

Scientific Computation With Ai

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Abstract - This paper discusses the various aspects of scientific computing in a more detailed manner, followed by the enlistments of possible future scientific computing and also its evolution with the emerging recent discoveries in the field of AI. This paper also discusses a wide spectra of no code or the zero code platform that is about to take up most of the coding related tasks and automate them.

Moreover, a wide spectrum of No code architecture is also involved in the scope of this paper. The paper also discusses the shortcoming of scientific computing power and also the ways in which it can be enhanced by use of AI.

Keywords - Computing, Zero Code, Scientific process, Computational power.

1. INTRODUCTION

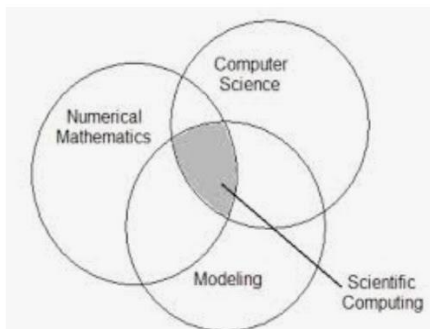
Scientific computing is also known as "computational science" pervades all aspects of basic research nowadays, from the smallest experiments to biggest datasets. Scientific computing is all about creating efficient tools which can be used to solve scientific problems of all disciplines such as mathematics, engineering and other natural sciences.

Artificial intelligence makes it possible for machines to learn and adjust to new inputs and algorithms and perform human like tasks, using Artificial Intelligence computers can be trained to accomplish computational problems.

2. ANALYSIS OF SCIENTIFIC COMPUTING

Computational science is a rapidly growing multidisciplinary field that uses advanced computing capabilities to understand and solve complex problems.

2.1 Computational science fuses three distinct elements



2.1.1. Algorithms (numerical and non-numerical) and modelling and simulation software developed to solve science
2.1.2 Computer and information science that develops and optimizes the advanced system hardware, software, networking and data management components need to solve computationally demanding problems

2.1.3. The computing infrastructure that supports both the science and engineering problem solving and the development computer and information science

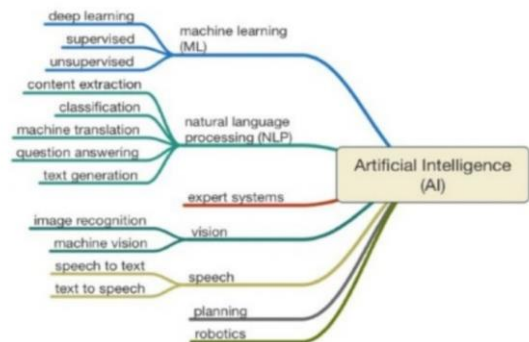
2.1.4 Current trends in Computing :

- Artificial intelligence
- Machine Learning
- Deep Learning
- Computer vision
- Human computer interaction
- Robotics

2.2 Indulgence of AI

Artificial intelligence (AI) is the basis for alike human intelligence processes through the creation and application of algorithms built into a dynamic computing environment. Stated simply, AI is trying to make computers think and act like humans.

2.2.1 Achieving this end requires three key components: Computational systems Data and data management



Advanced AI algorithms

III Types of AI

3.1.1 Reactive Machines AI

Based on present actions, it cannot use previous experiences to form current decisions and simultaneously update their memory.

3.1.2 Limited Memory AI

Used in self-driving cars. They detect the movement of vehicles around them constantly and add it to their memory.

3.1.3 Theory of Mind AI

Advanced AI that has the ability to understand emotions, people and other things in the real world.

3.1.4 Self Aware AI

AI that possess human-like consciousness and reactions. Such machines have the ability to form self-driven actions.

3.1.5 Artificial Narrow Intelligence

General purpose AI, used in building virtual assistants like Siri.

3.1.6 Artificial General Intelligence

Also known as strong AI. An example is the Pillo robot that answers questions related to health.

3.1.7 Artificial superhuman intelligence

AI that possesses the ability to do everything that a human can do and more. An example is the Alpha 2 which is the first humanoid ASI robot.

IV LITERATURE SURVEY

"Algorithm" is a word that one hears used much more frequently than in the past. One of the reasons is that scientists have learned that computers can learn on their own if given a few simple instructions. That's really all that algorithms are mathematical instructions .

To make a computer do anything, you have to write a computer program. To write a computer program, you have to tell the computer, step by step, exactly what you want it to do. The computer then 'executes' the program, following each step mechanically, to accomplish the end goal. When you are telling the computer what to do, you also get to choose how it's going to do it. That's where computer algorithms come in. The algorithm is the basic technique used to get the job done. Scientific problems can be easily done by Artificial intelligence in seconds by just an algorithm

V PROPOSED IDEA

Artificial intelligence can help change and improve the related field of computer science through more advanced programming techniques and data organization.

Computers essentially function by following sets of programming instructions, and artificial intelligence is a field that is helping transform this process into something much more dynamic where the programs can find ways to learn on their own without having to receive new instructions all the time.

Artificial intelligence provides the required theories, tools and techniques required to solve a scientific problem.

5.1.1 Zero Code Platform : Zero code application platform can bridge the gap between these two extreme scenarios. These platforms can be used by business analysts and leaders to develop applications fully customized to departmental requirements. As the development times are very less, a prototype can be quickly developed to be showcased and approved by the stakeholders.

5.1.1.1 Decreased development period

Zero code platform reduces the time for the application development process.

It is a proven fact that maximum time is consumed in understanding the business logic and how to achieve the desired outcome.

So the business leaders developing their app are benefitted on a larger scale.

5.1.1.2 Reduced Cost

As time and resources required are less, it results in major cost savings. Most of the zero code platforms are completely hosted on the cloud and have a pay-as-you-use model, which is cost-effective.

5.1.1.3 Aligning IT with business

Zero code platforms enable non-developers to develop applications, reducing the burden of IT departments. It also helps in aligning IT with business requirements.

5.1.1.4 Quick prototyping

Developers can use zero code platforms to develop prototypes quickly to test product feasibility and functionality.

The learning curve of any WYSIWYG interface is flat, which makes it super simple for non-developers to understand how the platform works. They can start developing apps right away, saving time.

5.1.1.5 Graphical user interface:

Drag and drop elements make it easy to assemble applications quickly. Sometimes even developers use this platform so that they can roll out applications quickly.

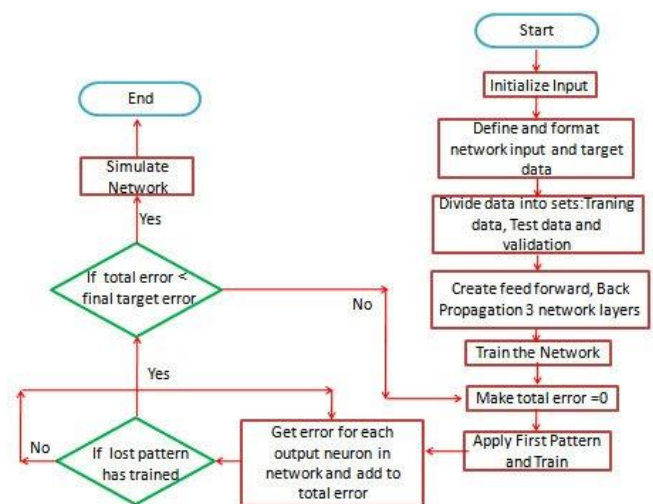
5.1.1.6 Templates library:

Large numbers of templates make it easy to develop an application for typical workflows like project tracking, file sharing, chatting, etc.

5.1.1.7 customizable:

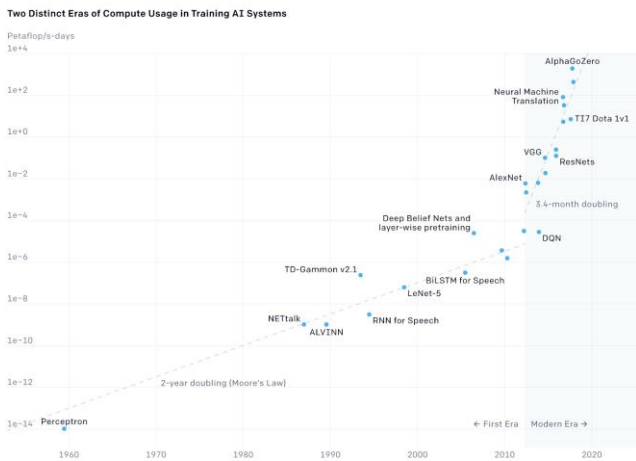
These platforms usually have a huge library of elements that make it simple to customize applications according to an organization's business needs and policies.

(Process flow of AI assisted Computing)

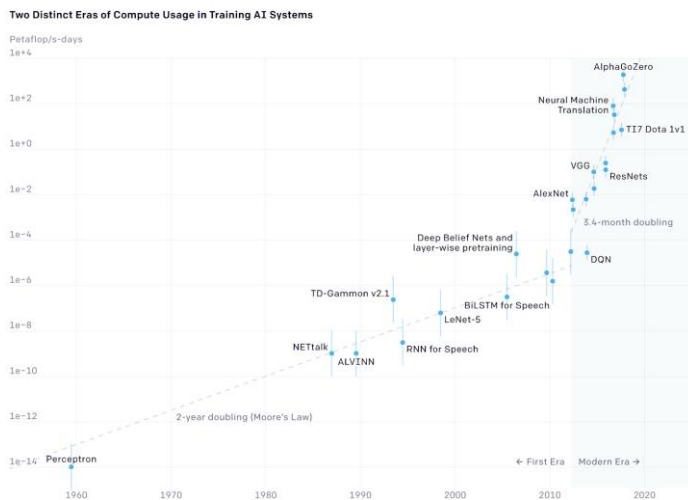


5.2 Growth of computing with AI in various fields

5.2.1 Fields



5.2.2 Error occurrence



VI CONCLUSION

The benefits of AI and Scientific computing far outmatches the traditional computing methodologies. Moreover, AI enabled computing makes tasks simpler, efficient and cheap.

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