A.V.C COLLEGE OF ENGINEERING, MANNAMPANDAL

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

"FORCE (FORum of Computer science and Engineers') Newsletter"

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HOD'S DESK

I appreciate the final years (2021 batch) who were participated in the National / International Conferences held at various Institutions. Also I congratulate the students those who got offer letters at various companies. I appreciate Samyuktha.G, Durgadevi.V, Ramiya.R, Meiyammai.V for completing one month research internship at SSN Engineering College. I wish you all success in this new academic session.

"Plan well before you start the journey in every walks of Life

Remember the Carpenter & Tailor's rules

Measure Twice, But cut once"

Dr.S.Padmapriya, HOD/CSE

Faculty Corner

COGNITIVE COMPUTING (CC)

Mrs.R.VINOTHINI, AP/CSE

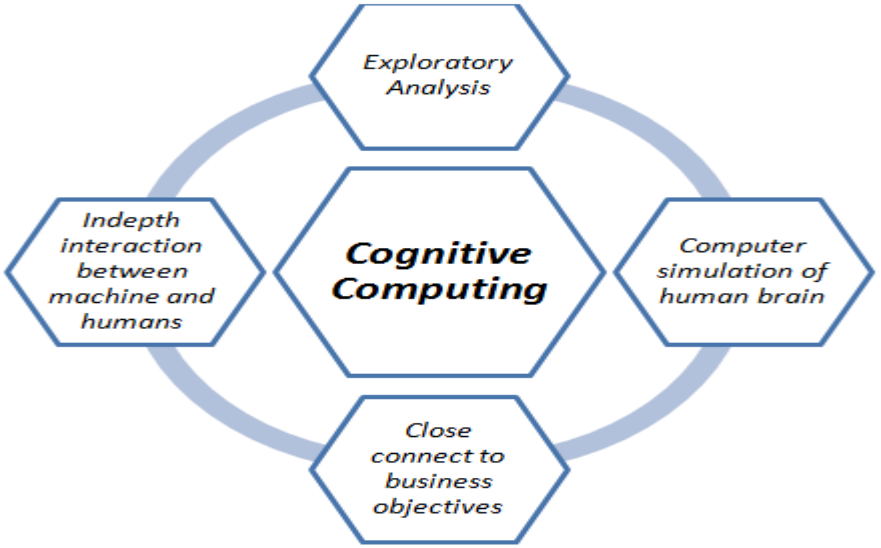
Introduction:

Cognitive computing refers to the use of reasoning, language processing, machine learning, and human capabilities that help regular computing better solve problems and analyze data. By learning patterns and behaviors and becoming more intelligent, a computer system can tackle complex decision-making processes. Cognitive computing is the use of computerized models to simulate the human thought process in complex situations where the answers may be ambiguous and uncertain. The phrase is closely associated with IBM's cognitive computer system, Watson. Cognitive computing overlaps with AI and involves many of the same underlying technologies to power cognitive applications, including expert systems, neural networks, robotics and virtual reality (VR).

How cognitive computing works

Cognitive computing systems can synthesize data from various information sources, while weighing context and conflicting evidence to suggest the best possible answers. To achieve this, cognitive systems include self-learning technologies that use data mining, pattern recognition and natural language processing (NLP) to mimic the way the human brain works.

Fig.No.1 Diagram for Cognitive Computing



Some features that cognitive systems may express are:

Adaptive

They may learn as information changes and as goals and requirements evolve. They may resolve ambiguity and tolerate unpredictability. They may be engineered to feed on dynamic data in real time, or near real time.[11]

Interactive

They may interact easily with users so that those users can define their needs comfortably. They may also interact with other processors, devices, and cloud services, as well as with people.

Iterative and Stateful

They may aid in defining a problem by asking questions or finding additional source input if a problem statement is ambiguous or incomplete. They may "remember" previous interactions in a process and return information that is suitable for the specific application at that point in time.

Contextual

They may understand, identify, and extract contextual elements such as meaning, syntax, time, location, appropriate domain, regulations, user's profile, process, task and goal. They may draw on multiple sources of information, including both structured and unstructured digital information, as well as sensory inputs (visual, gestural, auditory, or sensor-provided).

Cognitive Analytics

Cognitive computing-branded technology platforms typically specialize in the processing and analysis of large, unstructured datasets.[13]

Other characteristics of a cognitive analytics system include:

- **Adaptability:** cognitive analytics systems can use machine learning to adapt to different contexts with minimal human supervision
- **Natural language interaction:** cognitive analytics systems can be equipped with a chatbot or search assistant that understands queries, explains data insights and interacts with humans in natural language.

HYPERAUTOMATION TECHNOLOGY

Student Corner

M.SIVASANKAR, III CSE

Introduction:

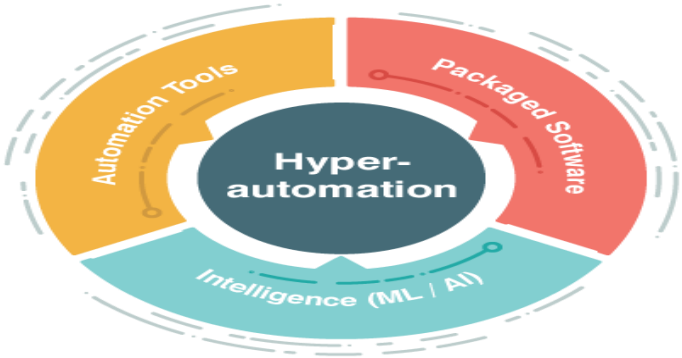
Hyperautomation is a business-driven, disciplined approach that organizations use to rapidly identify, vet and automate as many business and IT processes as possible. Hyperautomation is a term initiated by Gartner. It is the application of automation technologies like RPA and process mining along with machine learning and other emerging technologies to increase the level of automation and digital transformation in companies.

Based on all the definitions we see 4 aspects of hyperautomation in enabling higher levels of automation:

- Use of existing automation/digital transformation technologies like RPA and process mining
- Reliance on machine learning to automate operational decision making
- Organizational and cultural change to drive fast experimentation and rapid adoption of automation technologies
- Process simplification to reduce automation challenges

To add to the confusion, vendors also use different terminology to imply the same thing:
Workfusion: Intelligent automation platform
Hypatos: Cognitive process automation

Fig.No.1 Diagram for Hyperautomation



Technologies enabling hyperautomation

Robotic Process Automation (RPA)

RPA is at the core of hyperautomation. Combining technologies enables RPA to become more intelligent and extends the reach of RPA.

Intelligent Business Process Management Suites (iBPMS)

An iBPMS is an integrated set of technologies that coordinates people and machines in process delivery. An iBPMS enables companies to model, implement, and execute sets of interrelated processes by applying business rules.

Process Mining

Process mining is an analytical discipline to gain a deep understanding of a company's processes. Process mining has a broad range of use cases from common applications such as process optimization to industry-specific applications like risk identification in an audit. Process mining is critical for process simplification and process understanding which are major enablers of hyperautomation.

Computer Vision

Computer vision (CV) is a combination of AI techniques including image classification and segmentation, and object detection and tracking, which enable machines to interpret information from unstructured data such as images and videos.

Natural Language Processing (NLP)

NLP helps businesses automate tasks that knowledge workers would do. It enables machines to understand unstructured data from emails, social media posts, videos. Then it performs sentiment analysis, automatic language translation or automatic classification of texts into categories depending on your business' automation needs.

Editor's Desk

Leadership qualities

The most important qualities of a good leader include integrity, accountability, empathy, humility, resilience, vision, influence, and positivity. If you are the leader of a team and you are trying to be a good one, here are six tips to help improve yourself.

- Understand Your Style of Leadership.
- Strengthen Your Weaknesses.
- Become a Better Communicator.
- Set Clear Goals and Work Towards Them.
- Get Better at Making Decisions.
- Accept Failures and Learn From Them.

Push your ideas to

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Editors-Force Newsletter

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Institution Vision

To blossom into a cynosure of technological innovations.

Mission

To participate in the noble cause of nation building by offering professional education, research and training in engineering and technology especially to the rural based poor students.

Department Vision:

To excel in the field of Computer Science and Engineering with technological innovations.

Department Mission:

1. To impart quality technical education to the students through creative teaching learning process especially to the rural based students.

2. To create facilities and expertise in cutting-edge computer technologies through industry institute partnership.

3. To motivate the students to apply their innovative ideas to construct research models.

4. To transform the students into socially and ethically responsible professionals.

Programme Educational Objectives (PEOs):

Graduates of this B.E Computer Science and Engineering will be able to

PEO 1: To enable graduates to pursue higher education and research, or have a successful career in industries associated with Computer Science and Engineering, or as entrepreneurs.

PEO 2: To ensure that graduates will have the ability and attitude to adapt to emerging technological changes.

PEO 3: To effectively communicate ideas in oral or written and to promote collaboration with other members of engineering teams.

Programme Outcomes (POs):

By the time of graduation, graduates will attain the following programme outcomes:

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the

knowledge of, and need for sustainable development.

8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one‘s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Objectives (PSOs)

1. To analyze, design and develop computing solutions by applying foundational concepts of Computer Science and Engineering

2. To apply software engineering principles and practices for developing quality software for scientific and business applications

3. To adapt to emerging Information and Communication Technologies (ICT) to innovate ideas and solutions to existing/novel problems.