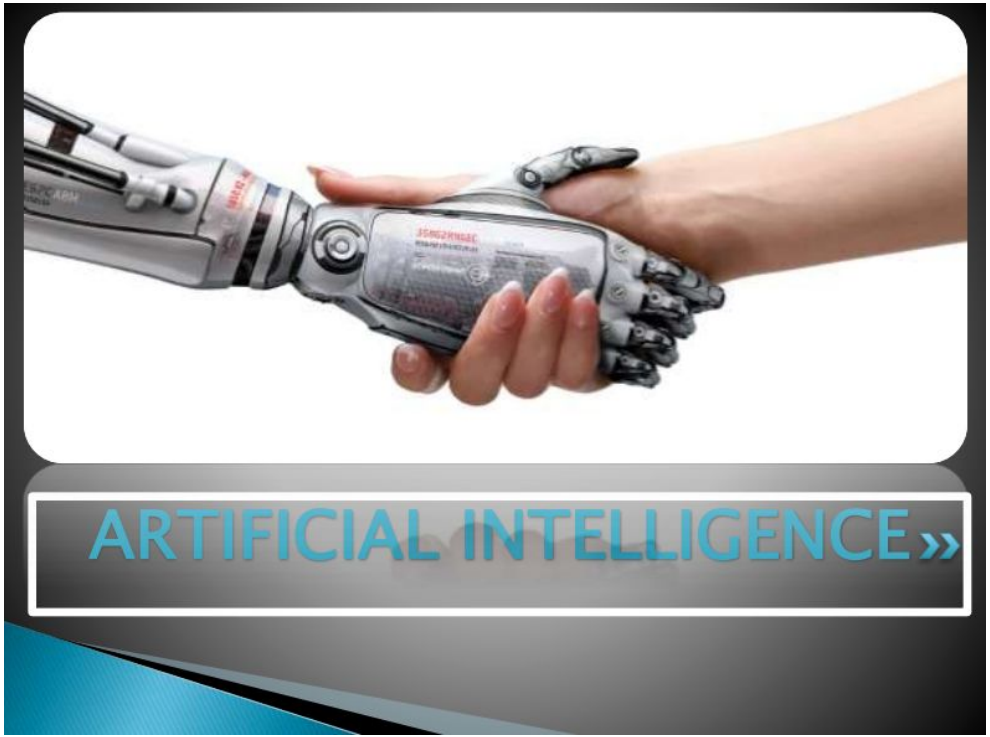
History, Development, and Ethical Considerations of Using Artificial Intelligence

Dr. Ryan Evangelista, I.S.P.,ITCP, ASEAN EngTech, PCpE
Senior Consultant
TechCom Solutions Pte. Ltd Singapore

Contents

Introduction and Concepts
Applications of AI
Advantages and Disadvantages
Growth and Future of AI
Future of Jobs with AI



Introduction

Intelligence: “The capacity to learn and solve problems”

Artificial Intelligence: AI is the simulation of human intelligence by machines.

1) The ability to solve problems.
2) The ability to act rationally.
3) The ability to act like humans.

The central principles of AI include:

1) Reasoning, knowledge, planning, learning, and communication.
2) Perception and the ability to move and manipulate objects
3) It is the science and engineering of making intelligent machines, especially intelligent computer programs.

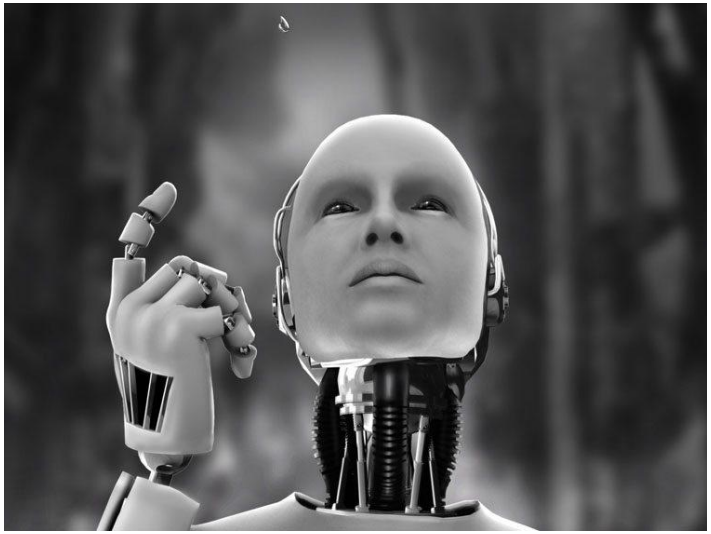
Artificial Intelligence

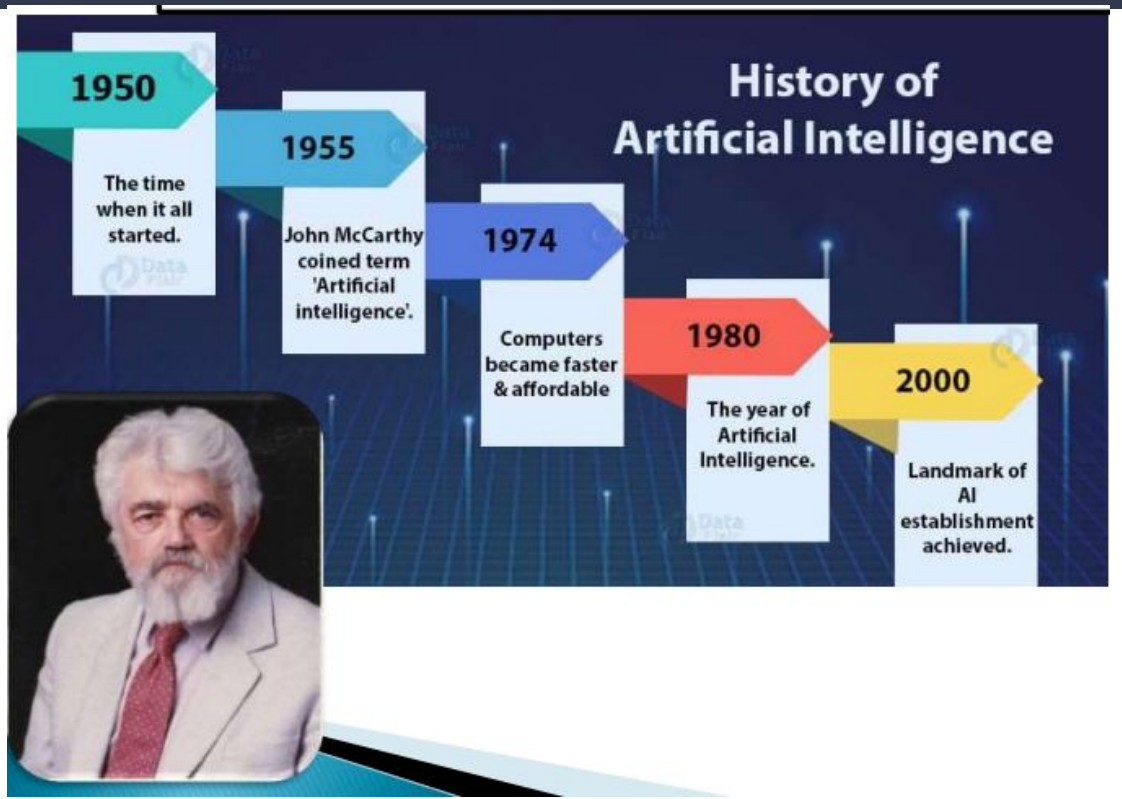
Computers with the ability to mimic or duplicate the functions of the human brain.

Artificial Intelligence is the intelligence of machines and the branch of computer science.

“The branch of computer science that is concerned with the **automation of intelligent behaviour**” (Luger and Stubblefield, 1993)

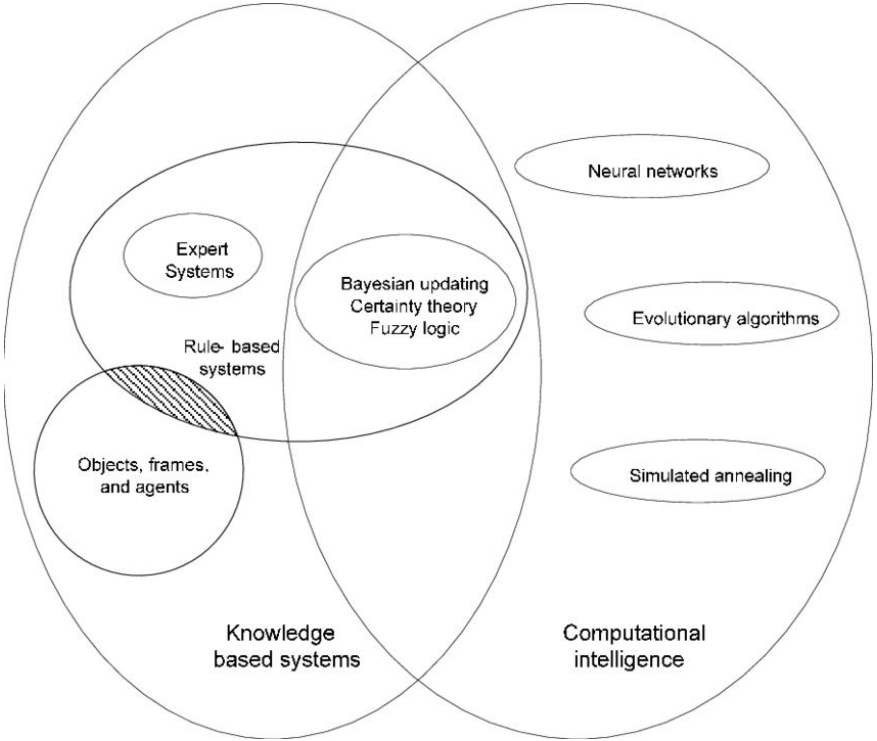
Historical Timeline of AI



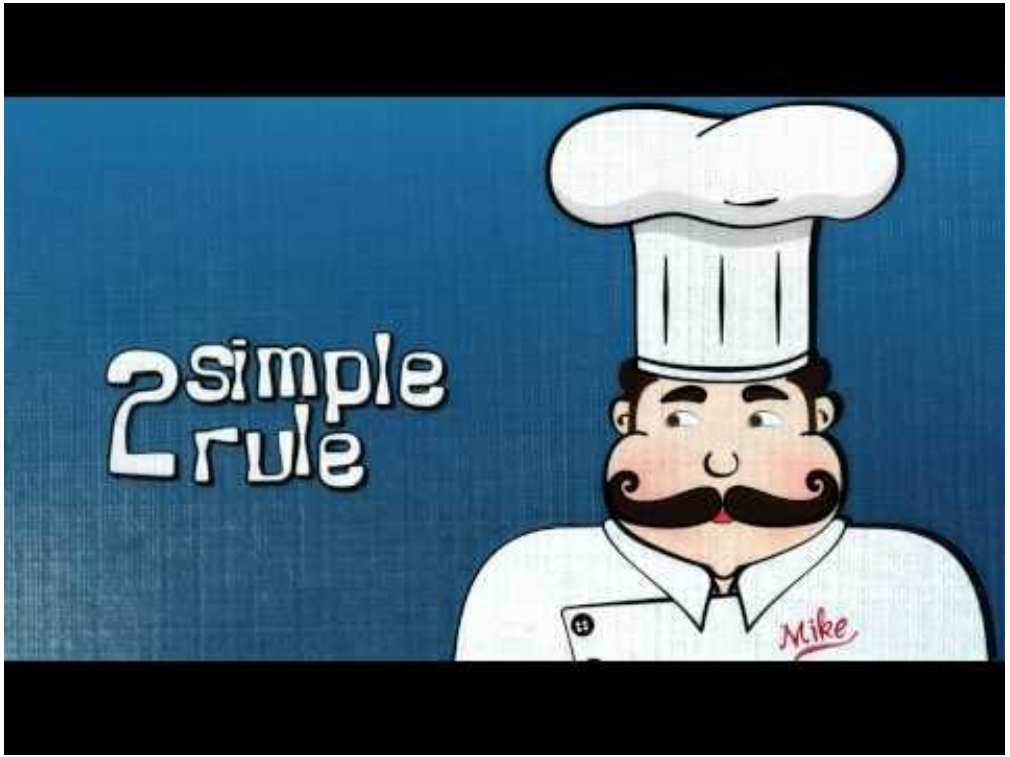


Intelligent Systems

COMPUTING ALGORITHM (ENGINE OF KNOWLEDGE)



Concept of an Intelligent Machine



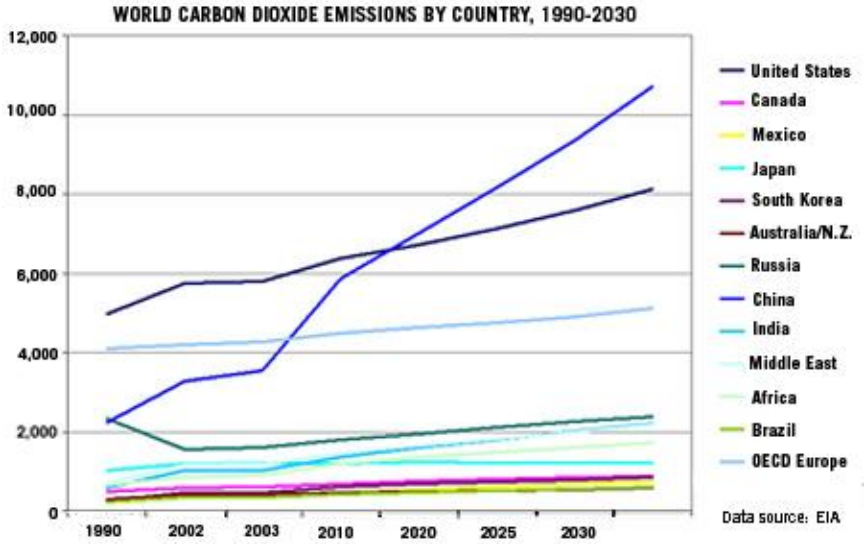
Food Security and Climate Change

The State of Food Security and Nutrition in the World 2021

Population Explosion

In demographics, the world population is the total number of humans currently living, and was estimated to have reached **7,800,000,000** people as of March 2020.It took over 2 million years of human prehistory and history for the world's population to reach 1 billion and only 200 years more to grow to 7 billion.

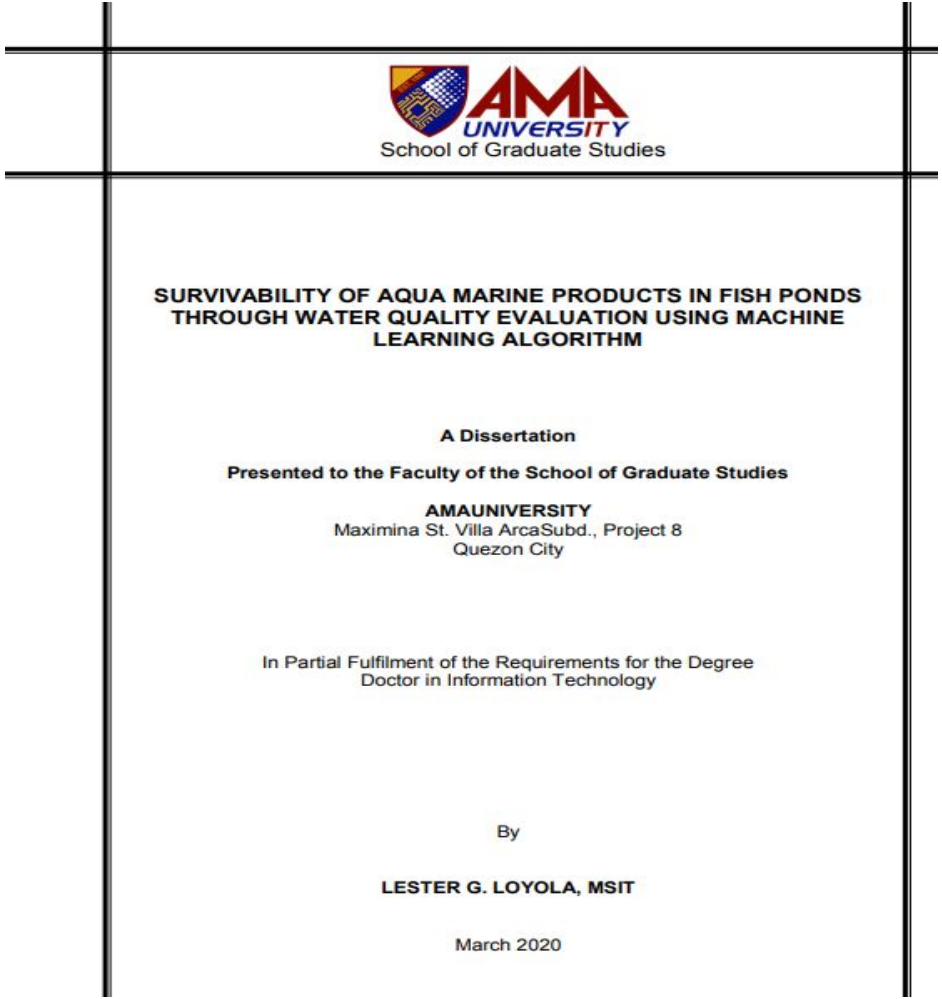
Climate Change



Development of Aquaculture through AI Technology and Innovation

Artificial Intelligence In Agriculture

Researches and Prototype Development



AMA UNIVERSITY
School of Graduate Studies

SURVIVABILITY OF AQUA MARINE PRODUCTS IN FISH PONDS THROUGH WATER QUALITY EVALUATION USING MACHINE LEARNING ALGORITHM

A Dissertation

Presented to the Faculty of the School of Graduate Studies

AMAUNIVERSITY
Maximina St. Villa ArcaSubd., Project 8
Quezon City

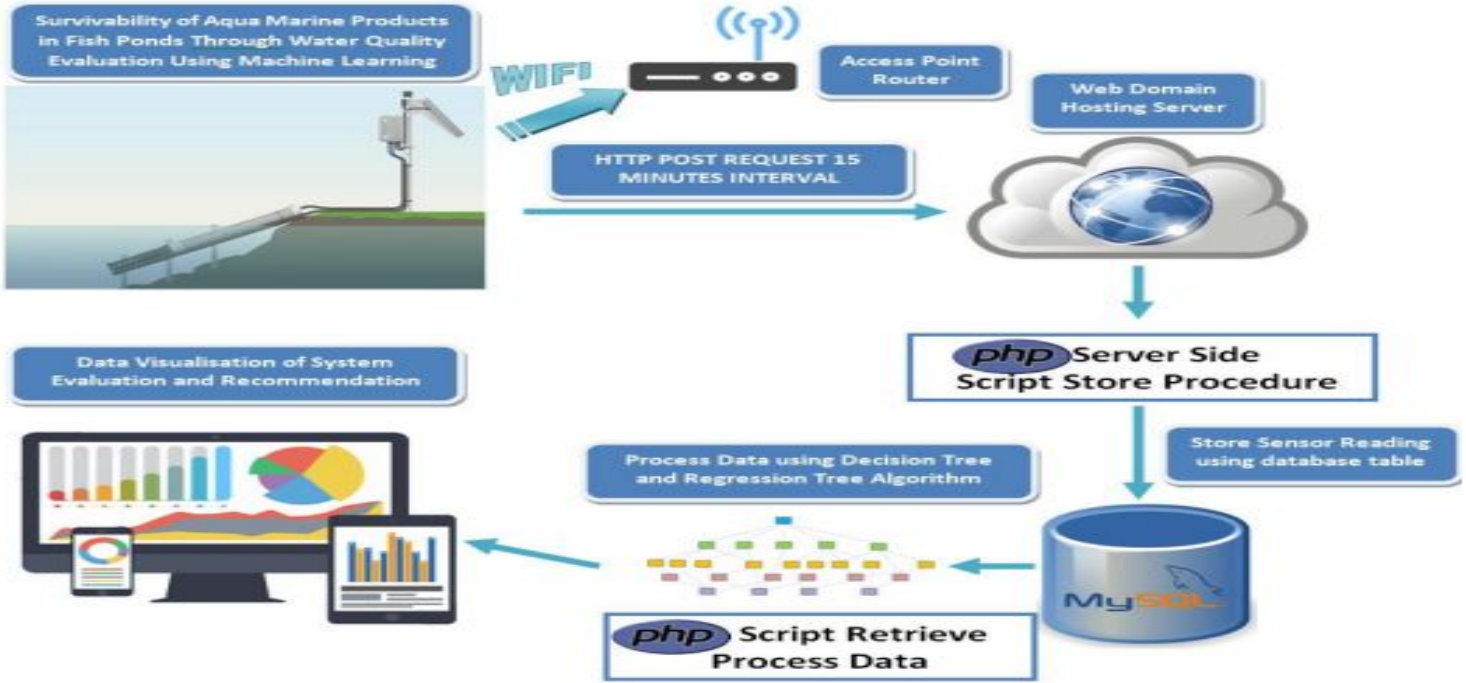
In Partial Fulfilment of the Requirements for the Degree
Doctor in Information Technology

By

LESTER G. LOYOLA, MSIT

March 2020

Researches and Prototype Development



Researches and Prototype Development

BATANGAS STATE UNIVERSITY

Graduate School

Design and Development of an Intelligent Recirculating Aquaculture System of Oreochromis Niloticus: A Supervised Feed-Conversion-Ratio Based Machine Learning Approach

A Thesis
Presented to the
Faculty of Graduate Programs of the
College of Engineering, Architecture and Fine Arts
Batangas State University
Batangas City

In Partial Fulfillment
of the Requirements for the Degree
Master of Science in Computer Engineering

Marvin De Jesus Mayormente

July 2021

Researches and Prototype Development

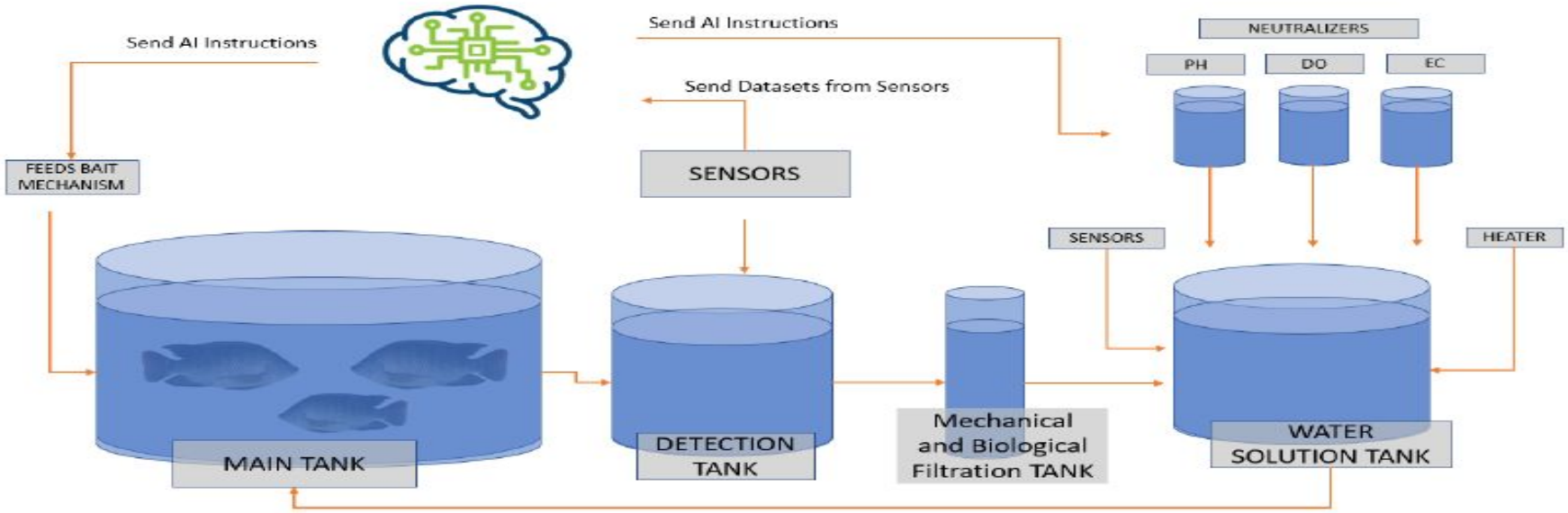


Figure 3.2. Project Architectural Diagram

Researches and Prototype Development

POLYTECHNIC UNIVERSITY OF THE PHILIPPINES

SMART SOLAR-POWERED INDOOR AQUAPONICS (S.I.A.)

A Thesis
Presented to the Department of Engineering Technology
Institute of Technology
Polytechnic University of the Philippines
Sta. Mesa, Manila

In Partial Fulfilment of the Requirements for Diploma
in Computer Engineering Technology

by

ALFONSO, SEAN KYLE A.
CHACON, BLAIR JURGEN L.
VENTURINA, RIO ALYSSA V.
LIM, DUANNE

2021

Researches and Prototype Development

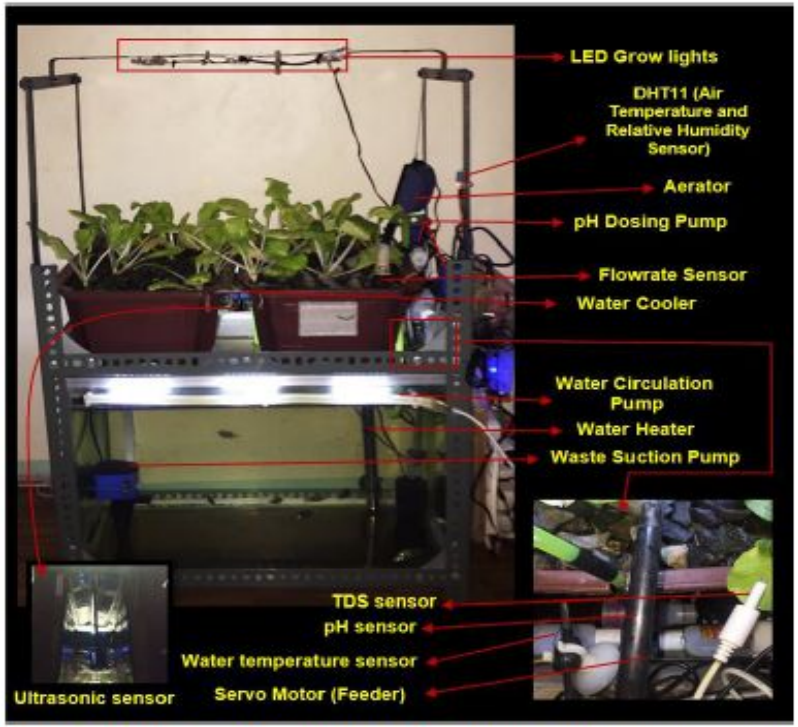


Figure 4.21 Image of the Smart Solar-Powered Indoor Aquaponics

Researches and Prototype Development

Figure 4.23 Modules

Figure 4.22 Grow bed and LED grow lights of SIA

Researches and Prototype Development

Figure 4.24 Screenshot of the Cloud Hosted Node-RED Login System

Figure 4.25 Screenshot of the FRED instance

Civil Engineering and Artificial Intelligence

Development of NCR's Transportation lifeline Condition Analysis Using Artificial Intelligence

Dr. Michael B. Baylon[1], Dr. Ryan S. Evangelista[2], and Dr. Francis Aldrine A. Uy[3]

[1] Senior Structural Health Engineer, USHER Technologies Inc, Quezon City, Philippines
embylon@usher.ph
[2] Faculty, Institute of Technology, Polytechnic University of the Philippines
rsevangelista@pup.edu.ph
[3] Former Dean, School of Civil, Environmental and Geological Engineering Mapua University, Intramuros, Manila 1000, Philippines
faauy@mapua.edu.ph

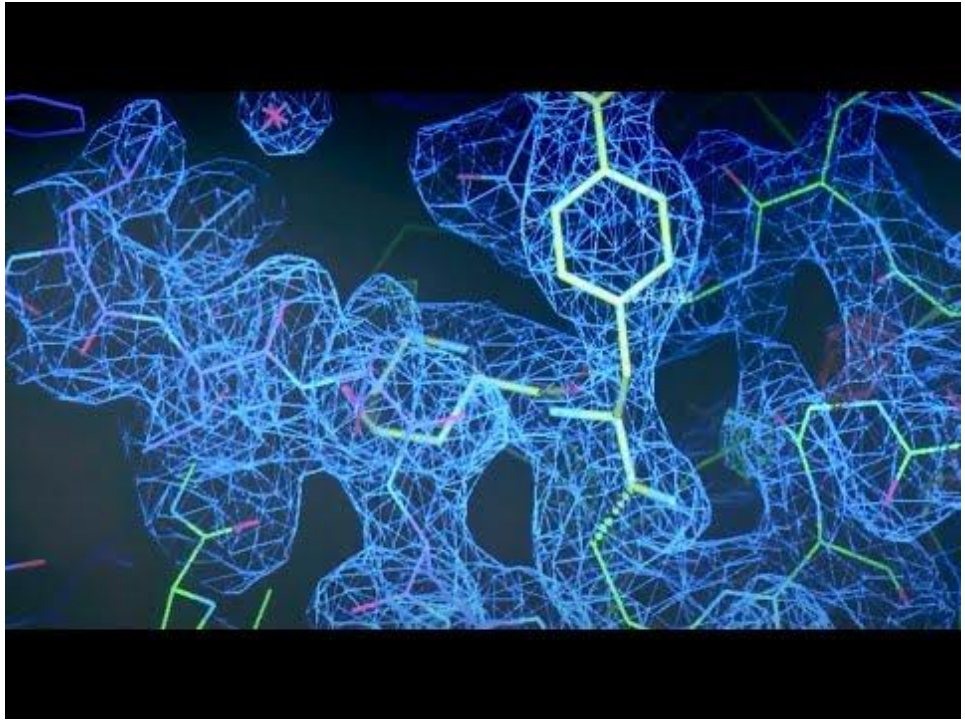
Application of AI in Healthcare

A medical clinic can use AI systems to organize bed schedules, make a staff rotation and provide medical information.

AI has also application in fields of cardiology (CRG), neurology(MRI), embryology(sonography), complex operations of internal organs , etc

It also has an application in Image guided surgery and image analysis and enhancement.

Accelerating Drug Discovery with Machine Learning and AI



Robotics and AI

A ROBOT is a mechanical or virtual artificial agent, usually an electro mechanical machine that is guided by a computer program or electronic circuitry.

Robots can be autonomous or semi-autonomous.

A robot may convey a sense of intelligence or thoughts of its own.

Machine Learning in Oil and Gas Operations and Control Management

Autonomous Vehicle

Smart Home

Reinventing Manufacturing with Artificial Intelligence and Data

Some other Applications

Credit granting

Information Management Retrieval

AI and Expert systems embedded in products

Plant layout

Help desk and assistance

Employee performance evaluation

Shipping

Marketing

Warehouse optimization

Space workstation maintenance

Satellite controls

Network development

Nuclear management

Intelligent Building and Resource Management Control

Artificial Intelligence

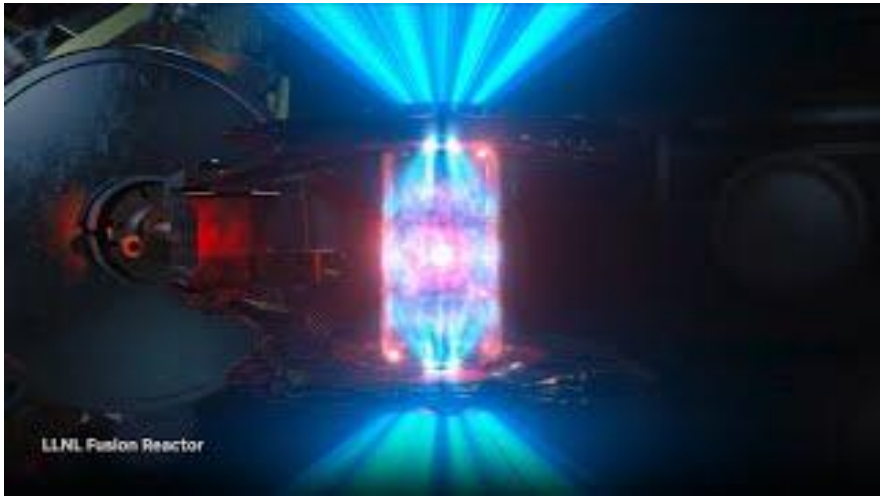
Advantages

1) More powerful and more useful computer
2) New and improve interfaces
3) Solving new problems
4) Better handling of information
5) Relieves information overload
6) Conversion of information into knowledge

Disadvantage

1) Increase costs
2) Difficulty with software (algorithm) development - slow and expensive
3) Few experienced programmers in the field
4) Few practical products have reached the market as yet.
5) Ethics in AI should be put in place

Future of Energy Modeling with Artificial Intelligence



Future of AI

Looking at the features and its wide application we may define stick to artificial intelligence. Seeing at the development of AI is it that the future world is becoming artificial.

Biological intelligence is fixed, because itis an old, mature paradigm but the new paradigm of non-biological computation and intelligence is growing exponentially.

The memory capacity of the human brain is probably of the order often thousand million binary digits. But most of this is probably used in remembering visual impressions, and other comparatively wasteful ways.

Hence we can say that as natural intelligence is limited and volatile too world may now depend upon computers for smooth working.

Humanoid Robot and AI

Sophia is a social humanoid robot developed by Hong Kong based company Hanson Robotics

Sophia was activated on April 19, 2015.

She made her first public appearance at South by Southwest Festival in mid-March 2016 in United states.

In October 2017 Sophia became a Saudi Arabian citizen, the first robot to receive citizenship in any country.

The Explosive Growth of AI

Since AI is applicable in almost all fields, they become the needs of our life. It is the reason behind the explosive growth of AI.

The growth can be divided into two parts based on the application area and what purpose they serve, they are as follows:

1) **Growth in positive sense (useful to society)**
2) **Growth in negative sense(harmful to society)**

Voice Cloning in AI

Do’s and Don’ts with AI

Singapore’s Approach to AI Governance

As Singapore develops its digital economy, a trusted ecosystem is key - one where organisations can benefit from tech innovations while consumers are confident to adopt and use AI. In the global discourse on AI ethics and governance, Singapore believes that its balanced approach can facilitate innovation, safeguard consumer interests, and serve as a common global reference point.

Model AI Governance Framework

On 23 January 2019, the PDPC released its first edition of the Model AI Governance Framework (Model Framework) for broader consultation, adoption and feedback. The Model Framework provides detailed and readily-implementable guidance to private sector organisations to address key ethical and governance issues when deploying AI solutions. By explaining how AI systems work, building good data accountability practices, and creating open and transparent communication, the Model Framework aims to promote public understanding and trust in technologies.

On 21 January 2020, the PDPC released the second edition of the Model Framework.

Guiding Principles

Decisions made by AI should be **EXPLAINABLE, TRANSPARENT & FAIR**

AI systems should be **HUMAN-CENTRIC**

Future of Jobs

FIGURE 23 | Emerging roles clustered into the jobs of tomorrow

Future of Jobs

Jobs are evolving. Be skilled for the future

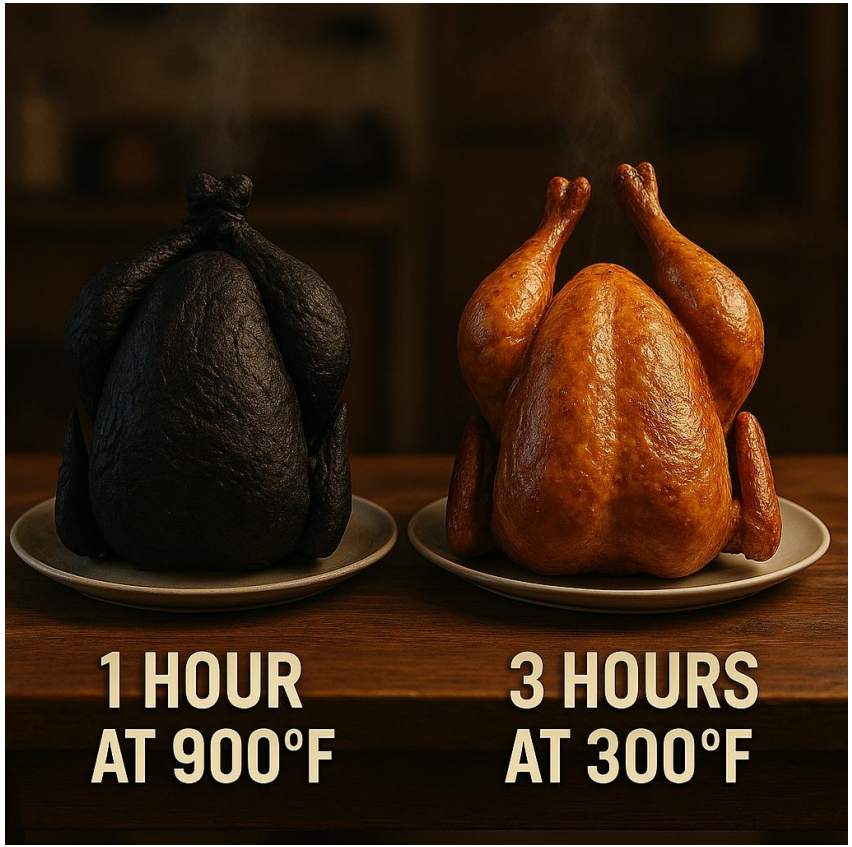
Building a Connected Future

The future will always be uncertain but with the latest technology we can have a glimpse of the possibilities.

Think Outside the box, critically, rationally and science based is the key to be future ready professional.

Growth isn’t about rushing.
It’s about the **right pace.**
In a world that glorifies speed and hustle, we forget that some of the best things in life.... **skills, success, even learning...take time**.

So if your journey feels slow right now, don’t stress.
You’re not falling behind.
You might just be slow-cooking something exceptional.



Thank you for listening!