Integration and development path of maker culture and college student culture

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Abstract. In order to improve the effectiveness of research on integration of maker culture and college students culture, this paper proposes a research method based on the fuzzy comprehensive evaluation method to integrate and develop the maker culture and college student culture. Firstly, the fuzzy comprehensive evaluation method is specifically applied into the comprehensive evaluation research on integration of maker culture and college students culture based on the fuzzy mathematics theory, the maker culture evaluation system is divided into several indicators as required by combining with the actual development of college students culture, and the factor set, evaluation set, membership function and weight set are established, so as to comprehensively evaluate the college students culture development and quality grade of maker culture. The weight set of evaluation is calculated in the analytic hierarchy process and the maximum membership principle for the maxi-min algorithm and the evaluation result is improved, which results in better effect. Finally, the effectiveness of the proposed algorithm is analyzed and verified through simulation experiment.

Key words. Maker culture, College, College student culture, Integration, Fuzzy comprehensive evaluation.

1. Introduction

In the context of the Internet, the main part of cultural innovation is not limited to enterprises and research institutions but to involve every individual with the innovation will and ability, which is the main background of "makers". "Makers" is expressed as "Chuangke" in Chinese, which is explained as "a group of people who love science and technology and go in for practice" in Wikipedia. In fact, every person who carries on and participates in the creation can be called a "maker". The "makers" combine their hobbies and careers to turn their creativity, designs and ideas into real products. This is an innovative era and the times for "makers".

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Zhang Ruimin mentioned in his "Letters to Makers, " our era has entered a times that "everyone can be a maker". The Obama administration in the United States announced in 2012 that it would introduce "Maker Space" to 1,000 American schools in 2012. In China, Premier Li Keqiang inspected Shenzhen "Chaihuo Maker Space" in January 2015 and then the word "makers" was included into 2015 China Government Work Report.

It is in favor of motivation of labour enthusiasm for scientific and technical worker and creation of a good innovative maker culture and innovative culture atmosphere that "makers" education is carried out, "makers" culture is cultivated, "makers" culture construction is included into cultural strategy, science and technology strategy and social construction, and makers movement is promoted vigorously. In the process of practice, the "makers" culture shall be promoted comprehensively in cultivation of main part, carrier creation, platform construction, capital investment, policy support and other aspects to form a pattern that everyone loves creation, is good at creation and becomes a "maker" finally, so as to further promote the mass entrepreneurship and innovation at a higher level to a deeper extent. Under the guidance of the "double creation" strategy of the Party Central Committee, many "makers spaces" and "mass innovation spaces" occur, and the occurrence of "makers space" greatly lower the threshold of innovation and the main part of creation is no longer limited to scientific research personnel. However, there are also many situations such as "more stage, fewer actors" ("more space" and fewer "makers"). In particular, there is fewer "maker spaces" with innovation consciousness, ability and quality, and some people even create "makers spaces" to make a fast buck and cheat with partners for subsidy. The reason for above phenomenon and issue is the current lack of "makers" education which is for the purpose to cultivate the "maker" sprit and culture. Therefore, in the long run, cultivation of "maker" culture shall be started from the "makers" education, especially from the basic education, so as to train the "maker" talent based on the "makers" education. "Makers education is an effective path to improve the innovation ability and train the innovative talent", the education and teaching mode dominated by the score can be changed fundamentally and the innovative talent with innovation consciousness, ability and thinking can be trained by means of "makers" education. A unified talent education model is not conducive to a person to play his creativity, and the "makers" education shall be throughout the education system at all levels, that is, the education concept shall be reformed and improved from the family, school and social levels to mobilize social forces and private capital investment into "makers" education to cultivate and train the main part of "makers".

The main purpose of this paper is to study the integration and development of college students culture in the college with maker culture, the integration effect of maker culture and college students culture are comprehensively evaluated herein with the fuzzy evaluation method, and the comprehensive measures for integration and development of the college students culture in the college with maker culture are researched and discussed.

2. Evaluation model for maker culture influence

Cultural influence is an expression of international influence and can be divided into subjective influence and objective influence. At present, there is no uniform definition and standard evaluation methods for subjective influence and objective influence. In general, the subjective influence is the sum of the subjective and potential influences of the state on the international maker culture, which can be evaluated after the basic data is obtained through social investigation. The objective influence is the sum of the objective influence of the state on the international maker culture, which can be evaluated by the objective statistical data. For the evaluation of cultural influence, the evaluation method of objective influence can be referred for objective evaluation of cultural influence.

2.1. Evaluation principle of cultural influence

Firstly, evaluation principle of international influence. There is no uniform definition of international influence. According to China Modernization Report 2008, international influence is the actual influence exerted by a state on the international maker culture through international interaction. International influence is the force that the state exerts on the world and it must be subject to the reactive force of the world. Therefore, the size of international influence of a state is related not only to her national strength, national ability and national participation but also to her reactive force (international binding force) imposed by the international maker culture and to international interaction process. In general, international influence can be divided into objective and subjective influence. The objective influence is the objective influence of a state on the world in different fields and is positively related to the application of the objective national power of the state. The subjective influence is the subjective and potential influence of a state on the world in different fields and is positively related to the international reputation and status of the state. From the perspective of operation, objective influences refers to the sum of the objective influences of a state on the world in different fields, and the objective influence index is equal to the relative size of objective influence and equal to the weighted average of the influence index of the evaluation indicator of the objective influence. Secondly, the evaluation principle of cultural influence. Cultural influence is the sum of the objective influence of a sate on global cultural markets and cultural life. The influence on the global cultural markets can be divided into direct and indirect influences; direct influence stems from cultural market competition, and indirect influence is related to cultural resource competition. The influence on global cultural life can also be divided into direct and indirect influences; direct influence are related to cultural trade (cultural market influence), and indirect influence is related to cultural resources and cultural maker culture. Cultural resources affect cultural trade and cultural life. Cultural maker culture includes political maker culture, economic maker culture, social maker culture, ecological maker culture and national qualities; Cultural maker culture not only affects the cultural life, but also affects the cultural trade. If the influence related to cultural market competition is

called cultural market influence for short, the influence related to cultural resource competition is called the cultural resource influence for short, and the influence related to cultural maker culture is called the cultural makers influence, then cultural influence can be roughly divided into three parts: the cultural market influence, cultural resource influence and cultural maker culture influence. Cultural influence evaluates and measures the size of the influence of a state on the global cultural markets and cultural life in terms of cultural market, cultural resource and the cultural maker culture influences.

The evaluation principle of the makers cultural influence is as follows: the maker culture influence is the objective influence of a state on global cultural markets and cultural life; the influence index of the maker culture is equal to the weighted average of the relative level of cultural market influence, cultural resource influence and cultural influence and equal to the weighted average of the influence index of the cultural indicators involved in the evaluation (Table 1). Maker cultural influence evaluation is a relative level evaluation.

Table 1. Conceptual model of cultural influence evaluation

Assumptions and inferences	Main contents
Main assumptions	
Assumption I	Cultural influence is the size of an objective influence on the global cultural markets and cultural life
Assumption II	Cultural influence is positively related to the cultural market influence, the cultural resource influence and the cultural maker culture influence.
Assumption III	The sum of cultural influence is 100, and the cultural influence is equal to its proportion in the influence sum.
Assumption IV	There is a benchmark of which cultural influence has all the indicators ranked first.
Assumption V	Benchmark culture influence is equal to its proportion in the influence sum.
Assumption VI	The influence index of all the benchmark culture indicators is 100.
Assumption VII	Benchmark culture influence index is equal to the weighted average of the influence index of all indicators, which is equivalent to 100.
Assumption VIII	The cultural influence is relative, which can be measured by the comparison with the benchmark.
Main inferences	
Model I	The influence index of a single indicator of cultural influence is equal to the relative value of its value compared to the benchmark value.
Model II	The cultural influence index is equal to the weighted average of a single index of the cultural indicators involved in the evaluation.

2.2. Evaluation indicator and weight of cultural influence

First, the evaluation indicator of the makers cultural influence. The maker culture influence is positively correlated to the market influence, resource influence and

maker culture influence of the maker culture. The evaluation indicator of maker culture influence can be selected from the maker culture market, resource and maker.

Second, the evaluation weight of maker culture influence. The market influence of maker culture is a direct influence, while the resource influence and the cultural influence of maker culture belongs to the indirect influence. The weight of direct influence and indirect influence can be designed as 60:40. The weight of resource influence and maker influence of the maker culture can be designed to 20:20.

The evaluation indicators of the maker culture influence include three second-level indicators (market influence, resource influence and cultural influence of maker culture) and 15 third-level indicators (Table 2). The weight of second-level indicators is designed as follows: maker culture market: maker culture resource: maker culture = 60:20:20.

Table 2. Evaluation indicator and indicator weight of maker culture influence

Second-level (S)	Weight	Indicator (T)	Unit	Benchmark value
Market influence of maker culture	60	Maker culture share	%	14.9
		Commodity share of maker culture	%	17.4
		Service share of maker culture	%	23.1
		Tourism share of maker culture	%	15.4
Cultural resource influence	20	Tourism share of maker culture	%	7.39
		Heritage share of maker culture	%	4.65
		Book share of maker culture	%	18.6
		Movie share of maker culture	%	19.4
		Maker culture network penetration	user/thousand people	252
		Maker culture television penetration	%	100
Maker culture influence	20	Maker culture degree	Index	3.51
		Maker culture productivity	Dollar	101921
		Personnel share of maker culture	%	20.2
		Coverage rate of maker culture	%	73.9
		Cultural qualities of makers in innovative state	%	90

3. Establishment of fuzzy comprehensive evaluation model

3.1. Methods and steps for fuzzy comprehensive evaluation

Fuzzy comprehensive evaluation is to construct a hierarchical fuzzy subset to quantify the fuzzy index (ie, determine the membership) that reflects the evaluated object, and then use the fuzzy transformation principle to synthesize the indicators [9]. Evaluation steps are as follows:

(1) Determine the factor domain of the evaluated object: P evaluation indicators,

$u = \{u_1, u_2, \cdots\cdots, u_p\}.$

(2) Determine the comment grade domain: $v = \{v_1, v_2, \cdots\cdots, v_p\}$, namely the grade set. Each grade can correspond to a fuzzy subset.

(3) Establish fuzzy relation matrix R: after constructing the fuzzy grade subset, the evaluated object shall be quantified one by one in terms of each factor u_i $(i = 1, 2, \cdots\cdots, p)$, that is, the membership $(R|u_i)$ of the evaluated object to fuzzy grade subset is determined from the perspective of a single factor to obtain the following fuzzy relation matrix:

$$
R = \begin{bmatrix} R| & u_1 \\ R| & u_2 \\ & \cdots \\ R| & u_p \end{bmatrix} = \begin{bmatrix} r_{11} & r_{12} & \cdots & r_{1m} \\ r_{21} & r_{22} & \cdots & r_{2m} \\ \cdots & \cdots & \cdots & \cdots \\ r_{p1} & r_{p2} & \cdots & r_{pm} \end{bmatrix}_{p.m}.
$$

Element r_{ij} which is located the i row and the j column represents the membership of a evaluated object to the fuzzy grade subset v_j from the perspective of factor u_i. The presentation of an evaluated object in terms of factors u_i is characterized by a fuzzy vector $(R|u_i) = (r_{i1}, r_{i2}, \cdots\cdots, r_{im})$, and mainly described by a actual indicator in other evaluation methods. Therefore, the fuzzy comprehensive evaluation requires more information in this regard [10].

(4) Determine the weight vector of evaluation factors. In fuzzy comprehensive evaluation, determine the weight vector of evaluation factors: $A = (a_1, a_2, \cdots\cdots, a_p)$. Essentially, elements a_i in the weight vector A are the membership of factors u_i to the fuzzy subset (important factors of the evaluated object). In this paper, the analytic hierarchy process is used to determine the relative importance sequence of evaluation indicators, so as to determine the weight coefficients and realize the normalization before integration. That is $\sum_{i=1}^{p} a_i = 1$, $a_i \geq 0$, $i = 1, 2, \cdots\cdots, n$.

(5) Synthesize the fuzzy comprehensive evaluation result vectors. The appropriate operators are used to synthesize A with R of the evaluated objects to obtain the fuzzy comprehensive evaluation result vector B of each evaluated object. That is:

$$
AnR = (a_1, a_2, nn, a_p) \begin{bmatrix} r_{11} & r_{12} & n & r_{1m} \\ r_{21} & r_{22} & n & r_{2m} \\ n & n & n & n \\ r_{p1} & r_{p2} & n & r_{pm} \end{bmatrix}
$$

$$
= (b_1, b_2, nn, b_m) = B.
$$

Where, b_1 is obtained through the operation of A and the j column in R, which indicates the membership of the evaluated object to the fuzzy grade subset v_j generally.

(6) Analyze the fuzzy comprehensive evaluation result vector. In practice, the most commonly used method is the maximum membership principle. However, it is not applicable to some cases and will lead to large loss of information and event result in an unreasonable evaluation result. The method of using the weighted average to get the membership grade is proposed, and the multiple evaluated objects can be

sorted according to their grade positions.

3.2. *Weight determination with analytic hierarchy process (AHP)*

Weight calculation is critical for comprehensive evaluation. AHP is an effective method to determine the weight coefficient, which is particularly suitable for those complex problems which is difficult to be analyzed with the quantitative indicators[11]. It divides all the factors in the complex problem into ordered layers which are connected with each other and makes them rationalized. According to the fuzzy judgment of the objective reality, it quantitative represent the relative importance of each layer, and then uses mathematical methods to determine the weight coefficient of relative importance sequence of all the elements. AHP steps are as follows:

(1) Determine the targets and evaluation factors. P evaluation indicator(s) $u = \{u_1, u_2, \cdots\cdots, u_p\}$.

(2) Construct judgment matrix. The value of the judgment matrix element reflects people's understanding of the relative importance of each element, in which the 1-9 and its reciprocal scaling method is generally used. However, when the importance of intercomparison factors can be explained by a ratio with practical significance, the ratio shall be regarded as the value of the corresponding element of the judgment matrix. That is, the judgment matrix is $S = (u_{ij})_{p \times p}$ obtained.

(3) Calculate the judgment matrix. Mathematica software is used to calculate the maximum eigenvalue $\lambda_{\max}$ of the judgment matrix S and its corresponding eigenvector A which is the importance sequence of each evaluation factor, namely, the distribution of the weight coefficient.

(4) Consistency test. In order to test the consistency of judgment matrix, the consistency indicator $CI = \frac{\lambda_{\max} - n}{n-1}$ and the average random consistency indicator RI need to be calculated. It is to construct 500 sample matrixes with a random method, in which all the upper triangular items in the sample matrix are filled with the scale and their reciprocals at random, the main diagonal values are always 1, the reciprocals of the random number in the above corresponding position is taken as the appropriate transposition items. Then the consistency indicators shall be calculated for all the random sample matrixes and the mean CI value shall be taken as the average random consistency indicator RI [12]. When the random consistency ratio $CR = \frac{CI}{RI} < 0.10$, it is considered that sequencing results of AHP are satisfactory in the consistency, that is, the distribution of the weight coefficients is reasonable; otherwise, the values of judgment matrix element shall be adjusted and the values of the weight coefficients shall be redistributed.

4. Experimental analysis

Innovation dataset of maker culture is selected as experimental object[13], and ranking recommendation experiment verification is made to algorithm based on it. Probabilistic combined maker culture innovation method [8] (JPMLC), logistic regressive fine grit maker culture innovation method[14] (IBLR-ML) and the steepest

RBF network maker culture innovation optimization[15] (SDRBF) are selected as comparison ranking methods. Hardware setting, processor: i7-6300HQ 3.5GHz, internal memory, 16G ddr4-2400 GHz, simulation platform, Matlab2013a.

Execute feature extraction to selected innovation dataset of maker culture is conducted to make data dimension reduction to innovation dataset of maker culture. Ranking service recommendation verification is only made to 2% quantity and text with the highest occurrence frequency, and other data shall be deleted. Form vector with separate text, and each vector dimension represents occurrence frequency of the character in text. Each group of experimental dataset includes 2500 groups of sample roughly for model training, and 3500 groups of data are used for model test and mean value of category number is set as 30. In innovation and practical application of maker culture, these parameters have a small impact on performance of algorithm. Evaluation indexes are selected as follows:

Index 1: hamming loss (hl), represents classification error quantity of example d_j:

$$hl = \frac{1}{p} \sum_{j=1}^{p} \frac{1}{|C|} |P_j \Delta C_j|. \tag{1}$$

In formula (27), $|C|$ is subordinate category quantity, Δ is symmetrical difference of d_j category prediction P_j and category reasonability C_j set, and category prediction ranking level is higher than set threshold τ.

Index 2: error rate (E_{error}), mainly evaluates whether the highest example d_j category ranking belongs to category reasonability set C_j:

$$E_{error} = \frac{1}{p} \sum_{j=1}^{p} E_{error}^{j}. \tag{2}$$

$$E_{error}^{j} = \begin{cases} 0, \ if \ [\arg\max_{c \in C} f(d_j, c) \in C_j] \\ 1, \ otherwise \end{cases} \tag{3}$$

In formula (29), $[\arg\max_{c \in C} f(d_j, c) \in C_j]$ outputs the highest category ranking of example d_j.

Index 3: coverage rate (C_{cover}) mainly evaluates reduction threshold required by category level and guarantees that test example d_j belongs to all categories:

$$C_{cover} = \frac{1}{p} \sum_{j=1}^{p} \left(\max_{c \in C_j} r(d_j, c) - 1 \right). \tag{4}$$

In formula (30), $\max_{c \in C_j} r(d_j, c)$ is the highest level category set of test example d_j.

In above indexes, except for ranking accuracy C_{avep}, the smaller the index is, the better the ranking effect of web service will be. The best ranking is: $hl = E_{error} = C_{cover} = C_{rloss} = 0$ and $C_{avep} = 1$. Comparison index is as shown in Fig.1 to Fig.3.

Fig. 1 shows hamming index data comparison of verification algorithm selected, and the smaller the index value is, the better the result of ranking process will be.
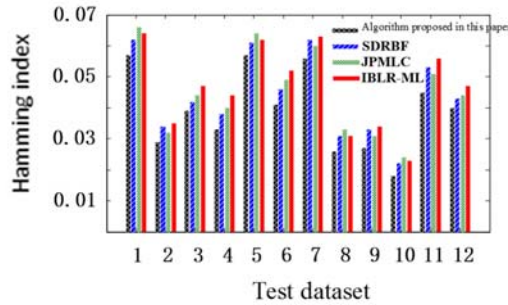
Fig. 1. Hamming index

Abscissa figure shown in Fig. 1 respectively corresponds to No. of experimental dataset shown in above Table 1, figure 1 represents mean index value of algorithm, and meaning of abscissa shown in Fig.1 to Fig.3 is ditto. In innovation index of hamming maker culture, compared with 3 kinds of comparison algorithm, i.e. JPMLC, IBLR-ML and SDRBF, algorithm proposed in this paper has better performance, and compared with another 2 kinds of algorithm, innovation index of hamming maker culture of SDRBF algorithm has better performance, ranked secondly, and other 2 kinds of algorithm have similar performance, with respective advantages.
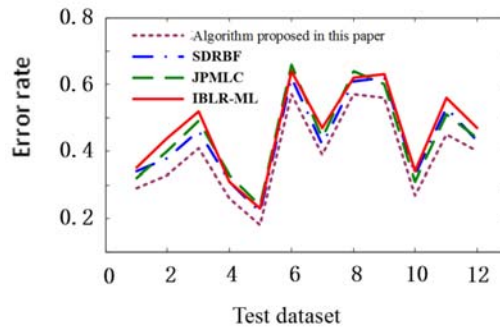

Fig. 2. Error rate

Fig. 2 shows error rate index comparison of JPMLC, IBLR-ML, SDRBF, and algorithm proposed in this paper. According to comparison data, error rate index of algorithm proposed in this paper is superior to that of 3 kinds of comparison algorithm, i.e. JPMLC, IBLR-ML and SDRBF. 3 kinds of comparison algorithm have quite similar error rate index with respective advantages.

Fig. 3 shows coverage rate index comparison of JPMLC, IBLR-ML, SDRBF, and algorithm proposed in this paper. The index can represent required reduction value of ranking threshold, and the smaller the value is, the better the ranking performance of algorithm will be. According to curve shown in Fig. 3, coverage effect of algorithm proposed in this paper is superior to that of 3 kinds of comparison algorithm, i.e. JPMLC, IBLR-ML and SDRBF.
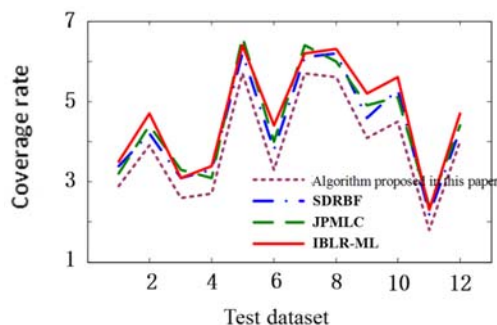
Fig. 3. Coverage rate

5. Conclusion

Maker culture is based on learning culture in current network age and college students will reach their objectives firmly. There will be no inheritance and innovation without learning; there will be no creation without knowing how to learn. In this age, there are three kinds of learning modes for us to learn and propose. The first is exploration learning, which is helpful to cultivate self-learning ability of students and improve sensitivity of students to problems in learning process and improve their own judgment ability and cultivate ability to solve problems. The second is experiment learning, that is, the students can learn to accept, absorb and transmit knowledge by themselves to convert knowledge acquisition into knowledge creation in learning process. The third is service learning, that is, the students can combine learned knowledge with problems occurred in practice and can not only learn to apply critical thinking, but also participate in society actively after knowing their own objective clearly.

By maker culture education in college, entrepreneur will have favorable entrepreneurship mentality and expect a better future. Maker education is a kind of culture and requires to be proved by time. Under such favorable entrepreneurship background, college students have solid knowledge basis for entrepreneurship, such that their entrepreneurship thought can be guided correctly and having opportunity to learn to how to find out and seize entrepreneurship opportunity, as well as realize their dream. Maker culture education has been prevailing at abroad for a long time, which is a kind of education mode to be updated in long term and a brand-new education method. Upon demand of age and society, we pay much attention to make education culture and try to create a kind of innovative and firm practice atmosphere. On the other hand, because we have formed favorable maker education culture, we can provide solid theoretical basis for entrepreneurship of college students and let college students face their entrepreneurship dream more confidently. In recent years, with gradual prevailing of maker education in China, maker culture has been reformed and innovated. In addition, with time passing by, the educators in China have explored truth gradually and have found out education mode that conforms to the situation of China and current social phenomenon.

References

[1] N. Arunkumar, S. Jayalalitha, S. Dinesh, A. Venugopal, D. Sekar: *Sample entropy based ayurvedic pulse diagnosis for diabetics.* IEEE-International Conference on Advances in Engineering, Science and Management, ICAESM-2012, art. no. 6215973 (2012) , 61–62.

[2] Y. J. Zhao, Y. H. Hu, J. J. Liu: *Random Triggering-Based Sub-Nyquist Sampling System for Sparse Multiband Signal.* IEEE Transactions on Instrumentation and Measurement *66* (2017), No. 7, 1789–1797.

[3] X. Du, L. Chen, D. Huang, Z. Peng, C. Zhao, Y. Zhang, Y. Zhu, Z. Wang, X. Li, G. Liu: *Elevated Apoptosis in the Liver of Dairy Cows with Ketosis.* Cellular Physiology & Biochemistry *43* (2017b), No. 2, 568–578.

[4] N. Arunkumar, K. R. Kumar, V. Venkataraman: *Automatic detection of epileptic seizures using permutation entropy, Tsallis entropy and Kolmogorov complexity.* Journal of Medical Imaging and Health Informatics *6* (2016), No. 2, 526–531.

[5] Y. Y. Zhang, A. Algburi, N. Wang, V. Kholodovych, D. O. Oh, M. Chikindas, and K. E. Uhrich: *Self-assembled Cationic Amphiphiles as Antimicrobial Peptides Mimics: Role of Hydrophobicity, Linkage Type, and Assembly State*, Nanomedicine: Nanotechnology, Biology and Medicine *13* (2017), No. 2, 343–352.

[6] Y. Song, N. Li, J. Gu, S. Fu, Z. Peng, C. Zhao, Y. Zhang, X. Li, Z. Wang, X. Li: *β-Hydroxybutyrate induces bovine hepatocyte apoptosis via an ROS-p38 signaling pathway.* Journal of Dairy Science *99* (2016), No. 11, 9184–9198.

[7] N. Arunkumar, K. R. Kumar, V. Venkataraman: *Automatic detection of epileptic seizures using new entropy measures.* Journal of Medical Imaging and Health Informatics *6* (2016), No. 3, 724–730.

[8] R. Hamza, K. Muhammad, N. Arunkumar, G. R. González: *Hash based Encryption for Keyframes of Diagnostic Hysteroscopy*, IEEE Access, https: //doi.org/10.1109/ACCESS.2017.2762405 (2017).

[9] D. S. Abdelhamid, Y. Y. Zhang, D. R. Lewis, P. V. Moghe, W. J. Welsh, and K. E. Uhrich: *Tartaric Acid-based Amphiphilic Macromolecules with Ether Linkages Exhibit Enhanced Repression of Oxidized Low Density Lipoprotein Uptake*, Biomaterials *53* (2015), 32–39.

[10] W. Pan, S. Z. Chen, Z. Y. Feng: *Automatic Clustering of Social Tag using Community Detection.* Applied Mathematics & Information Sciences *7* (2013), No. 2, 675–681.

[11] Y. Y. Zhang, E. Mintzer, and K. E. Uhrich: *Synthesis and Characterization of PEGylated Bolaamphiphiles with Enhanced Retention in Liposomes*, Journal of Colloid and Interface Science *482* (2016), 19–26.

[12] N. Arunkumar, K. M. Sirajudeen: *Approximate Entropy based ayurvedic pulse diagnosis for diabetics - A case study.* TISC 2011 - Proceedings of the 3rd International Conference on Trendz in Information Sciences and Computing, art. no. 6169099 (2011) , 133–135.

[13] N. Arunkumar, K. Ramkumar, S. Hema, A. Nithya, P. Prakash, V. Kirthika: *Fuzzy Lyapunov exponent based onset detection of the epileptic seizures.* 2013 IEEE Conference on Information and Communication Technologies, ICT 2013, art. no. 6558185 (2013), 701–706.

[14] J. J. Faig, A. Moretti, L. B. Joseph, Y. Y. Zhang, M. J. Nova, K. Smith, and K. E. Uhrich: *Biodegradable Kojic Acid-Based Polymers: Controlled Delivery of Bioactives for Melanogenesis Inhibition*, Biomacromolecules *18* (2017), No. 2, 363–373.