The Continuum of Knowledge Banks, Expert Systems, Artificial Intelligence Systems, Automated Systems, Robotics

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Note of thanks

- To Dr. Donald Hsu, for conducting the e-Leader Conferences fostering progress through knowledge sharing worldwide
- To Dr. Sam Owarish, my brother, for being a constant source of wisdom

- Note: Both are indeed exceptional human beings

Academic note

- The Paper will be posted on the International Institute for Strategic Research and Training website where you will also find more information on the research of Frank Owarish and Sam Owarish on the Continuum and also on Application of AI to understand more about AI and using AI to look at World Problems.
- https://internationalinstituteforstrategicresearch.info/

Introduction

- We are living in a fascinating world, at a fascinating time.
- We should not be overwhelmed by the technicalities as societies become more complex.
- We stay informed and up to date and this becomes a habit.

What is the continuum?

- The essential components are: Knowledge Banks, Expert Systems, Artificial Intelligence Systems, Automated Systems, Robotics, Humanoid
- Note: AI which has become a big buzz word is part of the continuum.

Knowledge banks

- Societies use several of them.
- What is a knowledge bank, also known as knowledge base?
- It is a collection of information organized into knowledge.
- We (the doctor) see a patient. We used to look at the chart; now we look at the computer system; a dedicated system.

Knowledge bank

- We, the Medical Doctor, see the patient. We look at the recent history. We interview the patient. The computer system is brought up to date, We determine what action to take. The patient is able to access the portal. There is security and privacy. We have several patients. We remember each and everyone partly in mind and mostly in the computer.

Expert Systems

- It is a collection of information similar to a knowledge bank; however, here we add logic to the computer system to enable it to do reasoning leading to induction and deduction.
- Examples: 1) flying a plane on autopilot 2) system for landing a plane

Artificial Intelligence Systems

- AI has been around fro several years and it took the front stage since 2023
- For example: OpenAI ChatGPT, Google Gemini, which are big systems that can do several tasks. There is a dialogue human and machine; could be 20%-80%. Former will use prompt engineering-problem formulation, the latter provide the answers useful in most cases; partnership is key.

AI systems

- We are evolving to smaller, dedicated systems, example: A touch of spring from the Cottage Gallery at Carmel by Robert Girard, also known as Kinkade. Using AI to look at the painting; converted it first to 3D, then added movement and the picture becomes alive.

AI systems

- Backbone systems which companies can take and tailor made to suit their needs. Example Gemini (Google).

Automated systems

- Here the tasks are repetitive and the computer systems take over.
- Of course they are designed by human beings. Key factor is usefulness.
- We would not be able to have tall buildings without elevators running up and down as needed.

Robotics

- A system able to function by itself to perform a given task. The designer is human.
- Japan takes the lead in that area.
- Largely used in manufacturing.
- In some instances, there is the lead robot which by itself decides what to do and designed subrobots for subtasks.

Humanoid

- A humanoid is a non-human entity with human form or characteristics.
- It may have the ability to walk upright.
- Intelligent humanoid robots are designed with human-like forms and functions – anthropomorphic limbs, mobility skills, sensory perception, learning, and cognition. They represent the pinnacle of complexity and control challenges among all types of robots.
- They stand to become commonplace.

Tribute

- Alan Turing, father of Computer Science and Artificial Intelligence.
- In fact, thanks to him that today we have a variety of computer systems constituting the continuum.
- Alan Turing (1912-1954) was a British mathematician, computer scientist, and codebreaker. He is often called the father of modern computing.

What is next?

- We go to Alvin Toffler: The Third Wave. He did talk about various technological waves.
- And so, today we have the technological continuum, likely to last several years. We know however that each element of the continuum is already benefiting from AI. The robots will become commonplace.
- The effect of AI is encompassing. Think.