The continuum of Knowledge Banks, Expert Systems, Artificial Intelligence Systems, Automated Systems and Robotics

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Introduction

Artificial Intelligence Systems are prominent in the technological fields today. However, due consideration has to be given to computer-based systems which are as important depending on the purposes served.This study will lookat these systems which in many ways are complementary; they are sets which are related. Yet, they each have distinct characteristics and are utilized on an ongoing basis. In essence, a societywhich relies so much on technology will not be able to exist without them. They are all pervasive. Knowledge banks have a high human element, determining in nature and are computer-based. Expert systems utilize computer systems and rules(such as if, then) and are involved in induction and deduction reasoning. Artificial intelligence systems are machine-based with human prompts and is thus a dialogue (for example, 20% human and 80% machine). Automated systems are machine-based and useful for repetitive tasks. Robotics are machines with practically no humansand are involved in doing a variety of tasks not suitable for human beings. It is also possible for robots to manufacture other robots.Further, think of humanoid running past someonejogging.These systems are useful and are all designed by human beings. AI is becoming increasingly pervasive, and the other systems will no doubt be affected. Special tribute will be made to Alan Turing, father of Computer Science and AI.

Section 1

A knowledge base or bank is a centralized collection of information that is organized and searchable, often intended to provide quick access to specific knowledge or information. Knowledge bases are often aimed at solving problems, answering questions, or offering guidance.

Common types of data included in a knowledge base include:

Directions and tips for using products and services

Answers to FAQs

Content that can provide in-depth solutions

Video demonstrations

Company information

Knowledge on different business departments

Examples of knowledge bases include:

Public libraries

Databases of related information about a particular subject

Whatis.com

Internal wikis

Customer self-service portals

Instructional guides

Knowledge bases can be internal or external:

Internal knowledge bases

Serve only employees of the company. They can include:

Coding practices

Onboarding material

Content creation guidelines

Company policies

External knowledge bases

Allow customers to easily find solutions to problems without having to open a support ticket

Knowledge bases can contain information about products, services, or specific topics. Typically, contributors who are well versed in the relevant subjects add to and expand the knowledge base.

A useful example of knowledge bank or base: a doctor’s set of patients

Section 2

Expert systems can be classified into five categories. There are several types of expert systems, including rule-based, frame-based, fuzzy, neural, and neuro-fuzzy. Simple expert systems that describe knowledge as a collection of rules are called rule-based expert systems.

Application areas include classification, diagnosis, monitoring, process control, design, scheduling and planning, and generation of options.

The concept of expert systems was developed in the 1970s by computer scientist Edward Feigenbaum, a computer science professor at Stanford University and founder of Stanford's Knowledge Systems Laboratory. The world was moving from data processing to "knowledge processing," Feigenbaum said in a 1988 manuscript. That meant computers had the potential to do more than basic calculations and could solve complex problems thanks to new processor technology and computer architectures, he explained.

Modern expert knowledge systems use machine learning and artificial intelligence to simulate the behavior or judgment of domain experts. These systems can improve their performance over time as they gain more experience, just as humans do.

Expert systems accumulate experience and facts in a knowledge base and integrate them with an inference or rules engine -- a set of rules for applying the knowledge base to situations provided to the program.

Examples of expert systems: systems for landing a plane; cruise control in a car.

Section 3

These are computer systems with intelligent behavior, accepting human prompts or problem formulation and providing answers, in general usable.

The roots of AI The Age of AI: The Roots Run Deep (msn.com)

All the terms you need to know All the AI terms you need to know (msn.com)

What is AI What is artificial intelligence (AI)? (msn.com)

Generative AI Opening up Generative AI (msn.com)

Comparing four Ais What is the best generative AI? ChatGPT, Copilot, Gemini and Claude compared (msn.com)

Singaporeis About to Become an AI Superpower (msn.com)

Example: AI system for finding out theout problems of the worldand how to deal withthem(see IISRT}

Section 4

Automated systems are a network of sensors, controls, and actuators that perform a function with little or no human intervention. The main goal of an automation system is to reduce human intervention, which can lead to errors and fatigue. Automated systems can streamline processes, reduce errors, and provide valuable insights through data analytics. This can enable businesses to make more informed and strategic decisions, improve customer service, lead to innovation, and result in cost savings.

Automated systems streamline processes, reduce errors, and provide valuable insights through data analytics, enabling businesses to make more informed and strategic decisions. Automation can also improve customer service, lead to innovation, and result in cost savings, giving businesses an edge over their competitors.

Automated systems are made up of a network of connections. There are three main components to this system: A receiving input (i.e. tactical sensors, human-machine interface), computer processing system, and the manipulators, or actuators, that complete the physical task.

Automated systems are derived from manual processes such as drilling, cutting, and welding. They use robotic arms to manipulate the movement of the tool that performs the original function. The three main components to an automation system are:

Receiving input: This can include tactical sensors or human-machine interfaces.

Computer processing system: This ensures proper execution of the instructions.

Manipulators, or actuators: This completes the physical task.

Automation includes the use of various equipment and control systems such as:

Machinery, Processes in factories, Boilers, heat-treating ovens, Switching on telephone networks, Steering, Stabilization of ships, aircraft and other applications, Regarding vehicles the.

The benefits of automation include:Reduced errors: Employees will not have to spend time correcting errors, Cost savings: Repeating the process entirely is saved, Data analytics: Provides valuable insights.

What is an example of an automated system?

Is a computer an automated system?

What is an automated operating system?

Classic example of automated system: elevator without which no tall buildings would be possible, Take Dubai as an example.

Section 5

Robotics is the study of how to design, construct, operate, and use machines that can replicate, substitute, or assist humans in completing tasks. These machines are called robots. Robotics combines science, engineering, and technology.

Robots are used in many industries, including:

Manufacturing: Industrial robots automate processes in factories and warehouses

Healthcare: Medical robots assist healthcare professionals in various scenarios

Agriculture: Agricultural robots handle repetitive and labor-intensive tasks

Entertainment: Humanoid robots are programmed to imitate and mimic human movements and actions

Robotics has five specialized areas: Operator interface, Mobility or locomotion, Manipulators & Effectors, Programming, and Sensing & Perception.

Robots can also be autonomous, meaning they can run by themselves without supervision. Autonomous robots rely on various inputs to know what is going on in the world around them, and then make decisions based on these inputs.

Robots manufacturing robots e.g. in manufacturing; the lead robot deciding upon what other robots are needed (main manufacturing line compared to subassembly lines)

Example: Robotics e.g. painting of cars

(for more details, see IISRT)

Section 6

A humanoid is a non-human entity with a human form or characteristics.

Humanoid robots are robots that resemble and act like humans. Typically engineered to imitate authentic human expressions, interactions and movements, these robots are often outfitted with an array of cameras, sensors and, more recently, AI and machine learning technologies.

In today's geopolitical landscape, Julian Mueller-Kaler, director of the Strategic Foresight Hub at the Stimson Center, said that "high technology has come to define high politics," with humanoid robots and AI representing the apex of technological development and serving as symbols of power.

The US, he said, is "defining national security through the prism of supremacy, not just in military terms and political terms, but also in economic and technological terms."

The US is strategically investing in these cutting-edge technologies as part of its bid for supremacy, he said, as well as employing other measures to impede China's growth in the field.

The Rise of AI Humanoid Robots: Predicting a Future Where Robots Tackle Household Chores (msn.com)

The Robot Revolution: How Personal Humanoid Robots Could Become the Next Household Essential (msn.com)

OpenAI backed 1X's humanoid robots showcase an advanced neural network (msn.com)

Section 7

Wfy AI is front stage

Anthropic Launches 3 New Groundbreaking AI Models (msn.com)

Anthropic Launches Claude 3, Topping GPT-4 in Multimodal AI Capabilities (msn.com)

ChatGPT and Gemini are cool, but they're not where the future of AI is heading (msn.com)

Unveiling the Growth of New AI Technology (msn.com)

AI outperforms humans in creativity tests (msn.com)

AI Surpasses Human Benchmark in Global Study on Personality and Behavior (msn.com)

Now AI is outperforming humans when it comes to creativity (msn.com)

Section 8

Why the continuum is important?

Basically, the backbone of society which relies so much on technology.

Section 9

Alan Turing, the father of Computer Science and Artificial Intelligence

https://www.google.com/search?gs_ssp=eJzjYtfP1TfIMzAwYPTiTsxJzFMoKS3KzEsHAERTBrY&q=alan+turing&rlz=1C1APWK_enUS915US915&oq=Alan&gs_lcrp=EgZjaHJvbWUqCggDEC4YsQMYgAQyBggAEEUYOTIKCAEQLhixAxiABDIKCAIQLhixAxiABDIKCAMQLhixAxiABDINCAQQLhjUAhixAxiABDINCAUQLhjUAhixAxiABDINCAYQLhjUAhixAxiABDIQCAcQLhjHARixAxjRAxiABDIHCAgQABiPAjIHCAkQABiPAtIBCjE1MjMwajBqMTWoAgiwAgE&sourceid=chrome&ie=UTF-8

Turing and more: No, AI Machines Can’t Think (msn.com)

Section 10

Conclusion: what is next?

Sentient AI

AI tells us what to do

AI takes over from humans

Discover How GPTs Revolutionize Task Automation (msn.com)

Use AI to Unlock Creativity (msn.com)

Artificial Superintelligence Could Arrive by 2027, Scientist Predicts (msn.com)

This Software Engineer AI Can Train Other AIs, Code Websites by Itself (msn.com)

The Conundrum of Open Source AI: Defining the Future of Technology (msn.com)