

DIAGNOSIS OF HIV-AIDS BY ADOPTING MULTI-LAYER MAMDANI FUZZY SOFT EXPERT SYSTEM

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ABSTRACT: A Multi-layered Mamdani Fuzzy Soft Expert System is planned to diagnose HIV-AIDS. The Proposed DHA-MLMFES System is an Automatic diagnose of HIV-AIDS exploitation Multi-layer Mamdani Fuzzy Soft Expert System (DHA-ML-MFES) knowledgeable System, will classify the various stages of HIV-AIDS like No-HIV-AIDS, HIV Stage 1, 2, 3 and Aids. The Expert System has seven input variables at layer-I and four input variables at layer-II. At layer-I input, variables are headache, fatigue, aching muscles, sore throat, swollen lymph nodes, red rashes, fever that detects output condition of HIV-AIDS, infection, and different downside. The additional input variables at layer-II are PCR+, PCR+ P24+, P24+ Ab+ (ELISA), Ab+ Wb-indeterminate that verify the output condition of HIV-AIDS like No-HIV-AIDS, HIV stage I, II, III or AIDS and alternative infection and downside. Results display investigation of the accuracy of the outcomes up to 94 percent of exploitation planned DHA- Multi-layer Mamdani Fuzzy Soft Expert Structure to set up the advanced HIV-AIDS technique with help of physician assumptions and compile it to the medical Lab of Roscommon University Hospital, Ireland.

Keywords: Context-HIV-AID, DHA-ML-MFES, Fuzzy Expert System.

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INTRODUCTION

Sickness examination could be a critical part of the field of clinical and human services offices. An unseemly investigation of sickness, as a rule, winds up in ill-advised treatment that prompts complexities of confusion and in the long run to death (Haire, et. al., 2014). What are the most important witness as well as evidence of the un-wellness and intensity of symptoms on the organs? Once this is often resolved, appropriate treatment is supervised to gleam distress and heals. Facing implement this expeditiously at the correct time is difficult and desires an excessive amount of information concerning the illness and history of the patient. It's essential to research the illness at the correct time and report its conditions (Sastry, et. al., 2017).

HIV-AIDS could be a non-inheritable immunological disorder syndrome, AIDS is a chronic, doubtless serious condition caused by the human immunological disorder virus (HIV) (Abdulkadir et. al., 2011) . By damaging your immune system, HIV interferes along with your body's ability to fight the organisms that cause illness, thus it should cause death if it's not diagnosed at the correct time (Yogev, et. al., 2001) . These are varied reasons that may defect the condition. The reason behind HIV could be a sexually transmitted infection (STI). It may also be unfolded by contact with infected blood or from mother to kid throughout pregnancy, parturition, or breast-feeding.

While not medication, it should take years before HIV weakens your immune system to the purpose that you just have AIDS (Idowu, et. al., ,2008) , (Osunyomi, et. al., 2015). There's no cure for

HIV/AIDS, however, there are medications that may dramatically slow the progression of the illness. These medicines have reduced AIDS deaths in several developed nations. There are several matches of reasoning that have traversed. Other momentous phenomenal inspections and completely different blood tests are conducted for HIV-AIDS (Rasschaert,et. al., 2011).

When the take a look at PCR+ the most important test is HIV-AIDS Surface If the PCR+ takes a look at results positive then others test PCR+ P24+, P24+ Ab+ (ELISA), Ab+ Weber indreminte should be conducted to examine the Stage of HIV-AIDS. If HIV-AIDS is severe it causes health problems (Oh, et. al., 2005), (Monjok, et. al., 2009), (Spicer, et. al., 2010). The planned ADHA-Multi-layer Mamdani Fuzzy Inference System is predicated on those outcomes. They were completely distinctive knowledge-based approach; a few of them are supported machine learning, applied math, knowledge abstraction, call the web, and knowledgeable system. Knowledgeable system techniques are used for a previous couple of generations in the therapeutic inquiry. It'll raise symptomatic veracity also cut down the expenditure.

Literature Review: Sexually transmitted infection is the foremost prevalent disease all over the world and United-States forwarding not purely mature and adult nature, for all that in sexuality-active-generation. Still, amount to just 1/4 in a total population has more than sexually active people, between the 15 to 25 years ages and half of them are a new patient of human immunodeficiency virus (Korenromp et. al., 2000) , (Goldie, et. al., 1999)

Between the ages 15 to 25 sense participation in the elite sexually transmitted quota of any adulthood brace with-in the United-State with prevalence quota reaching in a few groups and sub-groups of rash epidemic proportions. The other untreated left sexually transmitted infections might result in thoughtful confusion such as infertility, abnormal pain, cancer, or some death case. Literally in an economical position of life and more in social life, sexually trans-mitted patients all over the world additionally more actual than the big toll on economic life and term of society rates related to identifying the treatment of sexually trans-mitted persons (Waters, et. al., ,2016).

The life pharmaceutical rate of sexually transmitted infection is non-genetic between the age of 15-25 in the 2014 years and they were calculable at 6.5b dollars. Also Sexually trans-mitted foreboding& fatality, and its Co-worker ally cost, it is very important to contemplate the companion between Sexually transmitted infection and psychological acquisition in a more as ability injurious to reactions on a psychological and sexually trans-mitted person for treatment and their identification(Newman , et. al., 2004), (Hellinger,et. al., 2006) . Because of the very high cost in price and the co-worker foreboding & fatality, in every major work in physical and psychological, More chance of deed a Sexually transmitted infection in the many/every of the foremost generous and prompt risk and menace threats to the health environment and more-being of teenagers. In such a reality, the regulation of remedy/narcotic acknowledge sexually transmitted infection a torment and trouble among teens and their drawn-up the circumstance of a national Sexually trans-mitted infection hindrance method/blueprint (Aaron, et. al., 2005) .

So, avert sexually transmitted infection and human immunodeficiency virus serve as to perform an indispensable impersonal clinical and common people health preference. In this documentation, we pavilion to inaugurate and provide shortly review of genealogy to teenager's sexually transmitted infection and Human Immunodeficiency Virus risk. And also, we pavilion to deliberate previous take-up threaten and lighten up the strengths and weaknesses in those threaten in youth ages (Wu, et. al., 1999) (Kelly, et. al., 1999).

All after, we pavilion to enunciate assignment and directive for the future inquiry to accord with crack/disparity with-in the literature and to be research, although come up with unified method/blueprint for point

targets bionomics of the sexually transmitted infection epidemic among teenagers in the whole world (Hallett,, et. al., 2011). Numerous sexual partners, intermittent sexual rendezvous, and a little bit small pervasiveness of dependable condoms utilize and be increase the chance of sexually transmitted infection and Human Immunodeficiency Virus risk (Brown, et. al., 2000) .There has been more generous investigation enunciates the federation between sexually transmitted infection and Human Immunodeficiency Virus risk. The first objection deals with and engages in a pro specialist for classified to determine and establish the genealogy of this sexual-risk demeanor (Venkatesh et. al., 2011).

Massive torso and body of inquiry have enthusiastic/zealous to the real task. Propose scrutiny scheme the great and effective idea for the event of competent action to mediation that looks for to vitiate sexual risk conduct through customizing important precedent. We have recorded the observational precedent to youth's sexual risk nature and the procurement of sexually transmitted virus with the help of the structure (Meng, et. al., 2013) , (Stover, et. al., ,2016). This may be utilized to be pinched from multiple endless studies committing youth's results & samples and delineating a numerous diversify of race in the neuter. Marked teenagers and their co-workers with very high sexual-risk attitude have very high sexually transmitted infection(Abbas,, et. al., 2011) ,(Cambiano,et. al., 2011) .

Now today, artificial-intelligence utilize employed to diagnose completely other various varieties of pharmaceutical reports. Intelligent structures were being refined to resolve pharmaceutical problems. Fuzzy Logic Structure is an intensely dominant knowledgeable structure to investigate other many issues and Answers. Fuzzy Inference System is incredibly helpful wherever probabilities for ambiguity could appear. It's employed in many aspects of daily life like automatically designed structure, computer Sci-Engineering, pharmaceutical structure, meteorology, and many more (Diffey,et. al., 2017). Conferred a Fuzzy Inference System for the investigation for virus infections and associate in nursing Advance structure for finding victimization on the fuzzy logical Inference System (Hethcote,et. al., 1994). Diagnosis of Liver disease victimization Fuzzy Inference System of idea on indication like physiological reaction, complete Weakness, temperature, digestive juice, no feeling of craving, etc. Introduce a pharmaceutical structure on the idea of a fuzzy logical Inference System (Umoh, et. al., 2013).

The fuzzy logical Inference System employed for husbanding and guiding these employs stress of human and to execute it, and notify by the alarm. Thiruvengkatasuresh, M. P. and Venkatachalam, V. introduced a Fuzzy Inference System to identification the assorted diseases supported initial symptoms. Diagnose the liver disease in their analysis (Thiruvengkatasuresh,, et.

al., 2017) . They introduce “New Hybrid liver disease identification System supported Genetic formula and adaptive Network Fuzzy Inference System”, planned Associate in nursing skilled system victimization Fuzzy Inference System to diagnose and monitor infectious disease (Sculpher, et. al., 2000) .

Soft Computing approaches like fuzzy system (Hussain, et. al., 2019), (Fatima et. al., 2013), (Siddiqui, et. al., ,2020), neural network (Abbas,, et. al., 2020), and swarm intelligence (Khan, et. al., 2019) ,evolutionary computing (Khan,et. al., 2015) Island DE (Khan,et. al., 2018) are the robust candidate in the field of smart health.

METHODOLOGY

The proposed decision-based system diagnosing HIV-AIDS Multi-layer Mamdani Fuzzy Inference System based on mostly very advanced level computing is interpreted during this section. Figure 1 shows the flow of planned Automatic diagnoses HIV-Aids Multi-layer Mamdani Fuzzy Inference System methodology. The Automatic diagnoses HIV-Aids Multi-layer Mamdani Fuzzy Inference System has 2 layers as shown in figure 2. In layer-I diagnose the HIV-AIDS (No/Yes) victimization seven inputs as shown in figure 2.

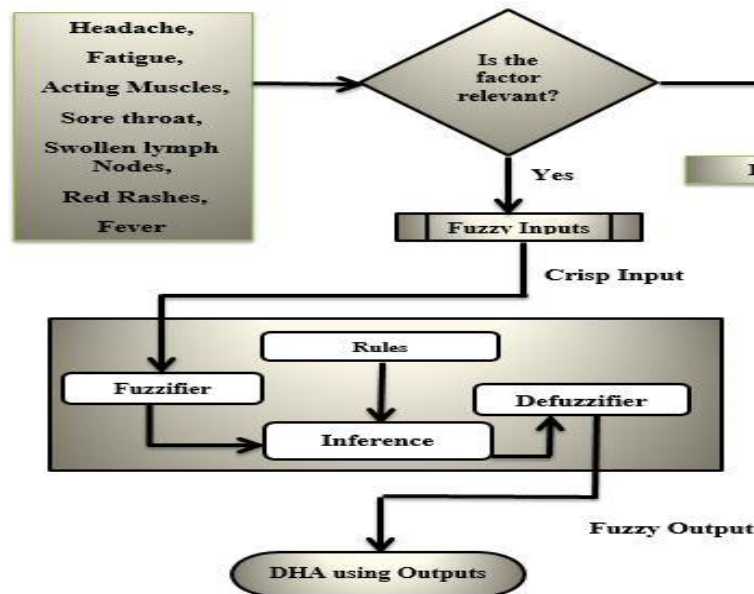


Figure 1:Proposed Methodology of DHA-ML-MFES

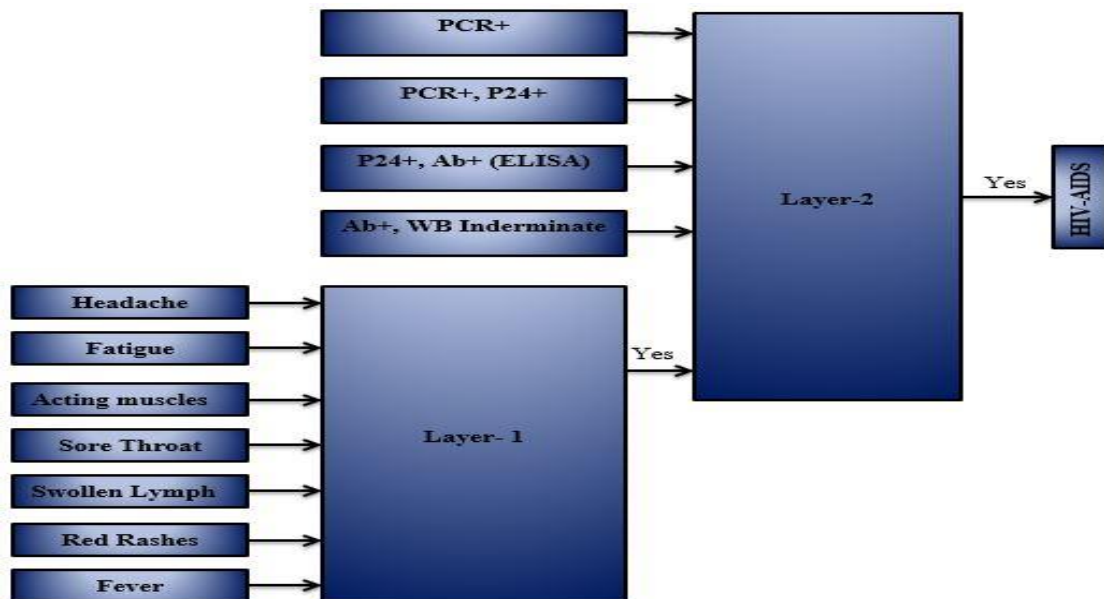


Figure 2:Layers Diagram for Proposed DHA-ML-MFES

Parameters Headache, Fatigue, Aching Muscles, sore throat, swollen lymph Nodes, Red Rashes, and Fever are accustomed to building up an operation shown in the first table to gauge the standing of HIV-AIDS. When first-Layer diagnoses HIV-AIDS then second-Layer is active for diagnoses the stages of the HIV-Aids. Four

$$\mu_{DH,Layer1} = MFIS [\mu_{Headache}, \mu_{Fatigue}, \mu_{ActingMuscles}, \mu_{SoreThroat}, \mu_{RedRashes}, \mu_{Fever}] \quad (1)$$

Second-Layer of Automatic diagnoses HIV-Aids Multi-layer Mamdani Fuzzy Inference System can be written as

$$\mu_{DHA,Layer2} = MFIS[\mu_{PCR+}, \mu_{PCR+P24+}, \mu_{P24+,Ab+(ELISA)}, \mu_{Ab+WBinderminate}] \quad (2)$$

Input Parameters and Ranges: Input parameters were applied to mathematical numbers that are accustomed to diagnosing HIV-AIDS. During this search, a total of 11 differing kinds of input parameters are used in the first

input parameters are shown in figure 2. Second-Layer inputs are shown in Second-Table.

The First-Layer of planned Automatic diagnoses HIV-Aids Multi-layer Mamdani Fuzzy Inference System can be written.

and second layers. The same parameters are used in the first-layer and others of the parameters are utilizing at the second-layer. These input parameters and their ranges and semantic sign are shown in table1 and table 2.

Table 1. Layer-I input parameters of Automatic diagnose of HIV-AIDS exploitation Multi-layer Mamdani Fuzzy Soft Expert System.

Sr #	Input Parameters	Ranges	Semantic Sign
1	Headache	LT < 1.5 B/W 1 - 2 GT > 1.7	Low Normal High
2	Fatigue	LT < 1.5 B/W 1 - 3 GT > 2	Low Normal High
3	Acting Muscles	LT < 1.5 B/W 1 – 2.5 GT > 2	Low Normal High
4	Sore Throat	LT < 1.5 B/W 1 – 2.5 GT > 2	Low Normal High
5	Swollen Lymph Nodes	LT < 1.5 B/W 1 – 2.5 GT > 2	Low Normal High
6	Red Rashes	LT < 1.5 B/W 1 – 2.5 GT > 2	Low Normal High
7	Fever	LT < 98 B/W 97 - 101 GT > 100	Low Normal High

Table 2. Layer-2 input variable of Automatic diagnoses of HIV-AIDS exploitation Multi-layer Mamdani Fuzzy Soft Expert System.

Sr.	Inputs Parameters	Ranges	Semantic Sign
1	PCR+	LT < 3.1 B/W 2 - 5 GT > 4	Low Normal High
2	PCR+ P24+	LT < 3.1 B/W 2 - 5 GT > 4	Low Normal High
3	P24+,Ab+(ELISA)	LT < 2 B/W 1 - 4 GT > 3	Low Normal High
4	Ab+, WB-inderminate	LT < 3.5 B/W 2 - 6 GT > 5	Low Normal High

LT=Less-Than, GT=Greater-Than, B/W=Between

Output Parameters: In this Documentation, multi-layered architecture is prospective to interpret HIV-AIDS. If the first-Layer output is yes, then the second

layer is activated. Output parameters for layers 1-2 are displayed in table 3.

Table 3. Layer 1-2 output parameter of prospective Multi-layer Mamdani Fuzzy Expert System.

Sr,		Output Parameters	Semantic sign
1	Layer-I	HIV-AIDS	Positive
			Negative
2	Layer-II	DHIV-AIDS	Positive
			Negative

Graphical Representation and Member-ship functions of prospective structure: Membership conducts the mechanism proposition curve parameters between 1, 0& con-jointly implementation of mathematical-relation that implement mathematical input and output Parameters. Graphical and mathematical illustration of Automatic diagnoses of HIV-AIDS exploitation Multi-layer

Mamdani Fuzzy Inference System& Representation of I/O parameter for the first and second layers is displayed in table 4.

This documentation for the member-ship function is created on the discussion with pharmaceutical examiners from the Medical-Lab Department of Roscommon University Hospital, Ireland.

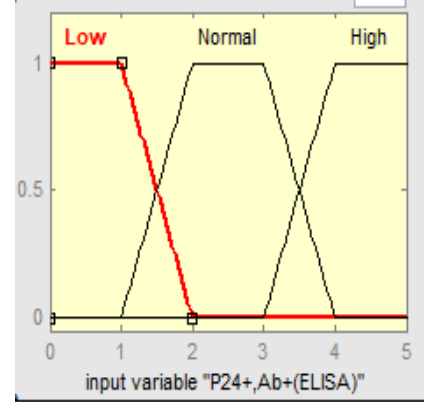
Table 4: Inputs and Outputs parameters and Graphical Representation Functions utilize in Automatic diagnose of HIV-AIDS exploitation Multi-layer Mamdani Fuzzy Soft Expert System.

Sr#	Input Parameters	Member-ship Function	Graphical Representation
1	PCR+=A(($\mu_A(a)$))	$\mu_{A,L}(a) = \left\{ \max \left(\min \left(1, \frac{3.1 - a}{1} \right), 0 \right) \right\}$ $\mu_{A,N}(a) = \left\{ \max \left(\min \left(\frac{a - 2}{1}, 1, \frac{5 - a}{1} \right), 0 \right) \right\}$ $\mu_{A,H}(a) = \left\{ \max \left(\min \left(\frac{a - 4}{1}, 1 \right), 0 \right) \right\}$	
2	PCR+, P24+=B ($\mu_B(b)$)	$\mu_{B,L}(b) = \left\{ \max \left(\min \left(1, \frac{3.1 - b}{1} \right), 0 \right) \right\}$ $\mu_{B,N}(b) = \left\{ \max \left(\min \left(\frac{b - 2}{1}, 1, \frac{5 - b}{1} \right), 0 \right) \right\}$ $\mu_{B,H}(b) = \left\{ \max \left(\min \left(\frac{b - 4}{1}, 1 \right), 0 \right) \right\}$	

$$\begin{aligned} \mu_{C,L}(c) &= \left\{ \max \left(\min \left(1, \frac{2-c}{1.5} \right), 0 \right) \right\} \\ \mu_{C,N}(c) &= \left\{ \max \left(\min \left(\frac{c-1}{1.5}, 1, \frac{4-c}{1.5} \right), 0 \right) \right\} \\ \mu_{C,H}(c) &= \left\{ \max \left(\min \left(\frac{c-3}{1.5}, 1 \right), 0 \right) \right\} \end{aligned}$$

3

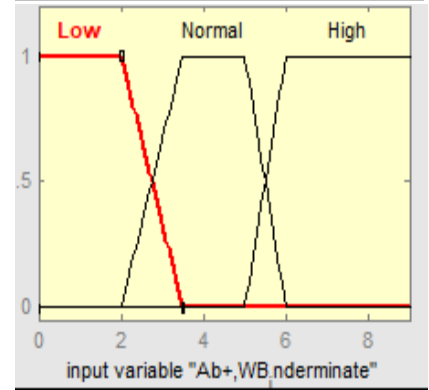
P24+,Ab+(ELISA)=C
($\mu_C(c)$)



4

Ab+,WB-indeterminate=I
($\mu_I(i)$)

$$\begin{aligned} \mu_{I,L}(i) &= \left\{ \max \left(\min \left(1, \frac{3.5-i}{1.5} \right), 0 \right) \right\} \\ \mu_{I,N}(i) &= \left\{ \max \left(\min \left(\frac{i-2}{1.5}, 1, \frac{6-i}{1.5} \right), 0 \right) \right\} \\ \mu_{I,H}(i) &= \left\{ \max \left(\min \left(\frac{i-5}{1.5}, 1 \right), 0 \right) \right\} \end{aligned}$$



Looks-up Rules Table: Looks-up rules table for proposed Automatic diagnose of HIV-AIDS exploitation Multi-layer Mamdani Fuzzy Inference System Structure consists of 81 rules. All rules are displayed in table 5

Looks-up rules table creates with the guidance of pharmaceutical examiners& Medical-Lab Department of Roscommon University Hospital, Ireland.

Table 5: Looks-up rules Table for Automatic diagnose of HIV-AIDS exploitation Multi-layer Mamdani Fuzzy Soft Expert System.

Sr	PCR+	PCR+,P24+	P24+,Ab+(ELISA)	Ab+,WB indeterminate	Outputs
1	LOW	LOW	LOW	LOW	Negative
2	LOW	LOW	LOW	Normal	Negative
3	LOW	LOW	LOW	High	Positive
4	LOW	LOW	High	Normal	Positive
5	LOW	LOW	High	High	Positive
6	LOW	Normal	LOW	LOW	Negative
7	LOW	High	LOW	High	Positive
8	LOW	High	Normal	LOW	Negative
9	LOW	High	Normal	Normal	Negative
10	Normal	LOW	Normal	LOW	Negative
11	Normal	LOW	High	LOW	Positive
12	Normal	Normal	Normal	Normal	Negative
13	Normal	Normal	High	High	Positive
14	High	LOW	LOW	LOW	Negative
15	High	LOW	LOW	Normal	Negative

Input & output Rule-Based structure: Inputs & outputs Rules develop/create a critical/important part in the Fuzzy Inference System. Progress depends on any

expert/knowledgeable structure upon these rule-based structures. During this study/search, Input &Output rules are created employing an operation table that is displayed

in table 6. Projected Inputs & Output rules supported Automatic diagnoses of HIV-AIDS exploitation Multi-layer Mamdani Fuzzy Inference System is display in figure 3 and 4.

Inference Engine: The inference engine is one of the important particles in any skilled structure. In this documentation, the Mamdani Inference System is utilized in the first and second layers.

Figure 3: First-Layer Input/output section structure rules for Automatic diagnosis of HIV-AIDS exploitation Multi-layer Mamdani Fuzzy Soft Expert System

Figure 4: Second-Layer Input/output inter-section structure rules for Automatic diagnoses of HIV-AIDS exploitation Multi-layer Mamdani Fuzzy Soft Expert System

De-Fuzzifier: De-Fuzzifier is one of the important parts of a skilled system. There are different kinds of de-Fuzzifier. During this analysis center of the mass form of De-Fuzzifier is employed. Figure 5, that displays the De-Fuzzifier graphical-view and illustration of first-Layer in

Automatic diagnosis of HIV-AIDS exploitation Multi-layer Mamdani Fuzzy Inter-section Structure. In figures 6a-6d, Graphical-view, or illustration of De-Fuzzifier at Second-Layer DHIV-AIDS expert System is given

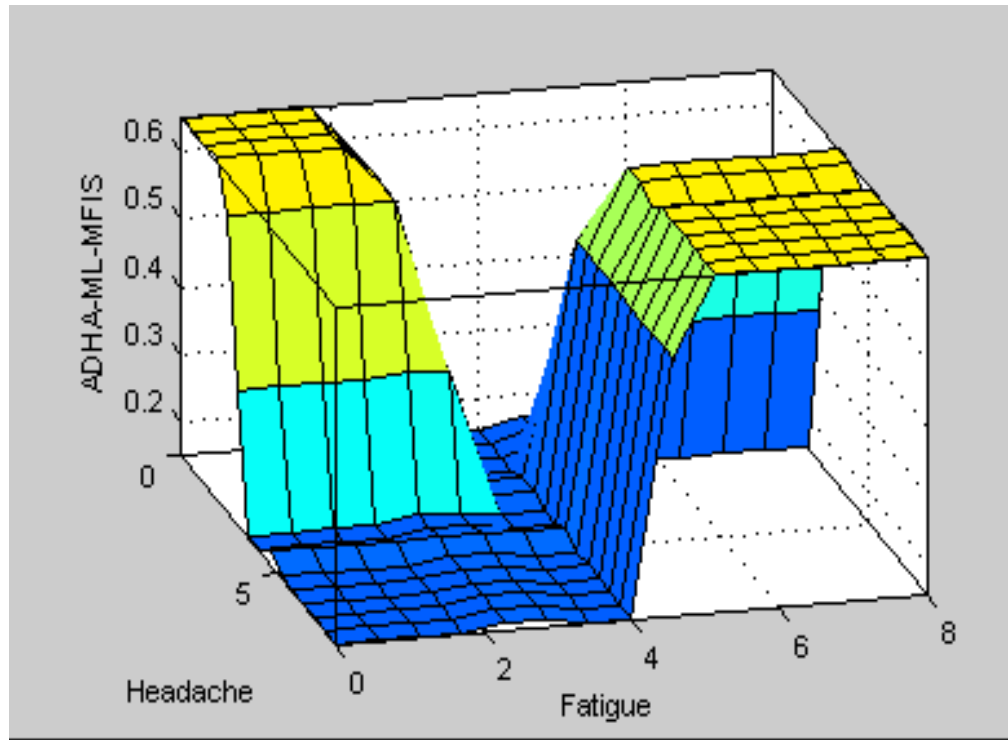


Figure 5: First-Layer, Surface rules diagram Automatic diagnose of HIV-AIDS exploitation Multi-layer

Mamdani Fuzzy Soft Expert System

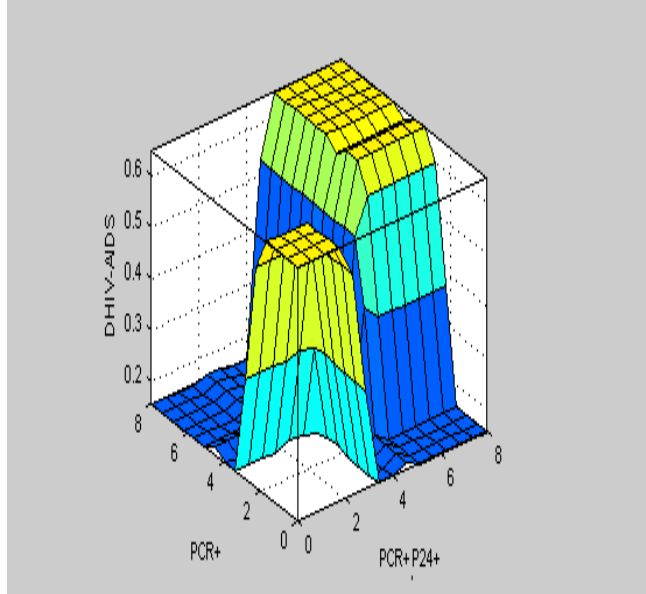


Figure 5a: Rule Surface for PCR+ and PCR+P24+

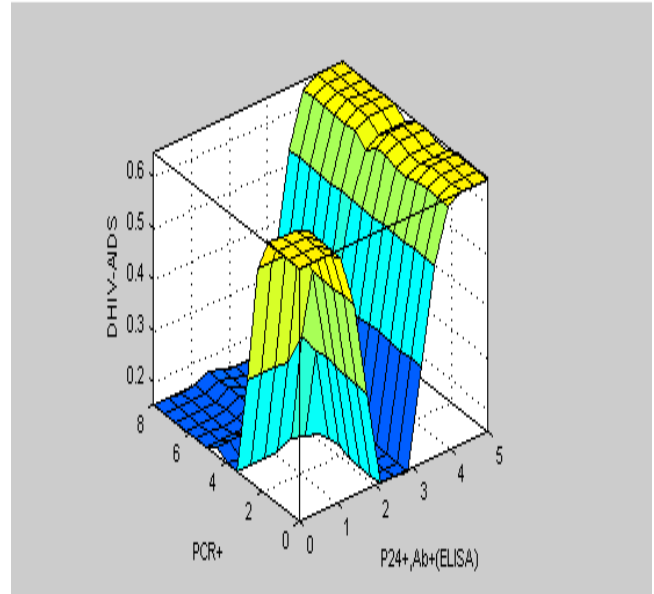


Figure 5b: Rule Surface for PCR+ and P24+Ab+(ELISA)

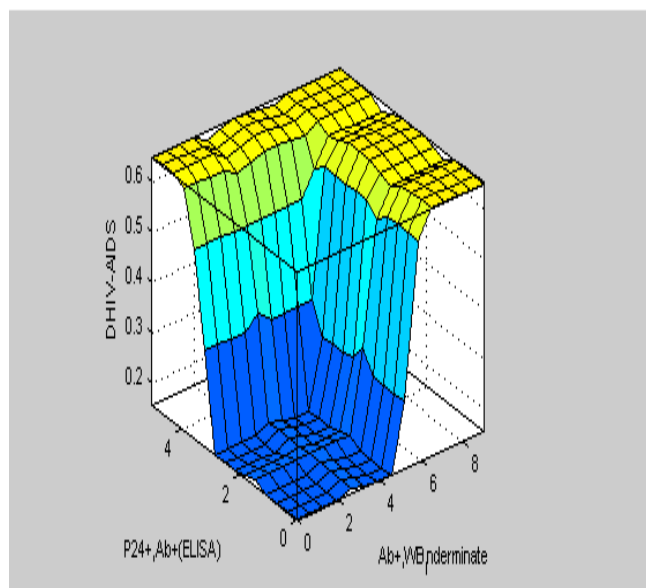


Figure 5c: Rule Surface for P24+Ab+(ELISA) and Ab+, WB-indeterminate

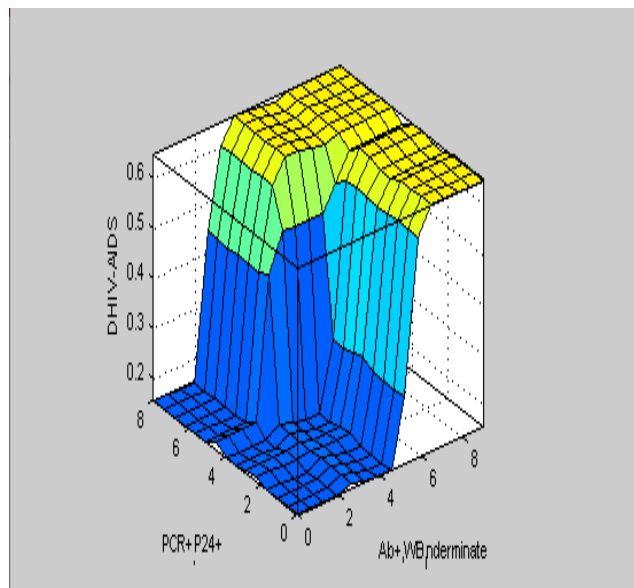


Figure 5d: Rule Surface for PCR+P24+ and Ab+ WB-indeterminate

In figure 5, diagnoses for the HIV-AIDS mistreatment chance supported seven inputs parameters these inputs are often therefore delicate that you simply won't even notice them. However, the number of virus in your blood (viral load) is kind of high at this point. As a result, the infection spreads a lot of simply throughout primary infection than during the future stage. In some individuals, persistent swelling of body fluid nodes happens throughout this stage. Otherwise, there aren't any specific signs and symptoms. HIV-AIDS remains within the body and in infected white blood cells. This stage of HIV infection typically lasts around 10 years if you're not receiving antiretroviral medical aid. However generally, even with this treatment, it lasts for many years. Some individuals develop a lot of severe sickness abundant sooner.

Figure 5a shows the HIV-AIDS based on PCR+ and PCR+P24+. Colorson the Surface are represented the different region stages of HIV-AIDS. Similarly, the

remaining figures5b-5d present HIV-AIDS results by different parameters. The surface Rules diagram represents different parameter stages.

RESULTS

Working on creating the best results, we utilized MATLAB R2019a software. This software is best and also utilized for 2D & 3D modeling, creating algorithmic-based rules, precursors, and plenty of alternative ground. This software also utilizes an associate degree economical tool for computing the program, information inquiry, visual imaging, and computing. Working on creating the best results, inputs/output Diagnosis HIV-AIDS parameters are utilized. During this documentation, the planned ADHA-ML-MFIS primarily based skilled System diagnoses HIV-AIDS, table 7. Display that.

Rules	PCR+ (L,N,H)	PCR+ P24+ (L,N,H)	P24+,Ab+(ELISA) (L,N,H))	Ab+, WB (L,N,H)	Human Expert Decision	Proposed DHA Decision	Probability of Correctness (P_C)	The Probability of Error's ($P_e=1-P_C$)
1	L(7.66)	N(116)	H(90)	N(0.5)	Negative	Negative	0.93	0.07
2	L(7.66)	N(107)	L(60.3)	N(0.387)				
3	L(8)	N(110)	L(70)	N(0.4)				
4	L(13)	N(101)	N(80.3)	N(0.387)				
5	L(9.3)	N(116)	L(66.5)	H(0.7)				
6	N(30.3)	N(118)	N(85.4)	N(0.5)				
7	N(18)	H(128)	H(90.4)	N(0.387)				
8	N(30.3)	N(114)	N(88.7)	H(0.72)				
9	N(26)	N(132)	L(60.3)	N(0.387)				
10	N(30)	N(135)	N(78.9)	H(0.69)				

11	N(28)	H(128)	H(90.4)	N(0.387)	
12	N(22)	N(114)	H(88.7)	H(0.72)	
13	N(31)	N(127)	N(79.3)	L(0.387)	
14	N(16.3)	N(92.9)	H(94.7)	N(0.63)	
15	H(48)	H(122)	H(80.3)	N(0.5)	
16	H(42)	N(110)	L(66.5)	L(0.387)	Negative
17	H(48)	N(122)	N(80.3)	N(0.5)	
18	H(42)	N(110)	L(66.5)	L(0.387)	
19	H(60)	N(126)	N(87.4)	L(0.4)	
20	H(37.9)	N(97)	L(96.3)	N(0.613)	Positive
21	H(54)	N(120)	H(94)	N(0.422)	
22	H(48)	N(122)	N(80.3)	N(0.5)	
23	H(59)	N(110)	L(76.5)	H(0.7)	
24	L(8.66)	N(114)	H(90.3)	N(0.5)	Negative
25	L(10.6)	N(108)	L(64.3)	L(0.387)	
26	L(8.9)	N(119)	L(70.6)	N(0.4)	
27	L(13.7)	N(103)	N(86.3)	L(0.387)	
28	L(6.3)	N(111)	L(64.5)	H(0.7)	
29	L(37.3)	N(95)	H(97.7)	H(0.64)	Positive
30	L(18.9)	N(118)	H(92.4)	L(0.387)	
31	L(32.3)	N(114)	N(81.7)	H(0.72)	
32	L(20.3)	N(114)	N(83.4)	N(0.5)	
33	L(30.5)	N(135)	L(75.9)	H(0.69)	Negative
34	L(28.2)	N(128)	H(93.4)	L(0.387)	
35	N(22.1)	N(104)	H(85.7)	H(0.72)	
36	H(31.6)	N(121)	L(75.3)	L(0.387)	
37	H(29.3)	N(92.9)	L(34.7)	L(0.13)	

Figure 6: Layer-II, Lookup diagram for Proposed DHA-MLMFES

Figure 7, shows the accuracy of our proposed model for diagnosis of HIV-aids using a fuzzy soft expert system, it indicates that overall accuracy touch 94 percent

which is very important and has a high impact on the diagnosis system

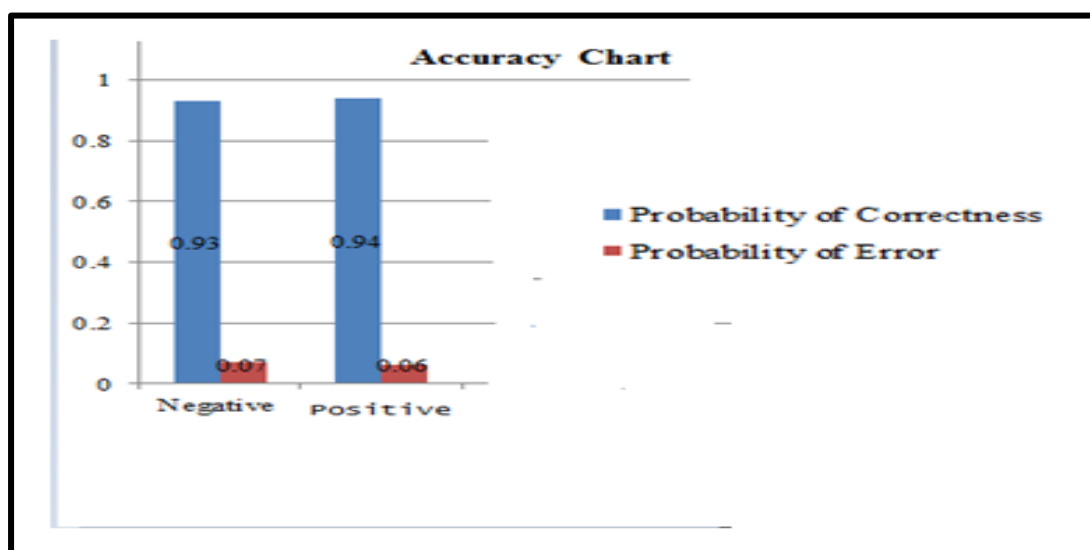


Figure 7: Layer-II, Lookup diagram for Proposed DHA-MLMFES

Conclusion: The primary focus of our analysis to style professional System DHA-MLMFES to diagnoses HIV-AIDS by taken the guidance of pharmaceutical examiners

& Medical-Lab of Roscommon University Hospital, Ireland. This planned skilled Structure is straight forwarding and also the best simple to utilize for

each/every pharmaceutical-professionals and non-pharmaceutical-professionals. Common personnel might be also diagnosing the advancement of HIV-AIDS by giving necessary inputs. The accuracy of our proposed DHA-ML-MFES model for diagnosis of HIV-AIDS using a fuzzy soft expert system is 94 percent and a miss rate 6 percent, which is very important and has a high impact on the diagnosis system.

In the future, this planned Automatic diagnosis HIV-AIDS Multi-layered Mamdani Fuzzy Expert Structure given as treatment by utilizing many alternative advance-techniques together with machine Intelligence like Neural networks and Neuro-fuzzy.

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