այս հարցերը պետք է համակողմանի դիտարկվեն, քանի որ հոգեբանական գնահատման մեթոդների մեծ մասը և, մասնավորապես, պրոյեկտիվ մեթոդիկաները ունեն հուսալիության և վալիդության հատուկ չափանիշներ, ինչպես նաև պահանջում են հատուկ պատրաստվածություն և մասնագիտական իրավասություն դրանց մեկնաբանման համար: Հետազոտական նախագծի նպատակն է օգտագործել թվայնացված նկարները, որոնք ստեղծվել են Լեոնային Ղարաբաղից տեղահանված երեխաների կողմից՝ որպես գործիք՝ բացահայտելու և գնահատելու նրանց հոգեբանական վիճակը՝ օգտագործելով մեքենայական ուսուցման մեթոդները: Մենք կարծում ենք, որ այս մոտեցումը կարող է արժեքավոր տեղեկատվություն տրամադրել կոնֆլիկտներից տուժած երեխաների հոգեբանական բարեկեցության մասին և կարող է ծառայել որպես ախտորոշիչ գործիք տնտեսական և հումանիտար ճգնաժամի



ժամանակ: Հոգեբանական գնահատման ժամանակ հատկանիշի բացահայտման մոտեցումը սահմանում է հիմնական տեսողական տարրերը, ինչպիսիք են օբյեկտի չափը, գույնը և տարածական հարաբերությունները, որոնք պատկերացում են տալիս հուզական և ճանաչողական վիճակների մասին: Այսպիսով, մեքենայական ուսուցման մեթոդների կիրառումը և, մասնավորապես, առանձնահատկությունների դուրսբերումը, դասակարգումը, կլաստերավորումը և Լեզուների մեծ մոդելների օգտագործումը առաջարկում է փոխակերպիչ մոտեցում երեխաների նկարների հոգեբանական գնահատմանը: Օգտագործելով Նեյրոնային ցանցերը՝ առանձնահատկությունների դուրսբերման համար, այս մոդելները կարող են ավտոմատ կերպով հայտնաբերել կարևոր տեսողական տարրեր, ինչպիսիք են գծի ինտենսիվությունը, ձևի համամասնությունները, գույների օգտագործումը և խորհրդանշական առարկաները: Այս ավտոմատացված պրոցեսը նվազեցնում է ավանդական ձեռքով մեկնաբանության հետ կապված սուբյեկտիվությունը և փոփոխականությունը՝ բարձրացնելով գնահատումների ճշգրտությունն ու մասշտաբայնությունը: Բացի այդ, դասակարգման և կլաստերավորման ալգորիթմները տրամադրում են երեխաների նկարները խմբավորելու կառուցվածքային եղանակներ՝ հիմնված նմանատիպ հոգեբանական թեմաների վրա, ինչը թույլ է տալիս ավելի օբյեկտիվ վերլուծություն իրականացնել:

**Հանգուցային բառեր՝** պրոյեկտիվ մեթոդ, մանկական նկարներ, մեքենայական ուսուցման գործիքներ, մեծ լեզվի մոդելներ, նեյրոնային ցանցեր, հոգեբանական գնահատում:

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