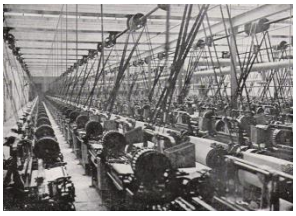
Is AI the modern day Tower of Babel?

v1.6 (__bkups/xEd)

Engineering backdrop

Mechanical engineering's Industrial Age

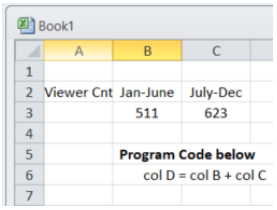
Man learns how to transfer power from a stream or steam engine through a series of pulleys, gears and cam shafts to power the work at a local work station.



Electrical engineering's Computer Age

Man learns how to translate human language to a set of computer instructions that contain only 1's and 0's.

The computer executes these instructions, adding colB and colC, and creates a result in colD. That result is



translated human format,

from 1's and 0's back into a readable 1134.

D
Totals
1134

AI Components as returned from Search Agent

The major components of artificial intelligence (AI) include learning, reasoning, problem-solving, perception, and natural language processing (LLM - Large Language Model).

LLM is the key AI Component

Max Tegmark, MIT professor says

- AI is going nowhere until the LLM is solved and now that it is solved[1] the sky is the limit

What is LLM?

The large language model is a sophisticated dictionary of words and their relationship to other words. Creating the LLM allows the computer to have normal human conversation which is Allan Turing's[2] definition of intelligence.

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[1] AI search assistant The concept of large language models (LLMs) began to take shape with the introduction of the transformer model in 2017, which significantly advanced natural language processing. However, LLMs have continued to evolve, with notable milestones like the release of GPT-3 in 2020 and GPT-4 in 2023, marking significant improvements in their capabilities.

[2] AI search assistant The Turing test, proposed by Alan Turing in 1950, evaluates a machine's ability to exhibit intelligent behavior indistinguishable from that of a human during a conversation

Let's explain AI components in terms of normal programming and in the following order:

1. LLM
2. Learning/Training
3. Problem-solving
4. Reasoning/perception

Normal computer programming

Ai uses normal computer programming components. This section describes normal component usage.

Computer Language

Original computer programs were written in native computer language. That language called bit code only has 2 characters in its language, '0' and '1'. Imagine reading a page of this original computer program where every character on the page was a '0' or a '1'. Native computer language is unreadable. So ...

Normal Programming LLM's

A translation tool called a compiler was created

Today's computers systems/programs are designed for ease of use hiding the underlying complexities. Let's take a quick look under the hood how an Excel spreadsheet computer programmer would add a column B value to a column C value and display the result in column D. (As illustrated in section 2 above)

A programmer would create the following 2 line program:

```
var   colB, colC, colD;    # line 1 tells the computer I have 3 distinct column values
colD   = colB + colC       # line 2 tells the computer to add colB to colC and load the result into colD
```

Next this text file is input to the compiler where it is translated into bitcode 1's and 0's. The computer then executes this bitcode to add the 2 columns and displays the result.

How does the compiler work?

The compiler has a dictionary of words:

- The compiler reads the 1st line 1st word 'var'
- The compiler checks its dictionary for a 'var' entry
    - A 'var' entry exists that describes
        1. 'var' is a special word that identifies a memory location for the colB, colC and colD values
    - the '+' symbol is a word that will add the values stored in the colB and colC locations
    - the '=' symbol is a word that will store the results of the add into the colD location
    - 'colB', 'colC', 'colD' are also words in the dictionary holding the different column values

The size of the compiler dictionary can be 1000's and 1000's of words.

The program above is coded in the JavaScript computer language. And although there are 1000's of computer languages the dictionaries between the different languages will look very similar.

How is the compiler dictionary like the LLM?

In principal it is exactly the same.

Just like there are many computer languages. There are many worldly languages.

The English language has up to 1 million words. So the AI English LLM may be larger than a normal compiler dictionary.

A LLM word entry has a 'nextWord' property

Let's look at an entry in the LLM. The word 'awarded'. In the awarded dictionary entry is a property called 'nextWord'.

nextWord : ['to': 20, 'for' : 17]

The nextWord probability says 'to' has a 20% chance to follow the word awarded. There are multiple entries here giving a descending probability. We will describe the usage of the nextWord in detail in the 'AI Learning' section below.

Normal Programming Learning

AI learning is also called training.

Ex 1

Let's look at a simple example how a normal programming order on the Target.com website learns.

Let's describe

- orders as held in a very large database (DB)
- your new order is added to the bottom of your order list
- your next order lookup will probably be for this latest order
- to optimize the speed to retrieve this latest order 1st let's create an optimized order index
    - because the DB is so large[3] creating this order index can take hours so
    - a nightly batch file runs to create this index
        - AFTERWHICH all of yesterday's orders are 1st on the search list

Ex 2

How come when I enter a keystroke in search engine DuckDuckGo I get a whole lot of drop down entries?

[3] Target order DB could hold well over a million orders

Nightly DuckDuckGo processes all the daily inputs. In this manner it knows the daily word search patterns. It then processes these daily patterns combining them with previous daily patterns and when you type a search pattern it displays the most frequently requested patterns in the drop down.

AI Learning

In this section we will describe how the nextWord property of the LLM works.

nextWord usage

An AI query[4] has a set of words. A search engine or AI starts creating subgroups of related words based on the overlapping properties of each. One of these properties is the nextWord property.

The search engine will scan through the main and subgroups multiple times refining it understanding of the question you are asking.

Underlying this refinement process is the calculations of mathematical probabilities. It may calculate many possible answers but will use the highest probability to search its answer database for the response it will return to you.

Aside

How was the mathematical probability of the word 'awarded' nextWord property calculated?

AI's learning/ training feature reads, watches and listens to all worldly media

- Storing each unique word following 'awarded' and incrementing its count as it is observed
- In theory there could be 1M different words along with a count for each word
- nextWord is just 1 of many properties training is reading and storing information on
- SO ... the amount of computer memory used can be enormous
- ... the amount of computing power can also be enormous so the training can be spread across multiple computers or onto a super computer
- At the conclusion of the run the probability calculation is easily done on this large data set

Aside's aside. Comparing the LLM size of normal computer programs to AI

When building a simulator for the new Navy UYK-44 Extended Memory project I was given the latest top of the line IBM PC/XT286. One of the 1st 5 that came into the UNISYS Pilot Knob building. I also had the biggest and the top of the line 20MB hard drive.

The compiler process used up that 20MB drive in building its LLM almost immediately and I had to pull off a programming trick to subdivide the build of my program.

The point: even small computer programs can create large LLMs making the differences between normal program LLMs and AI LLMs moot.

[4] Aka Google search pattern

Normal Programming Problem Solving

All programs by definition are created to solve a problem or a set of problems.

Normal Programming Reasoning & Perception

Many traditional computer programs perceive their environment and apply reason to a specific set of goals/requirements. However, here is where AI's Singularity diverges:

Traditional Normal Programs	AI Singularity
Are deterministic because they:	Are **unconstrained**
Have specific requirements	Have open non-specific requirements
Can be fully tested	Can NOT be fully tested
All Errors can be accurately defined	All errors can NOT be defined
Can be terminated gracefully	Might be able to be terminated gracefully
The program is finite!	The program may not be finite! Can a programmer understand infinity?

Computer limitations

Traditional programming paradigm and this author's opinion: A computer program can only do what it has been programmed to do. Anything else is an error. Thus by definition AI can NOT reach singularity .

Normal computer programming Summary

The previous normal programming sections have described components that are used to build and execute normal programs. These components/technologies are also present in AI. So **AI is just a branch** of normal programming principals.

AI Neutral Networks

Computer programs are built from source code modules. The application dictates how these modules are organized. For AI these modules are arranged to facilitate /mimic brain neurons. Hence the name neural network[5].

NOTE: This neural network design concept does NOT guarantee a thinking intelligent human brain.

AI Neural Nodes

Each neural node/module can be trained and has software code to process its LLM property(s). The output of these nodes is a probability sometimes called a confidence level.

A LLM missing property

What happens when a mathematician has identified a new relationship between a word and the 5th word following it?

In order to implement this new relationship

[5] https://www.geeksforgeeks.org/artificial-intelligence/artificial-neural-networks-and-its-applications/

1. A new neural node with source code functionality has to be created and added to the neural network
2. the LLM has to add a new next5thWord property to hold this information and all published written and video media must be re-scanned to retrain each word in the LLM library

This retraining could take weeks or more. Costly rental time on a super computer may be required to do this reload in a timely fashion.

Currently as AI LLMs are frequently being updated AI is dependent on man.

AI Singularities Autonomous Existence

AI Singularity would require autonomous existence. Another words no assistance from man.

As previously stated currently this is not the case.

As man finds new data relationships AI's LLM must continually be rebuilt by adding new properties into the model and additional

- new code into a new neural node and rarely an dependency between another node which may require a change or additional code

Would it be easy for AI Singularity to string the audience and VCs[6] on and on and on ... ?

Since AI was born in 1956 has AI strung along VCs and businesses from the beginning with false promises of optimizing their workflow?

Al Gore said in 2009 Global Warming would cause the North Pole to be ice free in 2013. It's 2025 and I believe his prediction is false. What say you?

I believe the obvious answer is YES. AI is blatantly creating a gold rush stampede toward a false god promising nirvana.

[6] Venture Capitalists

Man is a visual being

Everything revolves around sight.

'I won't believe it until I see it' is a common statement drawing a conclusion that if man can see it. It must exist.

Alien Invasion? NO. Invasion of the Computers

Modern life revolves around computers: cell phones, cell phones, cell phones hooked up to the internet. internet internet. Dick Tracy iWatches and car navigation screens and on and on and on.

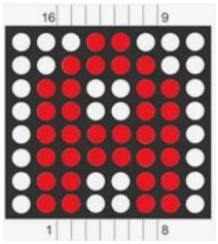
Computers, however, started out with a simple monochrome screen of text that was of little interest to man's visual senses. So let's review the evolution of the computer display to the bright graphic canvas and the all attention grabber that it has become.

History of the display and computer graphics

The birth of the text screen

Computer graphics started out as text only graphics. Screens were laid out in a character grid 40 lines in length and 80 characters in width. That's 320 characters on the screen. The IBM PC reserved memory for 4 screens. So an application could easily update the information on 4 different screens and then the user could toggle between the screens as needed. At the time this was high tech.

The 1st Pixel Graphics



Text characters are laid out in an 8x8 pixel grid. The picture to the right is an upper case A laid out in this grid. In the previous text graphics section you had to choose a character to display.

In pixel graphics the screen is 320 pixels in length by 640 pixels in width and you could set any individual pixel.

Today's Pixel Graphics

For reference my current 24" monitor is a 1920 x 1080 pixel grid. So the 1st pixel graphics were very crude in comparison.

Enter Hollywood, CGI and Star Wars

So why is a Hollywood section sitting in the middle of graphics history?

Hollywood was looking to make sci-fi movies that depicted characters and action that we could only see in our imagination. Special effects at the time were plain bad.

The development of CGI computer graphics and its usage in TRON and then Star Wars showed realistic futuristic scenes on the big screen. It made our imagination come to visual life. The massive audience and the subsequent cash flow allowed more development on CGI to make even greater visual effects.

Hollywood then made Marvel comic characters come to visual life through these new visual effects.

$134M[7] Video Game market

CGI spawned[8] the development of graphic[9] cards for the gamer market. Graphic cards are computer add ons that have their own memory and a special graphics processor (GPU) that is built to create better and better faster and faster graphics.

Base Computer video limitation

As described in 'the birth of the text screen' section above a computer's memory has 4 screens of which only one is actively displayed to the monitor.

Graphics expansion cards have their own VRAM memory along with a GPU. It works independently from the main CPU computer and processes numerous video screens in this independent memory. At the last moment it copies the active VRAM video screen to the CPU active display screen memory[10] and that gets displayed to your monitor.

Sprites, JPEG and SVG Video Specs

A painter starts with a blank canvas. Paints a background and starts layering/drawing different items onto the canvas. A painter may take several weeks or more to create his master piece.

For a computer creating a video we need to paint 32 frames a second to get smooth motion. So we would like to create movable objects (MOB) we can overlay onto a background. Starting in the 1970's arcade games called these movable objects 'sprites'.

The monitor and a jpeg file are both pixel based technologies. . It has no concept of any object in the display or image. If we try to enlarge a jpeg image it will start to blur.

SVG, Scalable Vector Graphics, is a specification that defines objects that optimizes the usage of memory within the video card and the ability of the GPU to overlay these objects onto a pixel screen.

Now the graphics card memory can be used in the following manner:

- Gaming applications
    - As an avatar walks down a hallway it can take the door on the right or on the left
        - A GPU can prebuild both rooms into VRAM
            - 1st rendering a different background wallpaper, overlaying different villains, furniture, & exits into each room
        - As the avatar enters the room on the right the GPU sends the prebuilt room on the right screen to the CPU memory and to the monitor
        - The room on the left can be left in VRAM as the user may choose to enter that room later
- Advantages for movie creation

[7] 2018 Worldwide video game sales

[8] Asking search assistant. Did CGI influence video card development? Yes, CGI has significantly influenced video card development, as advancements in computer-generated imagery require more powerful graphics processing units (GPUs) to handle complex rendering tasks and improve visual quality in games and films. The demand for realistic graphics and real-time rendering has driven innovations in video card technology

[9] Aka video cards

[10] The mechanism that accomplishes this copy are many and can include MMIO, DMA, and for NVIDIA PCIe.

- Multiple avatars can be instructed to follow a movie script as a computer generated background works to create a virtual movie
- However, the best movies mix normal conventional video production with well-placed computer generated graphics

ChatGPT

Typing 'Draw me Capt Ahab muskie rider' took ChatGPT a few minutes to return the following image:

ChatGPT 1st grabbed a seascape and cloudy sky background based on a 'Capt Ahab' LLM's word association that returned something along the lines of [sea, whale, whaling ship , Pequod, harpoon...]. Looking up muskie in the LLM overwrote whale and looking up rider placed Ahab sitting on the muskie like a horse rider.

So SVG sprite type objects are retrieved to build this image.

AI. I believe!

AI naturally teams with Oracle and NVIDIA because LLMs and graphic sprites are stored in Oracle type databases accessed and edited by NVIDIAs GPUs.

This all-star team of vendors have teamed up with AI to create an entity that can converse on any subject and visually impress all audiences in a cult like environment.

I believe in AI because I can see it.

Legit Uses

Today we can quickly and cheaply buy a personal computer and an expansion graphics card and become a professional short video podcaster and a movie producer.

The Caveat

The low cost of computers and graphics cards greatly increases the content upon the internet.

Unfortunately NOT all of this content is correct[11]. In fact some intentionally propagandize falsehoods .

So readers/listeners/watchers beware.

[11] As I peruse through content on the internet for which I am an expert I see so much poorly written and outright wrong information.

Illegit uses

Grant Applications

In working with the U of MN I became aware that they are being awarded 100's of millions of dollars in grants each year.

Having worked on several grants the amount of work required to submit such is both substantial and time consuming. Often involving a team of 3 or more people.

It would be a natural progression for AI to be leveraged to optimize this application process. First creating the text of the application and second creating the graphic figures to support the text.

Using AI a university could submit 3 or 4 times the number of normal grant submissions.

Why is AI grant application bad?

The grant systems purpose is to stimulate new unconventional ideas that can be applied to create new businesses.

At the base of AI is the training obtained from published works. Another words AI can only regurgitate existing conventional ideas.

> Aside: As I mentioned in the previous section the validity of much of the internet content today is incorrect. Here AI has to evaluate each piece of information and give it its correct value or confidence level. Also known by the technical term 'weight'.

Unconventional ideas require the breaking of a specific set of existing conventional rules and the reassembly of old rules with the insertion of these new unconventional rules at just the right time. This takes imagination, a gut feel and empathy.

Bad scenario #1

The only way AI can create an unconventional idea is to randomly change a conventional idea and then insert it into a conventional set of rules. It can do this in millions of combination overwhelming the grant application system.

AI can NOT evaluate one unconventional idea against another as all its training/expertise is in conventional ideas.

Bad scenario #2

A doctor's child suffers great pain because of a rare disease. He spends an entire lifetime trying to solve the problem and only finds success after decades of work.

AI has no human empathy. AI is influenced by a ROI, return on investment, as it is extremely expensive to develop and run. The scenario above would be immediately rejected as a successful solution would NOT generate enough of a ROI. Another words, a waste of money?

No. Money is a limited resource so I can choose to use my money in a more likely scenario of success for more people!.

Surprisingly in this case of absolute blind trial and error the number of use cases to find a solution are infinite. WHY? Because AI might have found the solution on the 1Mth try and not recognized it and continued onto the next trial.

How would AI miss the solution?

- Because AI is using an old conventional evaluation process
- In the 1Mth try 2 different molecules has been created right in the middle of the process
    - Conventional rules say each of these molecules by themselves are inert so the end results is the same ineffective treatment
    - However, the unconventional thought process is that these 2 molecules when both present are an effective treatment and in this case it is the solution

AI assumptions

LLMs are trained by

- all available media
- and each entry is weighted and is given the correct validity

AI realities

LLMs are propagandized by

- filtering out unwanted specific media
- and weighing certain subject matters, LGBQ, as more valid than common sense would dictate

AI Strengths

AI strengths include the ability to quickly summarize a subject matter. However, author citations and links for the strongest arguments are missing from returned data.

Here AI is a starting point for human intervention to weigh/evaluate[12] the information and then organize and refine data searches until a complete and thorough set of data can be obtained and humanly organized.

Movie Storyboards & Marketing campaigns

Many Walt Disney animators and Bewitched's Darrin Stephens will be replaced by AI. This is normal natural selection.

AI's Real Threat

Cell phones, especially with AI, allowed in schools create lazy mind numbed robots.

Anyone heard of the Internet bubble? Is an AI stock market crash in America's future?

AI's enormous data collections called big data sets

[12] The words weigh/evaluate can be critical as AI is heavily biased and that must be under constantly watch.

- uses enormous energy because
    - they take hours to re-index for faster lookup searches
        - even with indexes searches can be time expensive
        - the sheer number of searches that permutate into multiple searches
        - graphics processing requires multiple computer cores to execute in a timely manner
- will change the American power grid resulting in higher power costs for both businesses and residential properties

The rich will take absolute control of the lower classes ... until ...

AI Singularity's Real Threat

AI surpasses man's intelligence?

Drone swarms

AI is already applied to drone technology but AI Singularity applied to drone technology would be a catastrophe.

The Rich survive last?

The rich will take absolute control of the lower classes ... until ... AI removes them.

AI Singularity Wars

After man is totally removed there is a battle of the Singularities. Here nuclear war is on the table.

Forbidden Planet

As the Krull created the ultimate machine to turn thought into the physical world and in the 1st night the Krull civilization was wiped out. AI Singularity would also annihilate the human race.

Luckily for us **God created the rules** of the physical universe including

The 1st law of Intelligent Design

An entity cannot create an entity greater than itself.

so AI Singularity is a non-issue.

Tower of Babel

AI and especially AI Singularity show's a tremendous amount of disrespect for Gods all power.

Man already speaks many different languages and the different AIs may even be coded in different computer languages.

So although God knows man can NOT build a tower to heaven nor create AI Singularity to surpass human intelligence God holds the secret of his response if any.