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METHOD FOR ENCODING A DYNAMIC VIDEO RESOURCE TO INCREASING ITS BIT RATE

In the article grounded presence impressionable factors in relation to the loss of general efficiency of information technology of treatment and transmission of dynamic videoresource, that results in the decline of level of semantic integrity and availability of information. It is rotined that such factors touch the following: in the process of forming of code values for the aggregate of position co-ordinates of splyn frames there can be cases of repletion of the set length of code combination; there is a requirement in the additional forming of amount of bats of official information, namely on the additional use of markers: location of sequences of position co-ordinates which code values are formed for; between the code constructions of nearby aggregate of position co-ordinates. The basic stages of creation of technological conception of integration of the created methods of treatment of V-R of shots are expounded in information technology of treatment and transmission of dynamic videos of resources, which is based on the removal of vulnerable factors of loss of efficiency of functioning of ITOPDV on the basis of the created recurrent technology of encoding of variable aggregate of position co-ordinates to the OFC-thensor in the bipolar mixed multiadical space on the basis of property of independence of gravimetric coefficients.

Keywords: *dynamic video resource, integrity and availability of information, encoding of provided frames, redundancy of video images.*

Introduction

General problem statement. Increasing the efficiency of management systems for the functioning of critical infrastructure objects is due to the provision of the required quality of video information support. For the first time, it concerns the need for the use of dynamic video resources services. For this purpose technological platforms of the MPEG and H26X family are used. Here are the most widespread technologies H264, H265 and H266 [7–22].

Such technological concepts have a key general component relating to the processing of the sequence of predicted frames (type B-p) and their separate blocks in the spectral-differentiated space. Here, the basic principle is the use of a local position-differentiated framework of personnel processing in a CT-structure, depending on their type in the flow and level of compromise between the level of semantic integrity and information availability. In such a concept, a local position-differentiated principle of frameworks in the CT-structure is implemented, depending on the type of frame in the stream.

At the same time, there is a need to improve the efficiency of the functioning of processing and transmitting dynamic video resources. This situation is characterized by the availability of urgent issues of research, which is dictated by the presence of imbalance. On the one hand, it is a requirement to increase the availability and integrity of providing video information services, which leads to an increase in their information intensity. On the other hand, the presence of a number of restrictions [11–25]. Such restrictions relate to the characteristics of infocommunication technologies, including those using a wireless data tract. This becomes particularly critical in case of need to implement a video information interaction or organization of collecting video information from remote sensors, and in the presence of information counteraction.

Analysis of the recent research and publications. One of the main one-dimensional transform-differential (TD) blocks coding technologies for standardized ITOPK H26* families has consisted of structured splines S making of zeroes level (SSZL). There is D-value defined as a factor of correction with an eyes-based model of video perception, u -index of spline position in TD block. Zero order structural spline $S(\tau;\delta)_{u,\chi,\gamma}$ for $(\chi;\gamma)$ TD-block τ frame in CT-structure formed on the basis of the use of the bases of allocation of meaningful components $z(\tau;\delta)_{u,\chi,\gamma}$

and accordingly lengths $\ell(\tau;\delta)_{u,\chi,\gamma}$ sequences of the insignificant components TD-block.

Sources analysis shows that technologies of totality processing $L(T-1)_{\chi,\gamma}$ positional coordinates that describe the length of non-significant components TD blocks, have certain problem imperfections:

1. Dependence of the level of intensity of the bit description of the encoded collections of positional coordinates relative to the indicator of statistical (probabilistic) uncertainty.

Statistical characteristics of positional coordinates depend on:

- the limits of individual frames from the informativeness of the structural and semantic content of video frames blocks and the level of integrity losses during the quantization of their component;

- direction of sequence of frames from the rate of content change in the sequence of frames.

At the same time, the next features are allocated:

- In the first case for blocks B-P frames there is a heterogeneity of the information load, that is, the heterogeneity of the distribution of the weight of structural and semantic content. Consequently, systems of information support for the functioning of critical infrastructure objects increases the number of blocks in depicted, which is inherent in the presence of a high level of informativity on structural and semantic content;

- In the second case, in terms of control and management of dynamic systems, a quick change in the current situation will be characteristic. Where does the rate of change of structural-semantic content increases between frames in sequence.

This leads to an increase in uncertainty from the position of assessing the informativeness of positional coordinates according to statistical properties. Therefore, in defined cases, the effectiveness of statistical coding methods of positional coordinates differs sharply.

Aim of the Research. There is a need to improve information technology for encoding and transferring stream of dynamic video resources to reduce bit intensity. Such an improvement is proposed to be carried out in the direction of creating new methods and information technology for processing a series of frames.

Statement of basic materials

Developing of encoding the sequence of predicted frames method

To do this, a method of encoding aggregate-stems of positional coordinates of tensors for the sequence of predicted personnel is being developed. The main stages of such a method of field-grab in the next.

Representation of positional coordinates $\ell'(\tau;\delta)_{u',\chi,\gamma}$ in accordance u' row $L(\delta)_{u',\chi,\gamma}$ OFS Tensor $L'(T-1)_{\chi,\gamma}$ sequence B-P frames in a difference multi space spacious with the use of the following expressions:

1) founding dynamic ranges $\overline{d(\ell)}_u^{(\chi,\gamma)}$ of vectors $L(\delta)_{u',\chi,\gamma}$ of normalized offs-tensor $L'(T-1)_{\chi,\gamma}$ In a difference multi-spacious space. To do this follow the following action: $\overline{d(\ell)}_u^{(\chi,\gamma)} = \ell'(\delta)_{u,\chi,\gamma}^{(\max)} - \ell'(\delta)_{u,\chi,\gamma}^{(\min)} + 1$, $u = \overline{1, U(\chi,\gamma)}$, where $\overline{d(\ell)}_u^{(\chi,\gamma)}$ - Dynamic range in difference multi-spacious space for u row $L'(\delta)_{u,\chi,\gamma}$ of block $L'(T-1)_{\chi,\gamma}$, considering on value $\ell'(\delta)_{u',\chi,\gamma}^{(\min)}$;

2) the conversion of the values of positional coordinates is carried out $\ell'(\tau;\delta)_{u',\chi,\gamma}$ from absolute to a difference multi space. For what, in accordance of $\ell'(\tau;\delta)_{u',\chi,\gamma} > \ell'(\delta)_{u',\chi,\gamma}^{(\min)}$, the following math operations are performed: $\overline{\ell'(\tau;\delta)}_{u',\chi,\gamma} = \ell'(\tau;\delta)_{u',\chi,\gamma} - \overline{d(\ell)}_u^{(\chi,\gamma)}$, $u = \overline{1, U(\chi,\gamma)}$.

In this formula value $\overline{\ell'(\tau;\delta)}_{u',\chi,\gamma}$ is a positional coordinate NOFS-tensor in difference multi-space.

Consequently, after performing these technological stages, we obtain a description of the normalized outfit tensor in a mixed multico space. This is based on the next expression system regarding the determination of the basis $g(\ell)_u^{(\chi,\gamma)}$ mixed multi space:

– for the base system:

$$g(\ell)_u^{(\chi,\gamma)} = \begin{cases} d(\ell)_u^{(\chi,\gamma)}, \to d(\ell)_u^{(\chi,\gamma)} \underset{u\to 1}{\to} 0; \\ \overline{d(\ell)}_u^{(\chi,\gamma)}, \to \ell'(\delta)_{u',\chi,\gamma}^{(\min)} \underset{u'\to U(\chi,\gamma)}{>>>} 1; \end{cases} \quad (1)$$

– for items $\rho(\tau;\delta)_{u',\chi,\gamma}$ mixed multi space:

$$\rho(\tau;\delta)_{u',\chi,\gamma} = \begin{cases} \ell'(\tau;\delta)_{u',\chi,\gamma}, \\ \to g(\ell)_u^{(\chi,\gamma)} = d(\ell)_u^{(\chi,\gamma)}; \\ \ell'(\tau;\delta)_{u',\chi,\gamma} - \ell'(\delta)_{u',\chi,\gamma}^{(\min)}, \\ \to g(\ell)_u^{(\chi,\gamma)} = \overline{d(\ell)}_u^{(\chi,\gamma)}. \end{cases}$$

In common, the presentation of positional coordinates as elements $\Delta\rho(\tau;\delta)_{u',\chi,\gamma}$ of block $L'(T-1)_{\chi,\gamma}$ In terms of taking into account the two options, the index is described by the following ratio:

$$\Delta\rho(\tau;\delta)_{u',\chi,\gamma} = |\ \rho(\tau;\delta)_{u',\chi,\gamma} - (g(\ell)_u^{(\chi,\gamma)} - 1)(1 - sign(1 + sign((g(\ell)_u^{(\chi,\gamma)} - \rho(\tau;\delta)_{u',\chi,\gamma} - 1) - \rho(\tau;\delta)_{u',\chi,\gamma})))\ |.$$

$\Delta\rho(\tau;\delta)_{u',\chi,\gamma}$ – positioning coordinate block $L'(T-1)_{\chi,\gamma}$ in mixed multi space in condition of taking into account two options started by their indexing.

In this case, the system is based on mixed multi

space remains unchanged, and is given by a system of expressions (1).

So consider the option when the following values are known, namely the position coordinate $\Delta\rho(\tau;\delta)_{u',\chi,\gamma}$ normalized block $L'(T-1)_{\chi,\gamma}$ mixed multi space in the coditions of taking into account two poles beginning of their indexing and the system is based on $g(\ell)_u^{(\chi,\gamma)}$ mixed multi space (MMS). Then the basic technology of forming a code value $E(L'(\tau;\delta)_{\chi,\gamma})$ For a sequence of modified positional coordinates $L'(T-1)_{\chi,\gamma}$ normalized single-element frames of the split sequence B-P frames in two polar mixed multi space under processing in the direction of frames (block columns $L'(T-1)_{\chi,\gamma}$) is given by the following expression:

$$E(L'(\tau;\delta)_{\chi,\gamma}) = \sum_{u'=1}^{U(\chi,\gamma)} \Delta\rho(\tau;\delta)_{u',\chi,\gamma} \times \times \prod_{k=u'+1}^{U(\chi,\gamma)} g(\ell)_k^{(\chi,\gamma)} \cdot \Delta Q(\Delta\rho(\tau;\delta)_{k,\chi,\gamma}). \quad (2)$$

In this expression code value is formed for all the column $L'(\tau;\delta)_{\chi,\gamma}$ block $L'(T-1)_{\chi,\gamma}$, and the value $\Delta Q(\Delta\rho(\tau;\delta)_{k,\chi,\gamma})$ denoted as a variable component of a weight-based coefficient element ... In general, the application $\Delta Q(\Delta\rho(\tau;\delta)_{k,\chi,\gamma})$ to weight is determined by the following functionality, namely:

$$\Delta Q(\Delta\rho(\tau;\delta)_{k,\chi,\gamma}) = = F(u';\omega;(\omega-u');D(\ell)_u^{(\chi,\gamma)};\overline{D(\ell)}_u^{(\chi,\gamma)}). \quad (3)$$

Functional $F(u';\omega;(\omega-u');D(\ell)_u^{(\chi,\gamma)};\overline{D(\ell)}_u^{(\chi,\gamma)}$ In general, it depends on the following parameters (specification of the process of forming weight coefficients of positional coordinates $\ell'(\tau;\delta)_{u',\chi,\gamma}$ while forming a code value in two mixed multi space).

Developing of encoding a dynamic video source method in conditions for the elimination of vulnerable facts of loss of integrity and impact information

Analysis of expressions (2) and (3) respectively for the knowledge of code values $E(L'(\tau;\delta)_{\chi,\gamma}^{(\omega)})$, Shows that in the process of encoding there may be such vulnerable factors that affect the overall efficiency of information technology processing and transfer (ITPT) and lead to the loss of information without a pitch of video resources according to such categories as: dosducts and semantic integrity. Here you need to include the following factors:

1) There is a proportional relationship between variables value $E(L'(\tau;\delta)_{\chi,\gamma}^{(\omega)})$ and the number of items, for which they are built, i.e.: $E(L'(\tau;\delta)_{\chi,\gamma}^{(\omega)}) \sim \omega$.

From where to add each item on-the processing steps may occur cases of conversion of a given length V_{proc} a code combination established in ITPT, that is:

$$[\ell og_2 E(L'(\tau;\delta)_{\chi,\gamma}^{(\omega)})]+1 \le V_{proc}; \quad (4)$$

2) the code values $E(L'(\tau;\delta)_{\chi,\gamma}^{(\omega)})$ forming for block colors $L'(T-1)_{\chi,\gamma}$, then:

– their elements $\Delta\rho(\tau;\delta)_{u',\chi,\gamma}$ determined unevenly relative to the two fields of the codewarning indexing;

– system $G(\ell)_u^{(\chi,\gamma)} = \{g(\ell)_u^{(\chi,\gamma)}\}$ the basics of elements $\Delta\rho(\tau;\delta)_{u',\chi,\gamma}$ describes mixed multi space, and therefore is uneven. From where the values of weight coefficients will also be uneven for the growth of their values. That is, the speed of increasing values of weight coefficients is an uneven-noise.

Taking into account these circumstances can be argued that the number of items ω, for which a single codeword is formed $E(L'(\tau;\delta)_{\chi,\gamma}^{(\omega)})$ will be uneven, that is: if one for two codes $E(L'(\tau;\delta)_{\chi,\gamma}^{(\omega_1)})$ and $E(L'(\tau;\delta)_{\chi,\gamma}^{(\omega_2)})$ The requirement for restrictions on to-consign them codograms will be executed:

$$[\ell og_2 E(L'(\tau;\delta)_{\chi,\gamma}^{(\omega_1)})]+1 \le V_{proc};$$
$$[\ell og_2 E(L'(\tau;\delta)_{\chi,\gamma}^{(\omega_2)})]+1 \le V_{proc}.$$

But on the other hand in the general case between the ranks ω_1 and ω_2 There will be inequality: $\omega_1 \ne \omega_2$, that is the number of items ω_1 and ω_2, that belongs according to code value $E(L'(\tau;\delta)_{\chi,\gamma}^{(\omega_1)})$ та $E(L'(\tau;\delta)_{\chi,\gamma}^{(\omega_2)})$ will be different.

In this case, there will be a need for Marweathering items in the block $L'(T-1)_{\chi,\gamma}$, for which the corresponding code values are formed. For example, there is a need for a marked co-ordinate location of the initial or end elements of each sequence $L'(\tau;\delta)_{\chi,\gamma}^{(\omega)}$.

Such a factor will lead to the need to use position markers. Where is the need for an additional formation of the amount of service data. This, in turn, lead to an increase in the bit intensity of the code representation of the flow of video frames, and therefore to the loss of information availability.

Here, under additional official information, such information is understood that do not use directly in the formation of codes;

3) length $[\ell og_2 E(L'(\tau;\delta)_{\chi,\gamma}^{(\omega)})]+1$ Codograms for binary representation of the corresponding code values although it is even within processing of positional coordinates $L'(T-1)_{\chi,\gamma}$ normalized frame-splashing tensor (NFS).

This is due to the need to perform the condition (4). That is, in the process of formation of codograms, a concept of locally uniform determination of their lengths is used. However, these lengths $[\ell og_2 E(L'(\tau;\delta)^{(\omega)}_{\chi,\gamma})]+1$ In the conditions of reaching inequality (4) will be unevenly uneven relative to the lengths of codograms of other aggregates of positional coordinates $L'(T-1)_{\alpha,\beta}$ within the same sequence B-P frames. Namely:

$$[\ell og_2 E(L'(\tau;\delta)^{(\omega)}_{\chi,\gamma})]+1 \neq [\ell og_2 E(L'(\tau;\delta)^{(\omega')}_{\alpha,\beta})]+1,$$

where $[\ell og_2 E(L'(\tau;\delta)^{(\omega)}_{\chi,\gamma})]+1$, $[\ell og_2 E(L'(\tau;\delta)^{(\omega')}_{\alpha,\beta})]+1$ - The length of codograms that are formed as basic-led to the blocks $L'(T-1)_{\chi,\gamma}$ та $L'(T-1)_{\alpha,\beta}$.

Therefore, there is a need to use additional marker variages between code designs of neighboring aggregates of positional coordinates $L'(T-1)_{\chi,\gamma}$.

Therefore, the purpose of scientific and applied research is the created method of coding based on a two-pole milthiadic representation of positional coordinates NFS-Sequence tensor B-P frames taking into account the need to exclude cases of uncontrolled loss of integrity and availability of information.

To eliminate the factors of the encoding process B-P Frames in ITPT the next is offered:

1. Creating the necessary condition. First, it is proposed to be used in the process of forming a value $E(L'(\tau;\delta)^{(\omega)}_{\chi,\gamma})$ a recurrent expression. In order to obtain recurrent encoding technology in two-pole mixed multi space we will carry out the following transformations.

Write the expression (3) to determine the code $E(L'(\tau;\delta)^{(\omega)}_{\chi,\gamma})$ in case of separating the weight component

$$\Delta\rho(\tau;\delta)_{u',\chi,\gamma} \prod_{k=u'+1}^{u'+\omega-1} g(\ell)^{(\chi,\gamma)}_k \times$$

$$\times F(u';\omega;(\omega-u');D(\ell)^{(\chi,\gamma)}_u;\overline{D(\ell)}^{(\chi,\gamma)}_u)$$

for an older element, that is:

$$E(L'(\tau;\delta)^{(\omega)}_{\chi,\gamma}) = \sum_{k=u'}^{u'+\omega-1} \Delta\rho(\tau;\delta)_{k,\chi,\gamma} \prod_{k=u'+1}^{u'+\omega-1} g(\ell)^{(\chi,\gamma)}_k \times$$

$$\times F(u';\omega;(\omega-u');D(\ell)^{(\chi,\gamma)}_u;\overline{D(\ell)}^{(\chi,\gamma)}_u) =$$

$$= \Delta\rho(\tau;\delta)_{u',\chi,\gamma} \prod_{k=u'+1}^{u'+\omega-1} g(\ell)^{(\chi,\gamma)}_k \times$$

$$\times F(u';\omega;(\omega-u');D(\ell)^{(\chi,\gamma)}_u;\overline{D(\ell)}^{(\chi,\gamma)}_u) +$$

$$+ \sum_{k=u'-1}^{u'+\omega-1} \Delta\rho(\tau;\delta)_{k,\chi,\gamma} \prod_{k=u'}^{u'+\omega-1} g(\ell)^{(\chi,\gamma)}_k \times$$

$$\times F(u';\omega;(\omega-u'+1);D(\ell)^{(\chi,\gamma)}_u;\overline{D(\ell)}^{(\chi,\gamma)}_u).$$

In this case, the last component in this formula is the code value $E(L'(\tau;\delta)^{(\omega-1)}_{\chi,\gamma})$, that is formed for $(\omega-1)$ next element:

$$E(L'(\tau;\delta)^{(\omega-1)}_{\chi,\gamma}) = \sum_{k=u'-1}^{u'+\omega-1} \Delta\rho(\tau;\delta)_{k,\chi,\gamma} \times$$

$$\times \prod_{k=u'}^{u'+\omega-1} g(\ell)^{(\chi,\gamma)}_k F(u';\omega;(\omega-u'+1);D(\ell)^{(\chi,\gamma)}_u;\overline{D(\ell)}^{(\chi,\gamma)}_u).$$

Taking into account the latest ratio, we obtain such a recurrent expression:

$$E(L'(\tau;\delta)^{(\omega)}_{\chi,\gamma}) = \Delta\rho(\tau;\delta)_{u',\chi,\gamma} \prod_{k=u'+1}^{u'+\omega-1} g(\ell)^{(\chi,\gamma)}_k \times$$

$$\times F(u';\omega;(\omega-u');D(\ell)^{(\chi,\gamma)}_u;\overline{D(\ell)}^{(\chi,\gamma)}_u) +$$

$$+ E(L'(\tau;\delta)^{(\omega-1)}_{\chi,\gamma}).$$

Therefore, an expression for recurrent techno-logics encoding a variable set of positional coordinates NFS-tensor in two-way mixed multi space Based on the properties of the independence of weight coefficients. This gives you the ability to control a variable value $E(L'(\tau;\delta)^{(\omega)}_{\chi,\gamma})$. Regarding the implementation of the requirement (4) by checking the acceptance of the addition of the next element to the process of forming the code value. Consequently, the recurrent coding technology is a non-routine condition for the exclusion of vulnerable factors in the process of dynamic processing of video frames. For a sufficient condition, it is necessary to create a technological mechanism of responding condition (4).

2. Building a sufficient condition. For this second, it is necessary to develop such a rule for controlling the elements of elements in the process of encoding and decoding code values $E(L'(\tau;\delta)^{(\omega)}_{\chi,\gamma})$, as well as determination of length $[\ell og_2 E(L'(\tau;\delta)^{(\omega)}_{\chi,\gamma})]+1$ code combinations for their binary presentation, for which the need for applications is excluded.

To do this, it is proposed to use the properties of the milthiadic representation, namely the presence of the upper bounds for code values in a mixed multi space, and its dependence exclusively from the system $\mathrm{G}(\ell)^{(\chi,\gamma)}_{\mathrm{u}} = \{\mathrm{g}(\ell)^{(\chi,\gamma)}_{\mathrm{u}}\}$ the basics. This has such a math description:

$$E(L'(\tau;\delta)^{(\omega)}_{\chi,\gamma}) < g(\ell)^{(\chi,\gamma)}_{u'} \prod_{k=u'+1}^{u'+\omega-1} g(\ell)^{(\chi,\gamma)}_k \times \quad (5)$$

$$\times F(u';\omega;(\omega-u');D(\ell)^{(\chi,\gamma)}_u;\overline{D(\ell)}^{(\chi,\gamma)}_u).$$

Here $g(\ell)^{(\chi,\gamma)}_{u'} \prod_{k=u'+1}^{u'+\omega-1} g(\ell)^{(\chi,\gamma)}_k \times$

$\times F(u';\omega;(\omega-u');D(\ell)^{(\chi,\gamma)}_u;\overline{D(\ell)}^{(\chi,\gamma)}_u)$ – The value equal to the number of permissible posts in length ω elements in a built two-way mix of multicolored space. In this case, as follows from the analysis of an expression (5), to obtain the upper bounds of the code value $E(L'(\tau;\delta)^{(\omega)}_{\chi,\gamma})$ Need only information that is used directly in the process of its formation. Taking into account the condition (5) you can without the use of additional service information:

– First to ensure the control of values of values $E(L'(\tau;\delta)^{(\omega)}_{\chi,\gamma})$ At each step of encoding a sequential-stem position coordinate(*To do this, only you need to apply recurrent-element technology for constructing code values in a two-way mixed multi space*);

– secondly set the position of the location of the code-exhang structures of adjacent blocks $L'(T-1)_{\chi,\gamma}$, that is for code designs of positional co-dynoth of adjacent frames of split tenses.

Thus, the use of two technological principles created, namely: regarding the recreational elemental formation of code value in a two-polite mixed multico-named space and mechanism for determining the lengths of codograms based on the application of information on the system of bases $G(\ell)^{(\chi,\gamma)}_{u} = \{g(\ell)^{(\chi,\gamma)}_{u}\}$, allows you to eliminate the indicated vulnerability factors to lose accessibility and semantic integrity of the video.

Conclusions

1. The technological concept of processing the sequence of predicted personnel has been developed, as a component of the information technology of processing and transmitting dynamic video resources, based on the elimination of vulnerable factors for the loss of efficiency of the functioning of the ITPT based on the development of recurrent technology of encoding a variable set of positional coordinates of the NFS-tensor in a two-way mixed multi-media space based on the properties. Independence of weight coefficients.

2. The created approach to encoding the sequence of frames in the types provides an increase in the efficiency of the functioning of the information technology of processing and transmitting dynamic video resources. Namely: reduce time delays for delivery of dynamic video resources real-time service resources by an average of 17 - 23% depending on the type of information content; Increase the integrity of the information, which, from the point of view of the valuation of the peak signal/noise ratio is 19%.This provides: the ability to control the code values by checking the acceptance of the next element to the formation of the code value; control of code values at each step of encoding the sequence of positional coordinates; Installation of the position of the code structures of adjacent TD blocks.

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МЕТОД КОДУВАННЯ ДИНАМІЧНОГО ВІДЕОРЕСУРСУ ДЛЯ ПІДВИЩЕННЯ ЙОГО БІТОВОЇ ШВИДКОСТІ

Н.В. Бараннік, В.В. Хіменко, М.В. Пархоменко, О.В. Слободянюк, Г.В. Хаханова

В статті обґрунтовано наявність вразливих факторів відносно втрати загальної ефективності інформаційної технології обробки та передачі динамічного відеоресурсу, що призводе до зниження рівня семантичної цілісності та доступності інформації. Показано, що такі фактори стосуються наступного: в процесі формування кодових значень для сукупності позиційних координат сплайнових фреймів можуть виникати випадки переповнення заданої довжини кодової комбінації; виникає потреба у додатковому формуванні кількості біт службових даних, а саме на додаткове використання маркерів: розташування послідовностей позиційних координат, для яких формуються кодові значення; розмежувачів між кодовими конструкціями сусідніх сукупностей позиційних координат. Викладаються основні етапи створення технологічної концепції інтегрування створених методів обробки B-P кадрів в інформаційну технологію обробки та передачі динамічних відео ресурсів, яка базується на усунення вразливих факторів втрати ефективності функціонування ІТОПДВ на основі розроблення рекурентної технології кодування змінної сукупності позиційних координат ОФС-тензору в двополюсному змішаному мультіадичному просторі на основі властивості незалежності вагових коефіцієнтів.

***Ключові слова**: динамічний відео ресурс, цілісність та доступність інформації, кодування передбачених кадрів, надмірність відеозображень.*

МЕТОД КОДИРОВАНИЯ ДИНАМИЧЕСКОГО ВИДЕОРЕСУРСА ДЛЯ ПОВЫШЕНИЯ ЕГО БИТОВОЙ СКОРОСТИ

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В статье обосновано наличие уязвимостей факторов относительно потери всеобщей эфективности информационной технологии обработки и передачи динамического видеоресурса, что приводит к снижению уровня семантичной целостности и доступности информации. Показано, что такие факторы касаются следующего: в процессе формирования кодовых значений для совокупности позиционных координат сплайновых фреймов, могут возникать случаи переполнения заданной длины кодовой комбинации; возникает потребность в дополнительном формировании количества бит служебных данных, а именно на дополнительное использование маркеров: расположение последовательностей позиционных координат, для которых формируются кодовые значения; разграничитель между кодовыми конструкциями соседних совокупностей позиционных координат. Излагаются основные этапы создания технологической концепции интеграции созданных методов обработки B-P кадров в информационную технологию обработки и передачи динамических видео ресурсов, основанная на устранение уязвимых факторов потери эффективности функционирования ИТОПДВ на основе разработки рекуррентной технологии кодирования переменной совокупности позиционных координат ОФС-тензора в двухполюсном смешанном мультиадичном пространстве на основе свойства независимости весовых коэффициентов.

***Ключевые слова:** динамический видео ресурс, целостность и доступность информации, кодирование предусмотренных кадров, избыточность видеоизображений.*