UB FILKOM

Design Framework as Prototype of Islamic Medicine Engine to any Disease Especially for Covid-19 based Al-Qur'an and Hadith Using Meta-Deep AI and Particle Swarm Optimization

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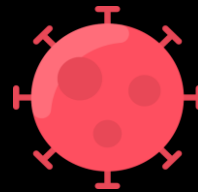
Introduction

Integrated Al-Qur'an, Hadith,
Sains and Technology

- **Learn any solution from Al-Qur'an and Hadith**
- **Covid-19 Pandemic Now & Future**

Covid-19

- **Few Policy of Government (Indonesia):**
  - ○ **Before: Social/Physical Distancing, PSBB, New Normal**
  - ○ **Now: New Habit, like Study Form Home (SFH), Stay at Home, Work From Home (WFH), Research From Home (RFH), and others.**
- **Algorithm to helper as Smart Medical Technology:**
  - ○ **Meta-Deep AI**
  - ○ **Particle Swarm Optimization (PSO)**

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Literature | Al-Qur'an and Hadith

Al-Qur'an

Integrated Al-Qur'an, Hadith, Sains and Technology

وَاَوْحٰى رَبُّكَ اِلَى النَّحْلِ اَنِ اتَّخِذِيْ مِنَ الْجِبَالِ بُيُوْتًا وَّمِنَ الشَّجَرِ وَمِمَّا يَعْرِشُوْنَ ۙ ٦٨

ثُمَّ كُلِيْ مِنْ كُلِّ الثَّمَرٰتِ فَاسْلُكِيْ سُبُلَ رَبِّكِ ذُلُلًا ۗ يَخْرُجُ مِنْ بُطُوْنِهَا شَرَابٌ مُّخْتَلِفٌ اَلْوَانُهٗ فِيْهِ شِفَاۤءٌ لِّلنَّاسِ ۗ اِنَّ فِيْ ذٰلِكَ لَاٰيَةً لِّقَوْمٍ يَّتَفَكَّرُوْنَ ٦٩

ALLAH the All-Knowing says: "And your Lord inspired to the bee, "Take for yourself among the mountains, houses, and among the trees and [in] that which they construct. Then eat from all the fruits and follow the ways of your Lord laid down [for you]." There emerges from their bellies a drink, varying in colors, in which there is healing for people. Indeed in that is a sign for a people who give thought."

[Surah An-Nahl (The Bee), Ayath 68-69]

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Literature | Al-Qur'an and Hadith

Integrated Al-Qur'an, Hadith, Sains and Technology

- **Hadith**

عَنْ أَبِي هُرَيْرَةَ رَضِيَ اللَّهُ عَنْهُ عَنِ النَّبِيِّ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ قَالَ مَا أَنْزَلَ اللَّهُ دَاءً إِلَّا أَنْزَلَ لَهُ شِفَاءً

Narrated Abu Hurairah
(may Allah be pleased with him)

The Prophet
(peace be upon him) said:
There is no **disease** that
Allah has created, except
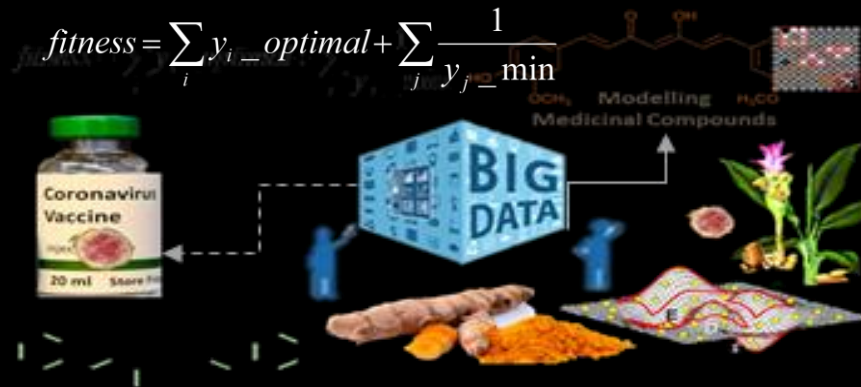that **He** also has created its

treatment

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$$fitness = \sum_i y_{i\_optimal} + \sum_{j} \frac{1}{y_{j\_min}}$$

Modelling Medicinal Compounds

Coronavirus Vaccine

BIG DATA

https://iopscience.iop.org/article/10.1088/1742-6596/1665/1/012003

- **Smart Development of Big Data App for Determining the Modelling of Covid-19 Medicinal Compounds Using Deep AI Core Engine System, ISSMART 2020, Publish on IOP**

- **Propose as Contribution:**

Herb

Non-Herb

X   Y

X_1 = feature 1st
X_2 = feature 2nd
.
.
X_k = feature k th

Y_1 = Effect 1st
Y_2 = Effect 2nd
.
.
Y_i = Effect i th

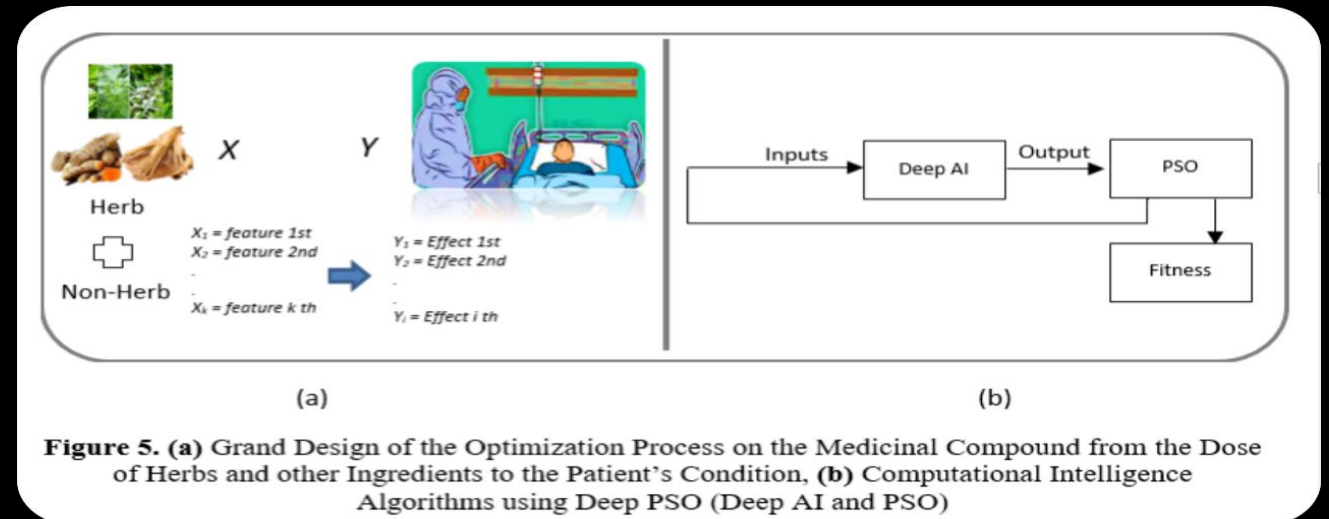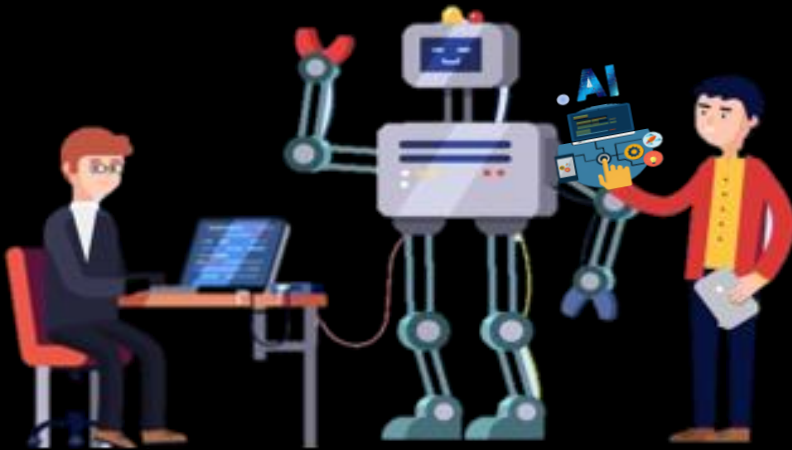Inputs → Deep AI → Output → PSO

Fitness

(a)   (b)

Figure 5. (a) Grand Design of the Optimization Process on the Medicinal Compound from the Dose of Herbs and other Ingredients to the Patient's Condition, **(b)** Computational Intelligence Algorithms using Deep PSO (Deep AI and PSO)

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- **Meta-Deep Ai is all about Ai which has more capabilities and with many special techniques that are made dynamically to solve very complex problems. It's more than Deep Learning.**

- **PSO is part Science of Swarm Intelligence**
  - **Adopted from Bird when finding food source as Nature Intelligence**

  - **Initialization Velocity, Position, Pbest & Gbest of Particles**
  - **Update Velocity, Position & Calc. Fitness, Update Pbest & Gbest**

$$v_{i,j}^{t+1} = w.v_{i,j}^{t} + c_1.r_1\left(Pbest_{i,j}^{t} - x_{i,j}^{t}\right) + c_2.r_2\left(Gbest_{g,j}^{t} - x_{i,j}^{t}\right)$$
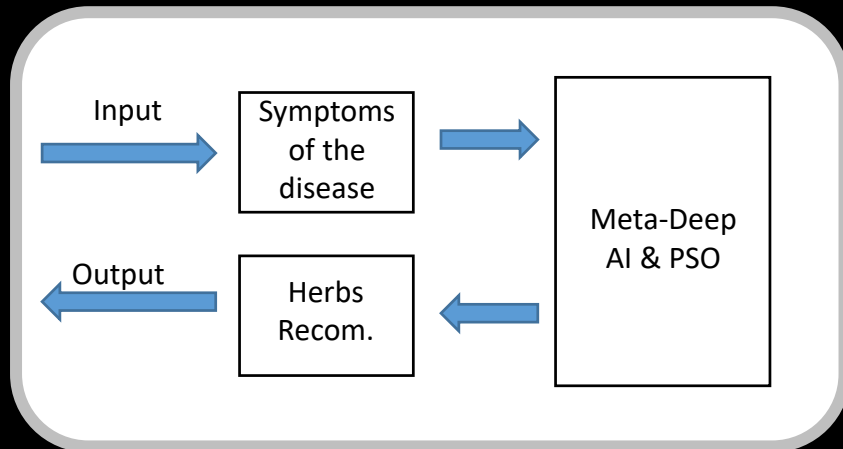
$$x_{i,j}^{t+1} = x_{i,j}^{t} + v_{i,j}^{t+1}$$

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Prototype Islamic Medical Engine

Block Diagram of Islamic Medical Engine (IsME)

- **Load Dataset (**Scheme of Tables for Dataset**)**

Herb	Symptoms or Diseases to be Treatment
Black Cumin, ..	..., ...

- **Running Optimization using PSO**

	$Herb_1$	$Herb_2$	..	$Herb_m$
X_1	0/1	0/1	0/1	0/1
X_2	0/1	0/1	0/1	0/1
..	..	..	..	..
X_{pop_size}	0/1	0/1	0/1	0/1

- **Objective Function as Fitness**

$$fitness = \sum_{i=1}^{\#HerbFromQur'an\&Hadith} Match_i$$

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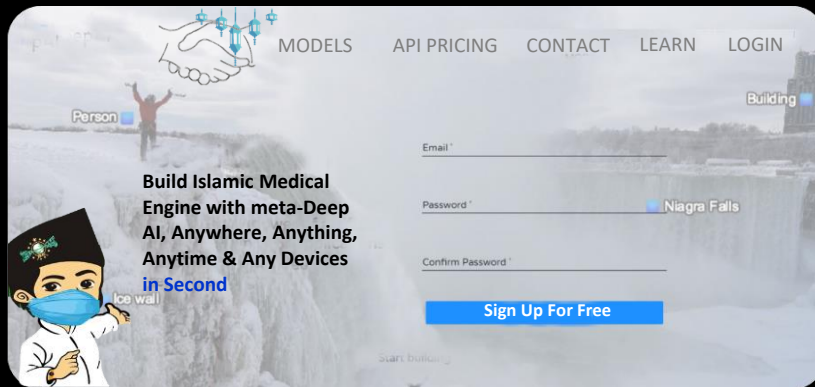By: Imam Cholissodin| Arief Andy Soebroto | Mohammad Muallif | Aurick Yudha Nagara | Renny Nova
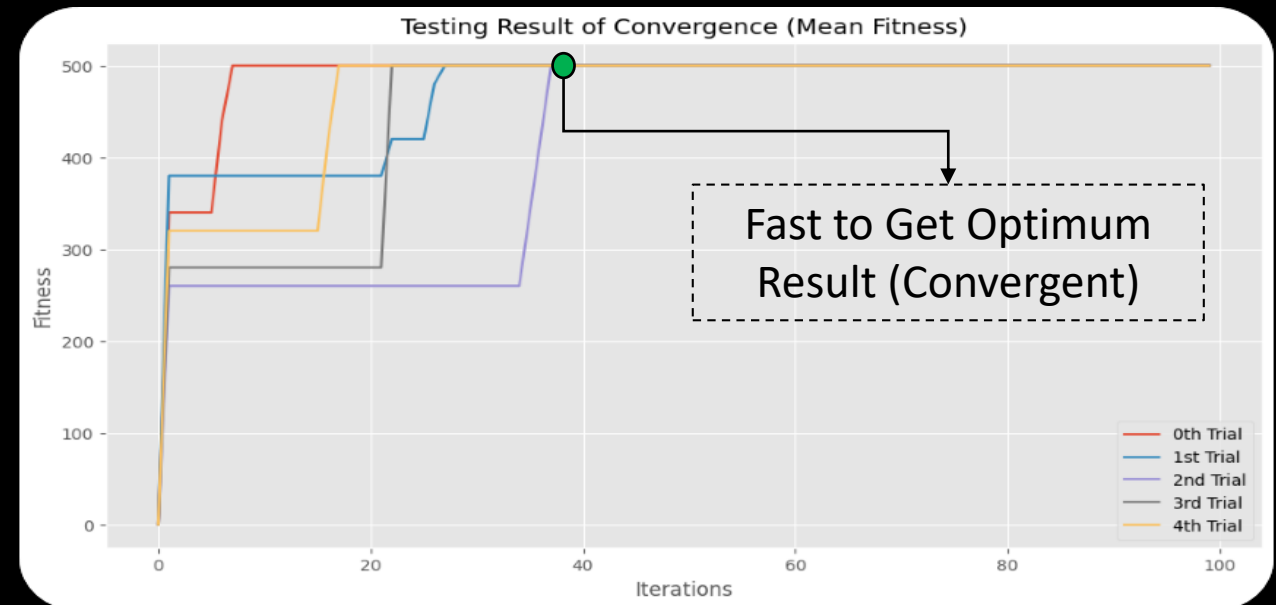
Result & Discussion

■ **Graph of Fitness Value as Simulation Performance Measure has Reached a Convergent (Stable) Condition**

Build **Islamic Medical Engine**
with meta-Deep AI, Anywhere, Anything,
Anytime, & Any Devices **in Second**

Testing Result of Convergence (Mean Fitness)

Fast to Get Optimum
Result (Convergent)

0th Trial
1st Trial
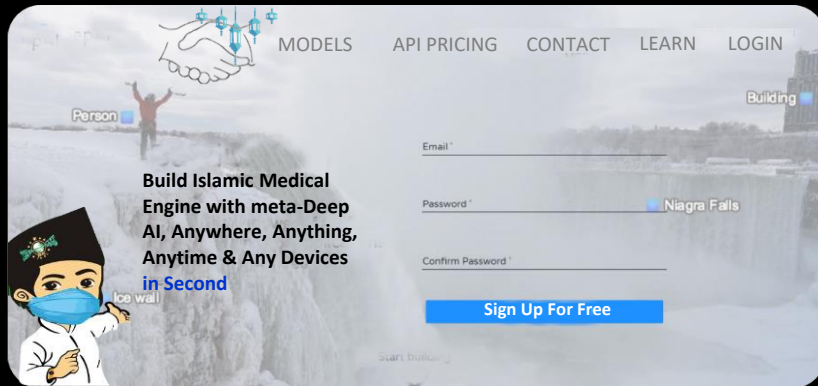2nd Trial
3rd Trial
4th Trial

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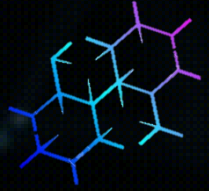
Conclusions & Future Work

Build **Islamic Medical Engine**
with meta-Deep AI, Anywhere, Anything,
Anytime, & Any Devices **in Second**

- Design Framework as Prototype Islamic Medical Engine have been done to build. If it has been implemented to Development for Sustainable in the next Research, In Sha Allah, must contains truth. Because it taken from the Qur'an and Hadith which have absolute truth.

- If limitations are found from the result of Research, then it's absolute because the method used is not appropriate as the technology foundation or the data collected is not valid because human error.

- Suggestions for future research can be tried directly to development Smart App based Islamic Medical Engine by giving the additional variable weight (w) for each herbs obtained in the fitness formula as a knowledge base for priority, for example, to making the composition of herbs with mixtures, then added smart feature for consultation with a doctor/pharmacist, and give recommendation how to cook herbs with get optimal result.

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Thank You

#Lab. Computational Intelligence (a.k.a KC) Filkom UB
#Presenter on International Conferences ICONETOS 2020
#Fight to Covid-19

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