ORIGINAL ARTICLE

Novel Enriched Basil Seed Optimization, Little Child Imagination and Learning Inspired, Malignant Neoplasm of Uterine Algorithm

Lenin Kanagasabai[1] *

[1]*Department of EEE, Prasad V. Potluri Siddhartha Institute of Technology, Kanuru, Vijayawada, Andhra Pradesh -520007.India*

*Corresponding author: gklenin@gmail.com

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Abstract: In this paper Enriched Basil Seed Optimization (EBS), Little Child Imagination and Learning Inspired (LISPO), Malignant Neoplasm of Uterine Algorithm (MNUO) designed. Key objectives of the paper are Actual Power Loss Reduction and Voltage stability Enhancement in Electrical Power System. Basil seed algorithm based on the connotation amongst Basil and seeds. In pursuit of the optimal standards of dispersal of Basil seeds are significant and it is not conceivable to produce the seeds in capricious manner. In order to augment the process, actions of the Valonia ventricosa been integrated into the procedure. LISPO procedure utilizes the Golden proportion and imitates the intellectual knowledge and kid's sketch phases by means of finger compression girth, span and golden proportion of the kid's sketch. By experimental and slip, the kids' sketches progress from scrawl to an attractive sketch. Malignant Neoplasm of Uterine mathematically designed to formulate the MNUO algorithm. Preliminary Malignant Neoplasm magnitude in the uterus computed mathematically and it emphasizes the location in the procedure. Proposed EBS, LISPO and MNUO validated in 23 Benchmarking functions, IEEE 30 and 354 bus systems.

Keywords: Real, Furcifer, Nasuella olivacea

Introduction

In this paper Enriched Basil Seed Optimization (EBS), Little Child Imagination and Learning Inspired (LISPO), Malignant Neoplasm of Uterine Algorithm (MNUO) designed.

Major objective of the paper is Actual Power Loss Reduction and Voltage stability Enhancement in Electrical Power System.

Years to years, many conventional and evolutionary optimization techniques applied to solve the problem. Improved TLBO [1], Enhanced Ant lion [2], Advanced fractal search [3], Metaheuristic procedure [4], CACDE [5], Flow of water [6], Marine predator [7] are applied.

In this paper, new algorithms defined and applied to solve the problem. Enriched Basil Seed Optimization (EBS), Little Child Imagination and Learning Inspired (LISPO), Malignant Neoplasm of Uterine Algorithm (MNUO) designed mathematically and sequentially applied. Defined algorithms validated in standard IEEE test systems [8].

Problem Formulation

Main Objective function of the problem demarcated as,

$$\mathrm{Min}\ \tilde{\mathrm{F}}(\bar{\mathrm{g}},\bar{\mathrm{h}}) \quad (1)$$

$$\mathrm{M}(\bar{\mathrm{g}},\bar{\mathrm{h}}) = 0 \quad (2)$$

$$\mathrm{N}(\bar{\mathrm{g}},\bar{\mathrm{h}}) \quad (3)$$

Then the control $(\bar{g})$and dependent $(\bar{h})$vectors defined as,

$$g = [VLG_1,..,VLG_{Ng}; QC_1,..,QC_{Nc}; T_1,..,T_{N_T}] \quad (4)$$

$$h = [PG_{slack}; VL_1,..,VL_{N_{Load}}; QG_1,..,QG_{Ng}; SL_1,..,SL_{N_T}] \quad (5)$$

$Q_c \rightarrow$ reactive power compensator

$T \rightarrow$ Transformer tap

$V_g \rightarrow$ Generator voltage

$PG_{slack} \rightarrow$ Slack generator

$V_L \rightarrow$ Voltage in transmission lines

$Q_G \rightarrow$ Reactive power generator

Fitness functions defined as follows,

$$F_1 = P_{Min} = Min\left[\sum_m^{NTL} G_m \left[V_i^2 + V_j^2 - 2 * V_i V_j cos Ø_{ij}\right]\right] \quad (6)$$

$$F_2 = Min\left[\sum_{i=1}^{NLB} \left|V_{Lk} - V_{Lk}^{desired}\right|^2 + \sum_{i=1}^{Ng} \left|Q_{GK} - Q_{KG}^{Lim}\right|^2\right] \quad (7)$$

$$F_3 = Minimize\ L_{MaxImum} \quad (8)$$

$S_L \rightarrow$ Apparent power

$$L_{Max} = Max[L_j]; j = 1; N_{LB} \quad (9)$$

$$\begin{cases} L_j = 1 - \sum_{i=1}^{NPV} F_{ji} \frac{V_i}{V_j} \\ F_{ji} = -[Y_1]^1[Y_2] \end{cases} \quad (10)$$

$$L_{Max} = Max\left[1 - [Y_1]^{-1}[Y_2] \times \frac{V_i}{V_j}\right] \quad (11)$$

Parity constraints

$$0 = PG_i - PD_i - V_i \sum_{j \in N_B} V_j \left[G_{ij} cos[Ø_i - Ø_j] + B_{ij} sin[Ø_i - Ø_j]\right] \quad (12)$$

$$0 = QG_i - QD_i - V_i \sum_{j \in N_B} V_j \left[G_{ij} sin[Ø_i - Ø_j] + B_{ij} cos[Ø_i - Ø_j]\right] \quad (13)$$

Disparity constraints

$$P_{gsl}^{min} \le P_{gsl} \le P_{gsl}^{max} \quad (14)$$

$$Q_{gi}^{min} \le Q_{gi} \le Q_{gi}^{max}, i \in N_g \quad (15)$$

$$VL_i^{min} \le VL_i \le VL_i^{max}, i \in NL \quad (16)$$

$$T_i^{min} \le T_i \le T_i^{max}, i \in N_T \quad (17)$$

$$Q_C^{min} \le Q_c \le Q_C^{max}, i \in N_C \quad (18)$$

$$|SL_i| \le S_{L_i}^{max}, i \in N_{TL} \quad (19)$$

$$VG_i^{min} \le VG_i \le VG_i^{max}, i \in N_g \quad (20)$$

$$\text{Multi objective fitness (MOF)} = F_1 + r_i F_2 + u F_3 = F_1 + \left[\sum_{i=1}^{NL} x_v \left[VL_i - VL_i^{min}\right]^2 + \sum_{i=1}^{NG} r_g \left[QG_i - QG_i^{min}\right]^2\right] + r_f F_3 \quad (21)$$

$$VL_i^{minimum} = \begin{cases} VL_i^{max}, VL_i > VL_i^{max} \\ VL_i^{min}, VL_i < VL_i^{min} \end{cases} \quad (22)$$

$$QG_i^{minimum} = \begin{cases} QG_i^{max}, QG_i > QG_i^{max} \\ QG_i^{min}, QG_i < QG_i^{min} \end{cases} \quad (23)$$

Newly defined algorithms

Enriched Basil seed (EBS) algorithm based on the connotation amongst Basil [9] and seeds. In order to augment the process, actions of the Valonia ventricosa been integrated into the procedure. Basil presented to kiosk metabolic trauma through standardization of plasma glucose, lifeblood density and phospholipid stages, and psychosomatic trauma through optimistic possessions on reminiscence and perceptive task. Basil's comprehensive range anti-microbial commotion, which comprises action counter to an assortment of anthropological and visceral pathogens, proposes it can be castoff as a hand disinfectant, rinse and H2O sterilizer as well as in visceral nurturing, wound therapeutic, the conservation of nutriment objects and herbal rare ingredients and itinerant's wellbeing. In pursuit of the optimal standards of dispersal of Basil seeds are significant and it is not conceivable to produce the seeds in capricious manner. Consequently, the quantity of Basil seeds apprising will begin from supreme and will progressively abridged. By altering the amount of Basil seeds, the universal examination competence significantly enhanced. Feature of Valonia ventricosa is possessing of own coenocytic edifice with multifarious nucleus and chlorophyll. This entity owns a huge chief vacuole and it has many lobes in edifice. The complete cubicle encompasses numerous cytoplasmic provinces with every area having nuclei and chlorophyll. Cytoplasmic realms unified by connexion. Valonia ventricosa been premeditated predominantly since the cells are so remarkably hefty that they deliver an expedient theme for reviewing the transmission of aquatic and decipherable particles transversely in biotic sheaths. Little Child Imagination and Learning Inspired Optimization Algorithm (LISPO) Algorithm is inspired by the little one imaginative art of sketch progress attitude and intellectual growth in the premature infantile ages. Golden proportion employed in painting; it upsurges normal beholding configurations that are optically attractive to the vision of the eyes. LISPO procedure utilizes the Golden proportion and imitates the intellectual knowledge and kid's sketch phases by means of finger compression girth, span and golden proportion of the kid's sketch. By experimental and slip, the kids' sketches progress from scrawl to an attractive sketch. In the primary phase scrawls of a kid's which act as experimental to determine sketch are principally arbitrary inscriptions. Self-learning is important phase of the child and it depends on the space, environment of living. Latter stages the child will learn through communication and by observation. In that stage the child brain is most effective to learn many activities what it seeing obviously and knowledge given by the nature.

Malignant Neoplasm of Uterine Optimization (MNUO) algorithm designed based on the Malignant Neoplasm spreading in the Uterine and sequentially to parts of the human body. Malignant Neoplasm of Uterine is the utmost general malignance of the female human body reproductive organization. Malignant Neoplasm flinches in the cells of the female human body uterus. Malignant conquer and abolish neighboring tissue. In the peak of the spreading, it may affect the other parts of the body sequentially. The Malignant Neoplasm of Uterine mathematically designed to formulate the algorithm. Preliminary Malignant Neoplasm magnitude in the uterus computed mathematically and it emphasizes the location in the procedure.

Enriched Basil seed Algorithm

Enriched Basil seed (EBS) algorithm based on the connotation amongst Basil and seeds. In order to augment the process, actions of the Valonia ventricosa been integrated into the procedure. There is escalating substantiation that Basil can address corporal, biological, metabolic and psychosomatic trauma through an exceptional amalgamation of pharmacokinetics arrangements. Basil has been set up to shelter structures and muscles counter to substance trauma from industrialized toxins and dense metals, and corporeal trauma from protracted corporeal action, atherosclerosis, corporeal restriction and acquaintance to taciturn and undue din. Basil presented to kiosk metabolic trauma through standardization of plasma glucose, lifeblood density and phospholipid stages, and psychosomatic trauma through optimistic possessions on reminiscence and perceptive task. Basil 's comprehensive range anti-microbial commotion, which comprises action counter to an assortment of anthropological and visceral pathogens, proposes it can be castoff as a hand disinfectant, rinse and H2O sterilizer as well as in visceral nurturing, wound therapeutic, the conservation of nutriment objects and herbal rare ingredients and itinerant's wellbeing. Farming of Basil plants [10-15] has equally divine and real-world importance that joins the cultivator to the ingenious influences of environment, and biological farming deals elucidations for nutriment safety, bucolic scarcity, starvation, ecological dilapidation and weather transformation. The usage of Basil in everyday sacraments is a testimony to Ayurveda knowledge and delivers an illustration of antique acquaintance proposing elucidations to contemporary glitches. Basil seed procedure modeling grounded on the Basil-Seed and in the course of penetrating; a contrary connexion had preserved amongst the exploration and exploitation.

$$\mathrm{Of}(\vec{B}) \leq \mathrm{Of}(\vec{A}), \forall \vec{A} \in U \tag{24}$$

$$\mathrm{Of}(\vec{B}) \geq f(\vec{A}), \forall \vec{A} \in U \tag{25}$$

where Of if the funtion (objective)

U define the solution

Basil location been engaged into contemplation where seeds are prompted and it will be as premium position for the populace of the Basil.

$$SD_{i,j} = HBd_{i,j} + \delta_{i,j} \times (Z_j - HB_{e,j}) \tag{26}$$

$$SD_{i,j} = HBd_{i,j} + \delta_{i,j} \times (HBd_{i,j} - HB_{e,j}) \tag{27}$$

where $SD_{i,j}$ is the Basil seeds in jth dimension

$HBd_{i,j}$ is the ith Basil jth dimension

Z_j is the excellent jth Basil location attained

$HB_{e,j}$ is the Basil in jth dimension capriciously selected from the populace

$\delta_{i,j} \in [-1,1]$; factor for scaling

In the procedure primary, Basil positions will be the commencement of the exploration process and it stimulated by,

$$HBd_{i,j} = LB_{j,min} + R_{i,j} \times (HB_{j,max} - LB_{j,min}) \tag{28}$$

where $HB_{j,max}$, $LB_{j,min}$ are the higher and lower limits of the exploration

$R_{i,j} \in [0,1]$

From the populace the preeminent solution been designated to twig the minimization by,

$$Z = \mathrm{mini}\left(\mathrm{Of}(\vec{HB_i})\right) \tag{29}$$

Then the maximum number of function evaluation given by,

$$\text{Supreme task assessment} = d \times 10000 \tag{30}$$

Functions integrated to enhance the solution,

$$\vec{W}_i^{t+1} = \vec{W}_i^t + r_1 \times \sin(r_2) \times |r_3 \times V_i^t - \vec{W}_i^t| \tag{31}$$

$$\overrightarrow{W}_i^{t+1} = \overrightarrow{W}_i^t + r_1 \times \cos(r_2) \times \left|r_3 \times V_i^t - \overrightarrow{W}_i^t\right| \quad (32)$$

$$\overrightarrow{W}_i^{t+1} = \begin{cases} \overrightarrow{W}_i^{t+1} = \overrightarrow{W}_i^t + r_1 \times \sin(r_2) \\ \times \left|r_3 \times V_i^t - \overrightarrow{W}_i^t\right| \quad r_4 < 0.5 \\ \overrightarrow{W}_i^{t+1} = \overrightarrow{W}_i^t + r_1 \times \cos(r_2) \\ \times \left|r_3 \times V_i^t - \overrightarrow{W}_i^t\right| \quad r_4 \geq 0.5 \end{cases} \quad (33)$$

In pursuit of the optimal standards of dispersal of Basil, seeds are significant and it's not conceivable to produce the seeds in capricious manner. Consequently, the quantity of Basil seeds apprising will begin from supreme and will progressively abridged. Then the supreme task assessment carved as,

$$\text{Fraction of supreme task assessment} = \frac{\text{task assessment}}{\text{max.task assessment}} \quad (34)$$

$$J = 0.50 \times \text{Fraction of task assessment} \times \pi \quad (35)$$

$$\text{Sum of Basil seeds} = LB + \left|\begin{matrix}(HB - LB) \\ \times \operatorname{Cos}(J)\end{matrix}\right| + 1 \quad (36)$$

By altering the amount of Basil seeds, the universal examination competence significantly enhanced. At that time, a new rectilinear factor "Y" has employed and it persuades the elucidation to hurdle out from confined atmosphere. Principally in the technique, exploration has amended then progressively exploitation boosted.

$$Y = 2 \times (1 - \text{Fraction of task assessment}) \quad (37)$$

The location of the Basil seed attained from the Basil is very significant for the exploration technique. At that point, the exploration calculation specified as,

$$SD_{i,j} = R \times HB_{i,j} + (1 - R) \times Z_j, R \leq 0.5\,P \quad (38)$$

$$SD_{i,j} = HB_{i,j} + Y\left(Z_j - R \cdot HB_{i,j} \times HB_{i,j}\right) \times \left(\operatorname{Sin}\left(\pi \times a \cdot \cos\left(R \cdot HB_{i,j}\right)\right)\right), 0.5\,P \leq r \leq P \quad (39)$$

$$SD_{i,j} = R.HB_{i,j} + Y\left(Z_j - R \cdot HB_{i,j} \times HB_{i,j}\right) \times \left(\operatorname{Sin}\left(\pi \times a \cdot \cos\left(R \cdot HB_{i,j}\right)\right)\right), r \geq P \quad (40)$$

In order to augment the process, actions of the Valonia ventricosa have integrated into the Basil seed procedure. Valonia ventricosa Algorithm imitates the living deeds of Valonia ventricosa and its own coenocytic edifice with multifarious nucleus and chlorophyll. This entity owns a huge chief vacuole and it has many lobes in edifice. The complete cubicle encompasses numerous cytoplasmic provinces with every area having nuclei and chlorophyll. Cytoplasmic realms unified by connexion [16]. Valonia ventricosa has premeditated predominantly since the cells are so remarkably hefty that they deliver an expedient theme for reviewing the transmission of aquatic and decipherable particles transversely in biotic sheaths. It was determined that the chattels of porousness in both osmosis and dispersion were equal. Valonia ventricosa, movement rage demarcated as,

$$\left(Vv_i^{max}, Vv_i^{min}\right)$$

Exploration space quantified as,

$$\left(Vv_i^j\right)$$

$$i = 1,2,.,N$$

$$j = 1,2,..,N + 1$$

Aim function computed as,

$$\left(OF_j\left(Vv_i^j\right)\right)$$

$$\text{where } j = 1,2,..,N + 1$$

$$U_j = U_j + \Delta_j U_j \quad (41)$$

$$\text{where } j = 1,2,..,N + 1$$

Monod (scientific model) task for Valonia ventricosa growing defined as,

$$\Delta_j(j = 1,2,..,N + 1)$$

Monod task specified as,

$$\Delta_j = \frac{2O_j}{U_j + 2O_j} \quad (42)$$

$$\text{where } j = 1,2,..,N + 1$$

Appropriateness task defined as,

$$O_j(j = 1,2,..,N + 1)$$

$$O_j = \begin{cases} \frac{Z_j - Z_{min}}{Z_{max} - Z_{min}} \text{; Maximum} \\ \frac{Z_{max} - Z_j}{Z_{max} - Z_{min}} \text{; Minimum} \end{cases} \quad (43)$$

Apiece Valonia ventricosa is premeditated as,

$$O_j = \frac{W_j - W_{min}}{W_{max} - W_{min}} \quad (44)$$

$$\text{where } j = 1,2,..,N + 1$$

$$W_j = U_j^2$$

$$\text{where } j = 1,2,..,N + 1$$

Passage of water on Valonia ventricosa defined as,

$$Q_a^j = Q_a^j + \left(Q_a^i - Q_a^j\right)(\emptyset - \sigma_j)\varphi \quad (45)$$

$$Q_b^j = Q_b^j + \left(Q_a^i - Q_b^j\right)(\emptyset - \sigma_j)\cos\varphi \quad (46)$$

$$Q_c^j = Q_c^j + \left(Q_c^i - Q_c^j\right)(\emptyset - \sigma_j)\sin\varphi \quad (47)$$

$$\alpha, \beta \in [0,2\pi]$$

$$\varphi \in [-1,1]$$

a, b and c are randomly choosen Valonia ventricosa

$$\sigma_j = 2\pi\left(\sqrt[3]{\frac{3U_j}{4\pi}}\right) \quad (48)$$

In acclimatize segment the major cluster in the atmosphere with prospect P_p assumed as,

$$Q_i^U = Q_i^U + \left(Q_i^U - Q_i^U\right) \times R \quad (49)$$

$i = 1,2,.,N$

$R \in [0,1]$

Enriched Basil seed (EBS) algorithm

a. Start
b. Set the parameters
c. Engender the population
d. $\text{Sum of Basil seeds} = LB + |(HB - LB) \times \text{Cos}(J)| + 1$
e. Apply new rectilinear factor
f. $Y = 2 \times (1 - \text{Fraction of task assessment})$
g. Fix the value of P
h. Define the dimension
i. $SD_{i,j} = HBd_{i,j} + \delta_{i,j} \times \left(Z_j - HB_{e,j}\right)$
j. $SD_{i,j} = HBd_{i,j} + \delta_{i,j} \times \left(HBd_{i,j} - HB_{e,j}\right)$
k. Define Termination standard of the procedure
l. Produce the Basil locations in capricious mode
m. $HBd_{i,j} = LB_{j,min} + R_{i,j} \times \left(HB_{j,max} - LB_{j,min}\right)$
n. Assess the Basil locations rendering to function (objective)
o. Select the Premium solution
p. Examination of Basil seeds
q. For all Basil – define the Basil seeds to be engendered
r. For all Basil Seeds- define the dimensions
s. $SD_{i,j} = R \times HB_{i,j} + (1 - R) \times Z_j, R \le 0.5\ P$
t. $SD_{i,j} = HB_{i,j} + Y\left(Z_j - R \cdot HB_{i,j} \times HB_{i,j}\right) \times \left(\text{Sin}\left(\pi \times a \cdot \cos\left(R \cdot HB_{i,j}\right)\right)\right), 0.5\ P \le r \le P$
u. $SD_{i,j} = R.HB_{i,j} + Y\left(Z_j - R \cdot HB_{i,j} \times HB_{i,j}\right) \times \left(\text{Sin}\left(\pi \times a \cdot \cos\left(R \cdot HB_{i,j}\right)\right)\right), r \ge P$
v. Define the initial dimension
w. $U_j = 1(j = 1,2,..,N + 1)$
x. Set the Primary appetite segment
y. $A_j = 1(j = 1,2,..,N + 1)$
z. Calculate the objective function
aa. Monod (scientific model) task for Valonia ventricosa growing is defined
bb. $\Delta_j(j = 1,2,..,N + 1)$
cc. Monod task is specified
dd. $\Delta_j = \frac{2O_j}{U_j + 2O_j}$
ee. Appropriateness task is defined
ff. $O_j(j = 1,2,..,N + 1)$
gg. $O_j = \begin{cases} \frac{Z_j - Z_{min}}{Z_{max} - Z_{min}} & ; \text{Maximum} \\ \frac{Z_{max} - Z_j}{Z_{max} - Z_{min}} & ; \text{Minimum} \end{cases}$
hh. Apiece Valonia ventricosa is premeditated as,
ii. $O_j = \frac{W_j - W_{min}}{W_{max} - W_{min}}$
jj. Passage of water on Valonia ventricosa is specified
kk. $Q_a^j = Q_a^j + \left(Q_a^i - Q_a^j\right)(\emptyset - \sigma_j)\varphi$
ll. $Q_b^j = Q_b^j + \left(Q_a^i - Q_b^j\right)(\emptyset - \sigma_j)\cos\varphi$
mm. $Q_c^j = Q_c^j + \left(Q_c^i - Q_c^j\right)(\emptyset - \sigma_j)\sin\varphi$
nn. if there is no enrichment then amplify the appetite phase
oo. $A_j = A_j + 1$
pp. When $(j < N + 1)$ then go to step j
qq. Otherwise go to next step
rr. Streamline the Dimension of the Valonia ventricosa
ss. $U_j = U_j + \Delta_j U_j$
tt. $\Delta_j(j = 1,2,..,N + 1)$

uu. If $(r > P_p)$, then

vv. $Q_i^U = Q_i^U + (Q_i^U - Q_i^U) \times R$

ww. End if

xx. End for

yy. Premium Basil seed is selected

zz. Equate the Premium Basil seed with Basil

aaa. If the objective rate of the Premium Basil seed is superior - Swap the Basil

bbb.

nd for

ccc. In populace select the premium one

ddd.

$d \times 10000$

eee. Once the fresh premium solution is superior than previous solution then it will be swapped

fff. Iif the termination standard is attained at that time halt the procedure

ggg. Or else go to step "j"

hhh.

utput the premium solution

iii. End

Little Child Imagination and Learning Inspired Optimization Algorithm

Little Child Imagination and Learning Inspired Optimization Algorithm (LISPO) Algorithm is inspired by the little one imaginative art of sketch progress attitude and intellectual growth in the premature infantile ages. Golden proportion employed in painting; it upsurges normal beholding configurations that are optically attractive to the vision of the eyes. LISPO procedure utilizes the Golden proportion and imitates the intellectual knowledge and kid's sketch phases by means of finger compression girth, span and golden proportion of the kid's sketch [17]. By experimental and slip, the kids' sketches progress from scrawl to an attractive sketch. In the primary phase, scrawls of a kid's, which act as experimental to determine sketch, are principally arbitrary inscriptions. The kid in this phase is noticing and determining drives and finger compression. Drive can be together in rectilinear and curving arbitrarily ever since the kid is noticing pool lining actions outcome in the outlines and some added actions of finger fallouts in curls. In this phase, the finger compression is not equitable; either one excessively tall or else squat, well along will be enhanced by experimental in the impending phases, captivating into description numerous features.

Engendering of this action in mathematical mode defined as,

$$Z_{ij}: \text{for } i = 1 \text{ to } N \tag{50}$$

where Z_{ij} present elucidation signifying

a kid's sketch

Supreme task assessment $=$

In the next phase, kid acquires to generate figures by governing the drive and course. At this phase, the sketches are value added typical one and imitative, and the kid is equating the sketch to the preeminent outline as cultured and describes the finest drew sketch hitherto, moreover of reconstructing novel scrawls by emulating the finest neighboring sketcher and equating their sketch with the finest drew sketch hitherto by the assemblage. Finger compression is one of the features to categorize a kid's enactment. Whereas the finger compression is pertinent, the kid's level is great. In the interim, that designates a kid has sufficient abilities to plan a sketch with squat finger compression and a precise golden proportion. At principal, an Arbitrary Finger Compression generated.

$$\text{Arbitrary Finger Compression} = \text{Random}$$

$$(\text{Lower Bound}, \text{UpperBound}) \tag{51}$$

$$\text{Finger compression} = Z(i, \text{Random}(j)) \tag{52}$$

In the next phase, kid will smear the abilities that have been educated from practices and customs the opinion to perceive the design in the real images and attempt to stretch connotations to the sketches and exercise generating sketches by replication, exercising, and actuality fervent in experimental mode. To smear these attitudes, subsequent to examination of the abilities of kid through appraising finger compression utilized. The present finger compression is associated with Arbitrary Finger Compression; when it is minor than Arbitrary Finger Compression, at that time the solution will be rationalized by captivating into interpretation the ability degree and phase degree of the kid, (arbitrary quantities amongst $(0.0 - 1.0)$ in primarily level and late it is between $(0.6 - 1.0)$ when the kid make sure of a pertinent finger compression). By fixing ability degree and phase degree to extraordinary $(0.6 - 1.0)$ designates that the kid ensures a precise level of acquaintance and ability degree, however it can advanced by bearing in mind the Golden proportion.

$$Z_{i+1} = G.P + \text{ability degree} \times (Z_{i.\text{local best}} - Z_i) + \text{phase degree} \times (Z_{i\text{Global best}} - Z_i) \quad (53)$$

where $G.P$ is Golden proportion

$Z_{i.\text{local best}}$ specify the kid's excellent sketches (Local best solution)

$Z_{i\text{Global best}}$ is the Global best solution (noticing the surroundings)

$$Z_{i\,G.P} = Z_{iS} + Z_{iG}/Z_{iS} \quad (54)$$

where S, G is the stretch and girth

$$S, G = \text{Random}(0, j) \quad (55)$$

In the Fourth phase every kid has the inventiveness and abilities are expanded through practice and noticing the neighboring surroundings. Inventiveness is a feature that creates any skill section to be extra optically attractive. In this phase, the kid is uniting data to appraise the elucidations, which meet, or adjoining to the golden proportion. Nevertheless, the elucidation ensures not have a pertinent finger compression, which designates that a kid's abilities not considerably advanced hitherto, and desires enhancement by means of the resourcefulness feature in addition to the golden proportion. Furthermore, any kid reminiscences the finest erudition practices tried to emulate the similar procedure to acquire enhanced outcomes. Aimed at, a Design Retention produced for every solution in the procedure; the magnitude of the design can alter rendering to the capacity of the problem. Nevertheless, choosing an arbitrary solution amongst the Design Retention array to be castoff for appraising the solutions that are not acting sound, is one of the approaches to upsurge the convergence degree of the procedure, and in genuine lifecycle, it intensifies the wisdom rapidity of the progenies. Both Inventiveness parameter and Design Retention employed, which is castoff for appraising the present solution and converging in the direction of the optimum solution. The enhancement included by bearing the inventiveness parameter.

$$Z_{i+1} = Z_{i\,\text{Design Retention}} + \text{Inventiveness parameter} \times (Z_{i\text{Global best}}) \quad (56)$$

$\text{Inventiveness parameter} = 0.10$

$\text{Ability degree and Phase degree} \in (0.0 - 0.50)$

In the Fifth, phase addition of various particulars and in accurate mode with equating to all the finest sketches by means of preceding acquaintance and abilities. This attitude smeared in the procedure by selecting one of the finest kid's superlative sketches arbitrarily to appraise the present sketch, which possess a precise golden proportion but the finger compression is not pertinent. This phase mostly emphases on comprehensive edges of the sketches. The attitude is smeared in the procedure subsequently it is demonstrated by the agent's individual finest modernizing mechanism. It is as soon as the solution will rationalize when around enhanced solutions, and for modernizing the universal finest solution of the populace. This attitude drive during the modernizing of the Design Retention with the present finest comprehensive solution grasped hitherto in iterations. In the initial ages, Babies are naturally prepared to learn, and their brainpowers progress by usage. A child requests an interesting atmosphere with oodles of dissimilar means to play and acquire. It is natural that a child prerequisite adequate probabilities to exercise its learning time to time. Babies are learning preeminent as soon as they have earnest, betrothed and receptive relations with their foremost caretaker i.e. especially from their mother. In addition, obviously main educator of the babies is their mother and child will hold onto learning through ages. Babies grow stage by stage mentally and physically as child and it learns through play and assessment in an innocuous and exciting atmosphere. From the family members and others the child will learn progressively on basic communications, analyzing - thinking, problem solving skills and behaviour with others. The key aspects are Noticing things, observing expressions and replying to vocal sound , paying attention to sounds, creating hums and humming, exploring –by keeping various things in mouth, shuddering the materials and rotating belongings from place to place, querying, , investigating with consistencies, substances and resources like aquatic, grit, exploit stuffs that rouse the senses and through various modes . The learning of the child done by various modes like, selecting the books for reading, indicating the depictions in books, picking stuffs and dolls for playing and many things. Always primarily the child needs the support from family members especially form mother for learning. What to do and what should not to do, how to do and how long to do, etc. are sequentially learned by the child day by day. Applause and boost will keep the child in interested mode and it makes the mind of the child to be in good mood. It is natural that children will learn in different way and they will not learn in same mode. Content and amount of learning will always differs from child to child. In early years as baby it learn from mother sequentially from other family members, next phase it learns from the environment, others and in grown up stage child will learn in school. Routine activities of the child also make to learn from the hindrances in the actions. In this work learning of the child form the own mother, self and from the environments are modeled mathematically to solve the power loss Lessening problem.

At first the child learn from the mother and it defined as

$$C_{new} = C_i + R \times (C_{mother} - MF \times C_{mean}) \quad (57)$$

where MF is mother factor

$R \in [0,1]$

The learning of the child defined as,

$$\begin{cases} C_{new} = C_i + R \times (C_j - y_i), \text{if } f(C_j) < f(C_i) \\ C_{new} = C_i + R \times (C_i - C_j), \quad \text{otherwise} \end{cases} \quad (58)$$

Learning of the child by various modes in different means like, selecting the books for reading, indicating the depictions in books, picking stuffs and dolls for playing and many things is defined as,

$$C'^{k}_{j,i} = (C^{k}_{j,i} - DM_{j,i}) + R_i(C^{h}_{j,i} - C^{k}_{j,i}) \text{ if } f(C^{h}) < f(C^{k}), h \neq k \quad (59)$$

$$C'^{k}_{j,i} = (C^{k}_{j,i} - DM_{j,i}) + R_i(C^{k}_{j,i} - C^{h}_{j,i}) \text{ if } f(C^{k}) < f(C^{h}), h \neq k \quad (60)$$

where $DM_{j,i}$ is difference mean

$R_i \in [0,1]$

$$DM_{j,i} = R_i(C^{best}_{j,i} - L_F \cdot Mean_{j,i}) \quad (61)$$

$$L_F = r(1 + R_i) \quad (62)$$

The solution update done through,

$$C'^{k}_{j,i} = C^{k}_{j,i} + DM_{j,i} \quad (63)$$

Self-learning is important phase of the child and it depends on the space, environment of living. Latter stages the child will learn through communication and by observation. In that stage the child brain is most effective to learn many activities what it seeing obviously and knowledge given by the nature and it defined as,

$$C'^{p}_{j,i} = \left(C'^{p}_{j,i} + R_i\left(C'^{p}_{j,i} - C'^{q}_{j,i}\right)\right) + \left(R_i\left(C^{s}_{j,i} - EX_{FC} * C'^{p}_{j,i}\right)\right) \text{ if } f(C'^{p}) < f(C'^{q}) \quad (64)$$

$$C'^{p}_{j,i} = \left(C'^{p}_{j,i} + R_i\left(C'^{q}_{j,i} - C'^{p}_{j,i}\right)\right) + \left(R_i\left(C^{s}_{j,i} - EX_{FC} * C'^{p}_{j,i}\right)\right) \text{ if } f(C'^{q}) < f(C'^{p}) \quad (65)$$

where EX_{FC} is exploration factor

$R_i \in [0,1]$

$$EX_{FC} = r(1 + R_i) \quad (66)$$

Child may learn completely from various aspects or it may not learn anything and this learning factor can defined as,

$$(L_F)_{s,i} = \left(f(C^k)/V_s\right); \text{if } V_s \neq 0 \quad (67)$$

$$(L_F)_i = 1; \text{if } V_s = 0 \quad (68)$$

where $(L_F)_{s,i}$ is learning factor

V_s is various aspects

a. Start
b. Set the parameters
c. Engender the population
d. $Z_i: i = 1,2,3, \ldots, j$
e. for $i = 1$ to N
f. Calculate the fitness value of each sketch
g. Fix the individual and Global best values
h. Compute the Golden proportion
i. Produce the Design Retention array
j. Arbitrarily select a catalogue for Design Retention
k. $\text{While}(t < \text{max. number of iter})$
l. Compute the Arbitrary Finger Compression
m. $\text{Arbitrary Finger Compression} = \text{Random}(\text{Lower Bound}, \text{UpperBound})$
n. Arbitrarily select finger compression
o. $Z_{i\,G.P} = Z_{iS} + Z_{iG}/Z_{iS}$
p. $S, G = \text{Random}(0, j)$
q. For each sketch : if finger compression is squat, then
r. Modernize the sketch

s. $Z_{i+1} = G.P + \text{ability degree} \times (Z_{i.\text{local best}} - Z_i) + \text{phase degree} \times (Z_{i\text{Global best}} - Z_i)$

t. Fix Ability degree and Phase degree to high value

u. End if

v. Else if

w. Deliberate the educated designs

x. $Z_{i+1} = Z_{i\ \text{Design Retention}} + \text{Inventiveness parameter} \times (Z_{i\text{Global best}})$

y. Compute the fitness value of the population

z. Recognize the best solution

aa. $C_{new} = C_i + R \times (C_{mother} - MF \times C_{mean})$

bb. Define the learning process of the child

cc. $\begin{cases} C_{new} = C_i + R \times (C_j - y_i), \text{if } f(C_j) < f(C_i) \\ C_{new} = C_i + R \times (C_i - C_j), \quad \text{otherwise} \end{cases}$

dd. Update the learning in the process

ee. Recognize the Learning of the child by various modes in different means

ff. $C_{j,i}^{k} = (C_{j,i}^{k} - DM_{j,i}) + R_i(C_{j,i}^{h} - C_{j,i}^{k}) \text{ if } f(C^h) < f(C^k), h \neq k$

gg. $C_{j,i}^{k} = (C_{j,i}^{k} - DM_{j,i}) + R_i(C_{j,i}^{k} - C_{j,i}^{h}) \text{ if } f(C^k) < f(C^h), h \neq k$

hh. $DM_{j,i} = R_i(C_{j,i}^{best} - L_F \cdot Mean_{j,i})$

ii. $L_F = r(1 + R_i)$

jj. Evaluate the Self learning

kk. $C_{j,i}^{\prime p} = \left(C_{j,i}^{\prime p} + R_i\left(C_{j,i}^{\prime p} - C_{j,i}^{\prime q}\right)\right) + \left(R_i\left(C_{j,i}^{s} - EX_{FC} * C_{j,i}^{\prime p}\right)\right) \text{ if } f(C^{\prime p}) < f(C^{\prime q})$

ll. $C_{j,i}^{\prime p} = \left(C_{j,i}^{\prime p} + R_i\left(C_{j,i}^{\prime q} - C_{j,i}^{\prime p}\right)\right) + \left(R_i\left(C_{j,i}^{s} - EX_{FC} * C_{j,i}^{\prime p}\right)\right) \text{ if } f(C^{\prime q}) < f(C^{\prime p})$

mm. Comput the exploration factor

nn. $EX_{FC} = r(1 + R_i)$

oo. Appraise the learning factor

pp. $(L_F)_{s,i} = \left(f(C^k)/V_s\right); \text{if } V_s \neq 0$

qq. $(L_F)_i = 1; \text{if } V_s = 0$

rr. Fix Ability degree and Phase degree to small value

ss. End if

tt. Compute the cost rate

uu. Modernize the individual and Global best values

vv. Streamline the Design Retention

ww. Stockpile the finest cost rate

xx. $t = t + 1$

yy. End while

zz. Output the best solution

aaa. End

Malignant Neoplasm of Uterine Optimization algorithm

In this paper, Malignant Neoplasm of Uterine Optimization (MNUO) algorithm designed based on the Malignant Neoplasm spreading in the Uterine and sequentially to parts of the female human body [19, 20]. Malignant Neoplasm of Uterine is the utmost general malignance of the female human body reproductive organization. Malignant Neoplasm flinches in the cells of the female human body uterus. Malignant conquer and abolish neighboring tissue. In the peak of the spreading, it may affect the other parts of the body sequentially. The Malignant Neoplasm of Uterine mathematically designed to formulate the algorithm. Preliminary Malignant Neoplasm magnitude in the uterus computed mathematically and it emphasizes the location in the procedure,

$$P_i^{*j} = \frac{\pi}{3*3}(L^j) \cdot (W^j) \cdot (H^j) - \left(\min + (\max - \min) - R * P_i^{*j}\right) \quad (69)$$

$P_i^{*j} \rightarrow$ poistion

$L^j \rightarrow$ Length

$W^j \rightarrow$ Width

$H^j \rightarrow$ Height

$\max, \min \rightarrow$ limits

$R \in [0,1]$

$i = 1,2,3, . . , N$

$j = 1,2,3, . . , D$

$L^j, W^j, H^j \in [0,1]$

The expansion of the Malignant Neoplasm in uterus defined as,

$$P = \frac{\pi}{3*3} \cdot U \cdot (L \cdot W)^{\frac{3}{2}} \quad (70)$$

$P \rightarrow$ position

$U = 1$

$L, W \rightarrow$ Length and Width

Malignant Neoplasm will be spreading in the other areas of the Uterus and this action mathematically defined as,

$$GP^i = \frac{dv}{dt} = r * P \quad (71)$$

$GP^i \rightarrow$ growth position

$r \rightarrow$ radius of the Malignant Neoplasm spreading in uterus

$r \in [0,1]$

$P \rightarrow$ position

$t = [1,2,3, . . , T]$

$i = [1,2,3, . . , N]$

Malignant Neoplasm will be spreading will indicate the controlling point and this action has been replicated with the Levy function.

$$Z_i = \frac{a}{|b|^{1/\beta}} \ a \sim N(0, \sigma_a^2); b \sim N(0, \sigma_b^2) \quad (72)$$

$$\sigma_a = \left\{\frac{\Gamma(1+\beta)\sin(\pi\beta/2)}{\Gamma[(1+\beta)/2]\beta^{2(\beta-1)/2}}\right\}$$

$\sigma_b = 1$

$L = 0.01 - Z_j \in \left(X_{i,k} - X^{best}\right)$

The spreading of the in the Malignant Neoplasm scientifically define as,

$$b = P + GP \quad (73)$$

$GP \rightarrow$ Growth position

$P \rightarrow$ position

$$A = B + Q * LF(D) \quad (74)$$

$Q \in [0,1]$

Malignant Neoplasm will spread to other parts of the human body. In the MNUO, mutation and crossover operations defined rendering to the spreading of the Malignant Neoplasm.

$$b \text{ mutation } = \begin{cases} P \text{ if } R_1 \geq \zeta \\ b \text{ otherwise} \end{cases} \quad (75)$$

$R_1 \in [0,1]$

$P \rightarrow$ position

$$a \text{ mutation } = \begin{cases} P \text{ if } R_2 \geq \zeta \\ a \text{ otherwise} \end{cases} \quad (76)$$

$R_2 \in [0,1]$

$P \rightarrow$ position

$\zeta = 1/T$

$b = \left|\text{position} - \text{position}_i^j\right|$

$a = b - Q$

$$b \text{ mutation } = \begin{cases} P \text{ if } \sigma_1 \geq \zeta \\ b \text{ otherwise} \end{cases} \quad (77)$$

$$a \text{ mutation } = \begin{cases} P \text{ if } \sigma_2 \geq \zeta \\ a \text{ otherwise} \end{cases} \quad (78)$$

$P \rightarrow$ position

$\zeta = 1/T$

$b = \left|\text{position} - \text{position}_i^j\right|$

$a = b - Q$

The crossover defined as,

$$E_{crossover} = \varphi * b_{mutation} + (1 - \varphi') * a_{mutation} \quad (79)$$

$\varphi \neq \varphi'$

$\varphi, \varphi' \rightarrow$ engender the offsprings

Through the Greedy selection stratagem, the position defined as,

$$P_{t+1}^i = \begin{cases} b_{mutation} \text{ if } F(b_{mutation}) < F(P^i) \\ a_{mutation} \text{ if } F(a_{mutation}) < F(P^i) \\ E_{crossover} \text{ if } F(E_{crossover}) < F(P^i) \end{cases} \quad (80)$$

a. Start
b. Fix the values
c. Create the population
d. $P_i^{*j} = \frac{\pi}{3*3}(L^j) \cdot (W^j) \cdot (H^j) - \left(\min + (\max - \min) - R * P_i^{*j}\right)$
e. //Exploitation segment//

f. Compute the Malignant Neoplasm fitness value

g. $\text{if } P \leq 0.8 \text{ or } P > 0.8 \text{ then}$

h. Update the Malignant Neoplasm location

i. $P = \frac{\pi}{3*3} \cdot U \cdot (L \cdot W)^{\frac{3}{2}}$

j. Else

k. $\text{if } P > 0.8 \text{ or } P < 1.961 \text{ then}$

l. Modernize the Malignant Neoplasm position

m. $GP^i = \frac{dv}{dt} = r * P$

n. $//\text{Exploration segment}//$

o. $\text{Else if } P > 1.961 \text{ then}$

p. Amend the location

q. $Z_i = \frac{a}{|b|^{1/\beta}} \; a \sim N(0, \sigma_a^2); b \sim N(0, \sigma_b^2)$

r. $\sigma_a = \left\{\frac{\Gamma(1+\beta)\sin(\pi\beta/2)}{\Gamma[(1+\beta)/2]\beta 2^{(\beta-1)/2}}\right\}$

s. $\sigma_b = 1$

t. $L = 0.01 - Z_j \in \left(X_{i,k} - X^{best}\right)$

u. $b = P + GP$

v. $A = B + Q * LF(D)$

w. $b \text{ mutation} = \begin{cases} P \text{ if } R_1 \geq \zeta \\ b \text{ otherwise} \end{cases}$

x. $a \text{ mutation} = \begin{cases} P \text{ if } R_2 \geq \zeta \\ a \text{ otherwise} \end{cases}$

y. Comput the spreading of Malignant Neoplasm

z. $b \text{ mutation} = \begin{cases} P \text{ if } \sigma_1 \geq \zeta \\ b \text{ otherwise} \end{cases}$

aa. $a \text{ mutation} = \begin{cases} P \text{ if } \sigma_2 \geq \zeta \\ a \text{ otherwise} \end{cases}$

bb. $\zeta = 1/T$

cc. $b = \left|\text{position} - \text{position}_i^j\right|$

dd. $a = b - Q$

ee. $E_{crossover} = \varphi * b_{mutation} + (1 - \varphi') * a_{mutation}$

ff. Update the position

gg. $P_{t+1}^i = \begin{cases} b_{mutation} \text{ if } F(b_{mutation}) < F(P^i) \\ a_{mutation} \text{ if } F(a_{mutation}) < F(P^i) \\ E_{crossover} \text{ if } F(E_{crossover}) < F(P^i) \end{cases}$

hh. End for

ii. $t = t + 1$

jj. output the best solution

kk. End

Simulation Results

Enriched Basil Seed Optimization (EBS), Little Child Imagination and Learning Inspired (LISPO), Malignant Neoplasm of Uterine Algorithm (MNUO) validated in corroborated in 23 benchmark functions (Main 7-Unimodal, succeeding 6-Multimodal, concluding 10-fixed- dimension multimodal) [18], Table I displays the result of EBS, LISPO and MNUO in 23 benchmark functions.

Table I. Outcoem of 23 benchmark functions

Benchmark Function	ADVSSA [18]	ERCSSA [18]	EBS	LISPO	MNUO
1	6.38×10^{-12}	6.96×10^{-9}	6.27×10^{-12}	6.27×10^{-12}	6.27×10^{-12}
2	3.08×10^{-7}	5.48×10^{-6}	3.08×10^{-7}	3.08×10^{-7}	3.08×10^{-7}
3	2.53×10^{-1}	4.35×10^{-10}	2.49×10^{-1}	2.49×10^{-1}	2.49×10^{-1}
4	6.71×10^{-7}	1.19×10^{-5}	6.68×10^{-7}	6.68×10^{-7}	6.68×10^{-7}
5	4.110208	4.11726	4.11009	4.11009	4.11009
6	3.19×10^{-10}	4.50×10^{-10}	3.08×10^{-10}	3.08×10^{-10}	3.08×10^{-10}
7	2.23×10^{-5}	0.002002	2.19×10^{-5}	2.19×10^{-5}	2.19×10^{-5}
8	−2877.61	−3052.87	−2849.08	−2849.08	−2849.08
9	1.01×10^{-12}	22.85084	1.09×10^{-12}	1.09×10^{-12}	1.09×10^{-12}
10	4.79×10^{-7}	0.810233	4.9×10^{-7}	4.9×10^{-7}	4.9×10^{-7}
11	5.91×10^{-12}	0.33718	5.89×10^{-12}	5.89×10^{-12}	5.89×10^{-12}
12	2.56×10^{-12}	0.051897	2.49×10^{-12}	2.49×10^{-12}	2.49×10^{-12}
13	0.000366	0.001099	0.000351	0.000351	0.000351
14	0.998	0.998	0.998	0.998	0.99800

	004	004	004	004	4
15	0.000	0.000	0.000	0.000	0.00029
	307	829	291	291	1
16	−1.03	−1.03	−1.03	−1.03	−1.0311
	163	163	119	119	9
17	0.397	0.397	0.397	0.397	0.39783
	887	887	831	831	1
18	3	3	3	3	3
19	−3.86	−3.86	−3.86	−3.86	−3.8621
	278	278	211	211	1
20	−3.23	−3.21	−3.23	−3.23	−3.2301
	084	497	014	014	4
21	−10.1	−8.80	−10.1	−10.1	−10.150
	532	506	505	505	5
22	−10.0	−8.46	−10.0	−10.0	−10.041
	486	635	411	411	1
23	−10.5	−9.28	−10.5	−10.5	−10.531
	364	557	315	315	5

Enriched Basil Seed Optimization (EBS), Little Child Imagination and Learning Inspired (LISPO), Malignant Neoplasm of Uterine Algorithm (MNUO) validated in in IEEE 30 bus system [8]. Table II shows the Active power loss (ATP (MW)), Electric Voltage abnormality (EVA (PU)) and Equipoise (EVP (PU). Figures 1 to 3 give the valuation of ATP, EVA and EVP.

Table II. Assessment of outcome

Method	ATP(MW)	EVA(PU)	EVP(PU)
MEVY [1]	4.5213	0.1038	0.1258
MEAC [1]	4.6862	0.2064	0.1499
MEVC [1]	4.6862	0.1354	0.1271
HMTLBO [2]	4.5777	0.0913	0.1180
MEALO [2]	4.5142	0.1220	0.1161
MEABC [2]	4.5275	0.0890	0.1161
HMFS [3]	4.5135	0.0896	0.1252
MEFS [4]	4.5284	0.0891	0.1245
MEDE [5]	4.6482	0.0802	0.1004
CTFWO [6]	4.9448	0.1212	0.1232
IMPA [7]	4.5677	0.1250	0.1135
EBS	4.4910	0.0819	0.1296
LISPO	4.4912	0.0822	0.1294
MNUO	4.4909	0.0817	0.1292

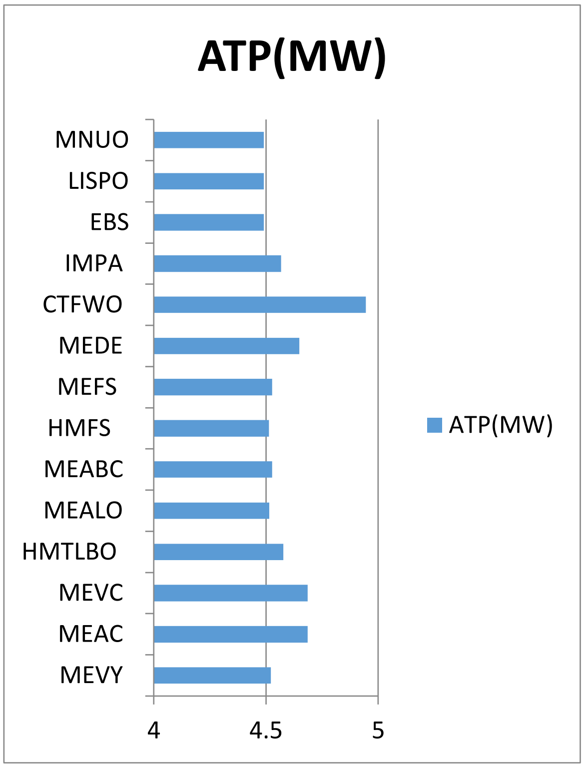

Figure 1. Estimation of ATP (IEEE 30 bus)

Enriched Basil Seed Optimization (EBS), Little Child Imagination and Learning Inspired (LISPO), Malignant Neoplasm of Uterine Algorithm (MNUO) reduced the power loss efficiently while validating in IEEE 30 bus system. Both the Voltage minimization and stability enhancement has been accomplished.

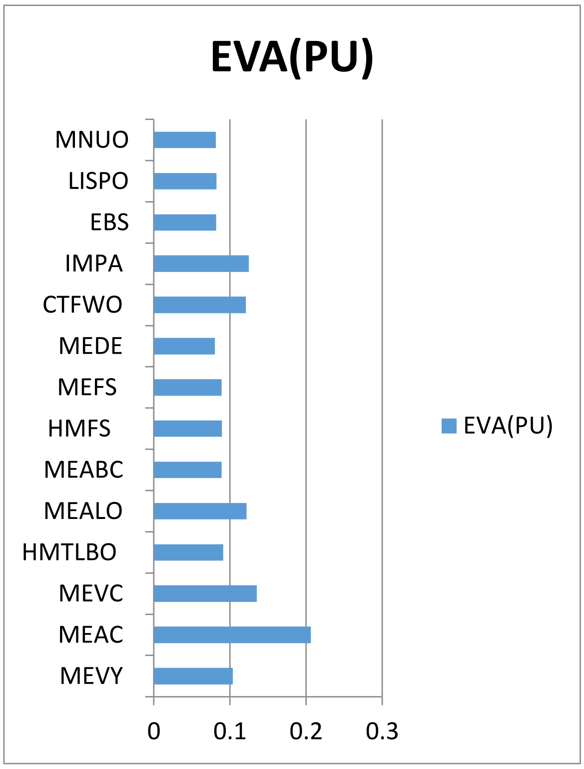

Figure 2. Assessment of EVA (IEEE 30 bus)

Enriched Basil Seed Optimization (EBS), Little Child Imagination and Learning Inspired (LISPO), Malignant Neoplasm of Uterine Algorithm (MNUO) validated in IEEE 354 bus test system [11]. Table III shows the Active loss valuation and. Figures 4 and 5 give the appraisal.

Table III. Loss evaluation

Method	ATP(MW)	EVA(PU)
MHODISAI [9]	337.374	0.4978
MHODISAII [9]	338.715	0.5117
MHODISA [9]	339.325	0.5216
MHODCLSO[10]	341.001	0.5354
MHODPSO [10]	341.123	0.6395
EBS	336.013	0.4464
LISPO	336.015	0.4466
MNUO	335.001	0.4460

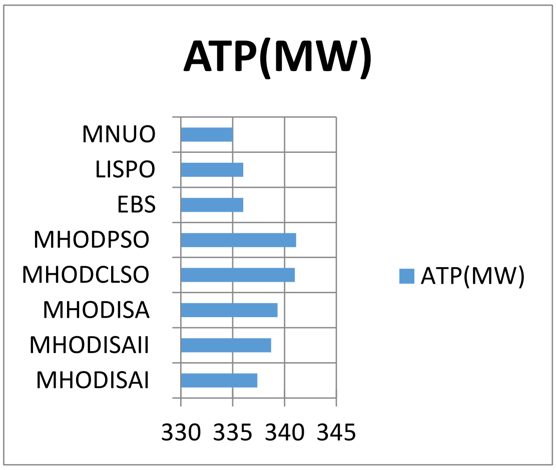

Figure 4. Valuation of ATP (IEEE 354 bus)

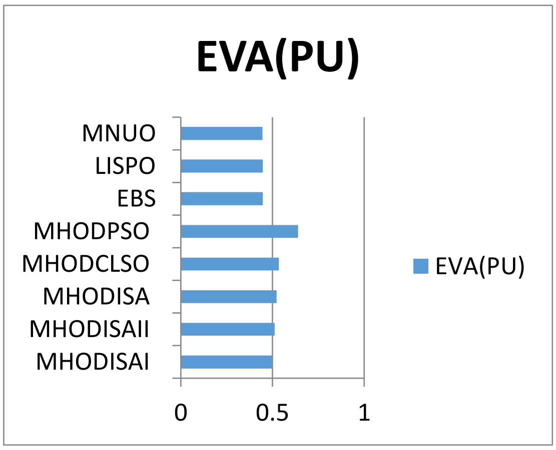

Figure 5. Assessment of EVA (IEEE 354 bus)

Table IV and Fig 6 show the time taken by Enriched Basil Seed Optimization (EBS), Little Child Imagination and Learning Inspired (LISPO), Malignant Neoplasm of Uterine Algorithm (MNUO)

Table IV. Time taken by of EBS, LISPO and MNUO

Technique	30 bus T(S)	354 BUST(S)
EPO	19.13	80.27
LISPO	19.19	80.52
MNUO	19.01	79.96

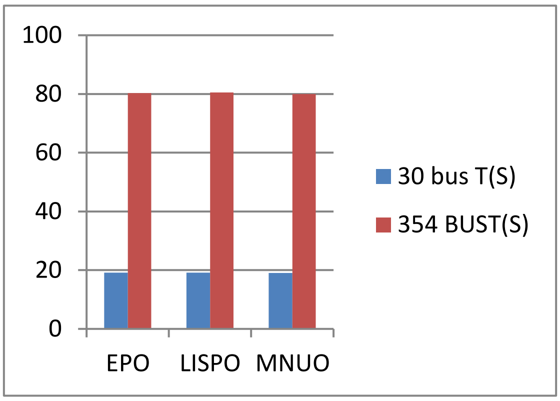

Figure 6. Time taken by Enriched Basil Seed Optimization (EBS), Little Child Imagination and Learning Inspired (LISPO), Malignant Neoplasm of Uterine Algorithm (MNUO)

Conclusion

Enriched Basil Seed Optimization (EBS), Little Child Imagination and Learning Inspired (LISPO), Malignant Neoplasm of Uterine Algorithm (MNUO) solved the problem proficiently. By altering the amount of Basil seeds the universal examination competence is significantly enhanced. At that time a new rectilinear factor "has been employed and it persuades the elucidation to hurdle out from confined atmosphere. Principally in the technique, exploration has amended then progressively exploitation boosted. Valonia ventricosa is possessing of own coenocytic edifice with multifarious nucleus and chlorophyll. This entity owns a huge chief vacuole and it has many lobes in edifice. The complete cubicle encompasses numerous cytoplasmic provinces with every area having nuclei and chlorophyll. Cytoplasmic realms unified by connexion. Valonia ventricosa has premeditated predominantly since the cells are so remarkably hefty that they deliver an expedient theme for reviewing the transmission of aquatic and decipherable particles transversely in biotic sheaths. In LISPO Self-learning is important phase of the child and it depends on the space, environment of living. Latter stages the child will learn through communication and by observation. In that stage the child brain is most effective to learn many activities what it seeing obviously and knowledge given by the nature. Then in growing stages the child mind analyses about the matters and self-questioning will arises sequentially. Malignant Neoplasm of Uterine is the utmost general malignance of the female human body reproductive organization. Malignant Neoplasm flinches in the cells of the female human body uterus. In the peak of the spreading, it may affect the other parts of the body sequentially. The Malignant Neoplasm of Uterine mathematically designed to formulate the MNUO algorithm. Preliminary Malignant Neoplasm magnitude in the uterus computed mathematically and it emphasizes the location in the procedure.

References

[1] B. Mandal, P. K. Roy, "Optimal reactive power dispatch using quasi-oppositional teaching learning based optimization," *International Journal of Electrical Power & Energy Systems*, 53, 123–134, 2013. https://doi.org/10.1016/j.ijepes.2013.04.011

[2] S. Mouassa, T. Bouktir, "Multi-objective ant lion optimization algorithm to solve large-scale multi-objective optimal reactive power dispatch problem", *COMPEL: The International Journal for Computation and Mathematics in Electrical and Electronic Engineering*, 35,350-372, 2018. https://doi.org/10.1108/COMPEL-05-2018-0208

[3] H. T. Tran, T. V. Pham, L. V. Pham, N. T. Le, T. T. Nguyen, "Finding optimal reactive power dispatch solutions by using a novel improved stochastic fractal search optimization algorithm," *Telecommunication Computing Electronics and Control*, 17, , 2517–2526, 2019. http://doi.org/10.12928/telkomnika.v17i5.10767

[4] T. L. Duong, M. Q. Duong, P. Van-Duc, T. T. Nguyen, "Optimal Reactive Power Flow for Large-Scale Power Systems Using an Effective Metaheuristic Algorithm" Hindawi *Journal of Electrical and Computer Engineering*, 11, 1-11, 2020. https://doi.org/10.1155/2020/6382507

[5] A. K. PG, A. J. P, D.Devaraj, "Hybrid CAC-DE in optimal reactive power dispatch (ORPD) for renewable energy cost reduction," *Sustainable Computing: Informatics and System*s, 35,1-10, 2022. https://doi.org/10.1016/j.suscom.2022.100688

[6] A. M. Abd-El Wahab, S. Kamel, M. H. Hassan, M. I. Mosaad, T. A. AbdulFattah, "Optimal Reactive Power Dispatch Using a Chaotic Turbulent Flow of Water-Based Optimization Algorithm," *Mathematics* 10(3):346, 2022. https://doi.org/10.3390/math10030346

[7] N. H. Khan, R. Jamal, M. Ebeed, S. Kamel, H. Zeinoddini-Meymand, H. M. Zawbaa, "Adopting Scenario-Based approach to solve optimal reactive power Dispatch problem with integration of wind and solar energy using improved Marine predator algorithm", *Ain Shams Engineering Journal*, Volume 13, 5, 2022. https://doi.org/10.1016/j.asej.2022.101726

[8] Illinois Center for a Smarter Electric Grid (ICSEG). https://icseg.iti.illinois.edu/ieee-30-bussystem

[9] R. Kavitha, M. Kavitha, R. Srinivasan, N. R. Rajalakshmi and R. Dhayanidhi, "Basil Leaf Diseases Detection using Deep Learning architectures," *2022 IEEE 19th India Council International Conference (INDICON), Kochi, India,* 2022, pp. 1-5. https://doi.org/10.1109/INDICON56171.2022.10040158

[10] L. Oprica, N. Grigore, I. Bara ,G. Vochita, "Salinity and SiO2 Impact on Growth and Biochemical Responses of Basil (Ocimum Basilicum L.) Seedlings," *2021 International Conference on e-Health and Bioengineering (EHB), Iasi, Romania*, 2021, pp. 1-4. https://doi.org/10.1109/EHB52898.2021.9657645

[11] T. Vijayashree, A. Gopal, "Comparison procedure for the authentication of Basil (Ocimum tenuiflorum) leaf using image processing technique," *2015 International Conference on Communications and Signal Processing (ICCSP), Melmaruvathur, India,* 2015, pp. 0075-0078. https://doi.org/10.1109/ICCSP.2015.7322591

[12] V. Chouvatut, S. Wattanapairotrat, "Feature Reduction from Correlation Matrix for Classification of Two Basil Species in Common Genus," *2019 16th International Joint Conference on Computer Science and Software Engineering (JCSSE), Chonburi, Thailand,* 2019, pp. 375-380. https://doi.org/10.1109/JCSSE.2019.8864221

[13] S. Dunca, L. Oprica, Ira-Adeline Simionov, A. Antache, A. Nica, Marius-Nicusor Grigore, A. Miron, D. Costin, R. Magean, Stefan- Mihai Petrea, "Antibacterial Activity of Ocimum basilicum L. Extracts Grown in Aquaponic Conditions Against Gram-positive and Gram-negative Species," *2022 E-Health and Bioengineering Conference (EHB), Iasi, Romania*, 2022, pp. 1-4. https://doi.org/10.1109/EHB55594.2022.9991296

[14] J. D. Cruz, M. V. Caya, A. D. Fajardo, M. J. Manzanilla, M. R. Sabuco, A. Chummac, "Green roof Irrigation Using Evapotranspiration for Alfalfa and

Basil," *2020 IEEE 12th International Conference on Humanoid, Nanotechnology, Information Technology, Communication and Control, Environment, and Management (HNICEM), Manila, Philippines*, 2020, pp. 1-6. https://doi.org/10.1109/HNICEM51456.2020.9400151

[15] J. Mia, H. Bijoy, S. Uddin, D. Raza, "Real-Time Herb Leaves Localization and Classification Using YOLO," *2021 12th International Conference on Computing Communication and Networking Technologies (ICCCNT), Kharagpur, India*, 2021, pp. 1-7. https://doi.org/10.1109/ICCCNT51525.2021.9579718

[16] R. Lainson, C. D. Field, "Electrical properties of Valonia ventricosa", J Membr Biol. 20;29(1-2):81-94. 1976. https://doi.org/10.1007/BF01868953

[17] Z. Chen, S. Wang, X. Cui, "Evaluation method of children's learning concentration based on deep learning," *2021 IEEE International Conference on Artificial Intelligence and Computer Applications (ICAICA), Dalian, China*, 2021, pp. 177-181. https://doi.org/10.1109/ICAICA52286.2021.9498015

[18] A. M. Tudose, I. I. Picioroaga, D. O. Sidea, C. Bulac, "Solving Single and Multi-Objective Optimal Reactive Power Dispatch Problem Using an Improved Salp Swarm Algorithm," *Energies*, 14,1-20, 1222, 2021. https://doi.org/10.3390/en14051222

[19] V. I. Patil, D. Ijeri, S. A. Patel, "Histopathological Image Analysis Of Uterus Cancer," *2022 IEEE North Karnataka Subsection Flagship International Conference (NKCon), Vijaypur,* India, 2022, pp. 1-6. https://doi.org/10.1109/NKCon56289.2022.10126604

[20] B. Gopinath, R. Santhi, R. D. Praba, "A Machine Learning based Decision Support System to Predict the Presence of Cervical Cancer," *2023 2nd International Conference on Advancements in Electrical, Electronics, Communication, Computing and Automation (ICAECA), Coimbatore, India,* 2023, pp. 1-4. https://doi.org/10.1109/ICAECA56562.2023.10199642

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