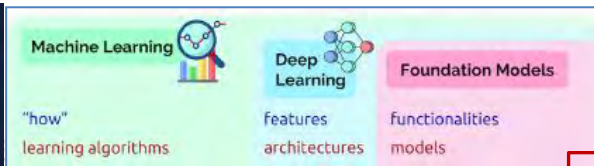
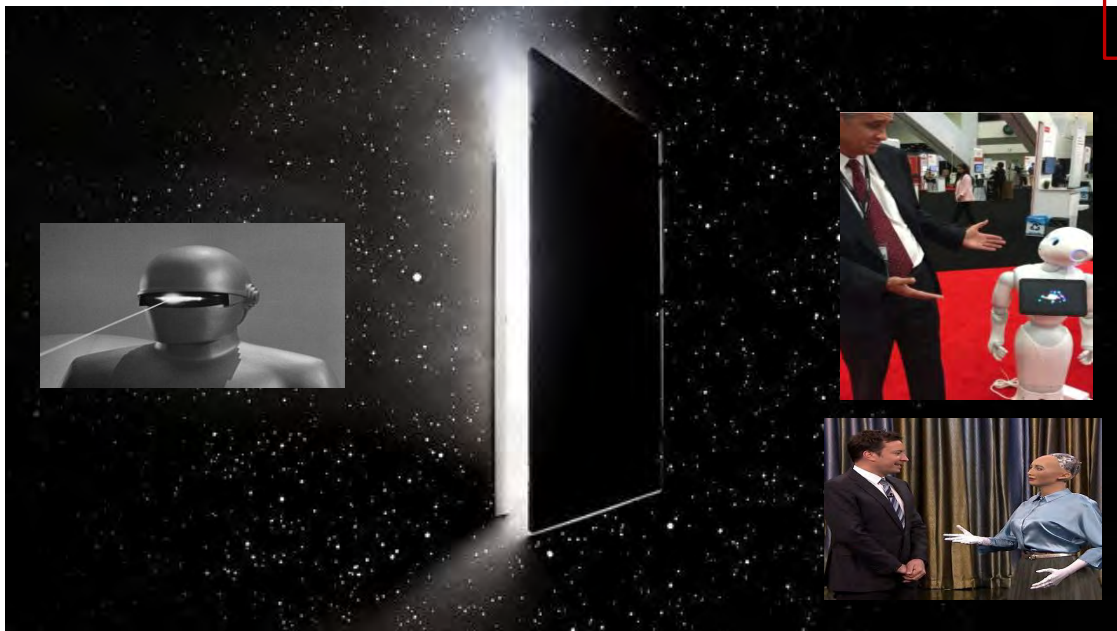


Entanglement & a Quantum Computer Future

You've Just Entered the Fifth Dimension



AI



Rich Niemiec

Oracle ACE Director | CIO

[@richniemiec](https://twitter.com/richniemiec)

[in linkedin.com/in/richard-niemiec-b65828/](https://www.linkedin.com/in/richard-niemiec-b65828/)


rich.niemiec@viscosityna.com



ORACLE
ACE Director


Agenda –Apply Technology & W.I.N.



- ❑ Economic Potential of GenAI & Robots
- ❑ What is Entanglement
- ❑ Why Entanglement will Matter
- ❑ Entanglement Effect on Quantum Computers
- ❑ Physics Couldn't Solve It In 1927
- ❑ Entanglement may Change Life as We Know It
- ❑ Machine Learning Future, Robots & VR 



ONLINE TECH EVENTS
COMMUNITY BUILDING 

Quantum Entanglement
"Spooky action-at-a-distance"
(A. Einstein) 



The economic potential of GenAI*

- McKinsey & Co.¹

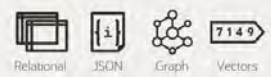
The very nature of digital data presents a challenge

Digital

Can be copied perfectly, infinitely

Data

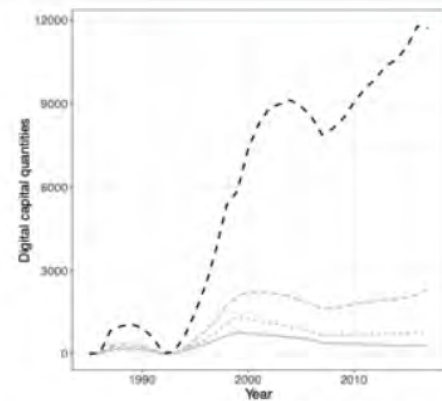
Shape of origin is rarely shape of use



Digital Capital and Superstar Firms¹

25%

of a firm's value is digital capital



Digital capital quantities by market value

Digital capital is more concentrated than any other asset class

Most value concentrated in top decile of firms by market value

Digital capital accumulation predicts firm productivity 3 years out



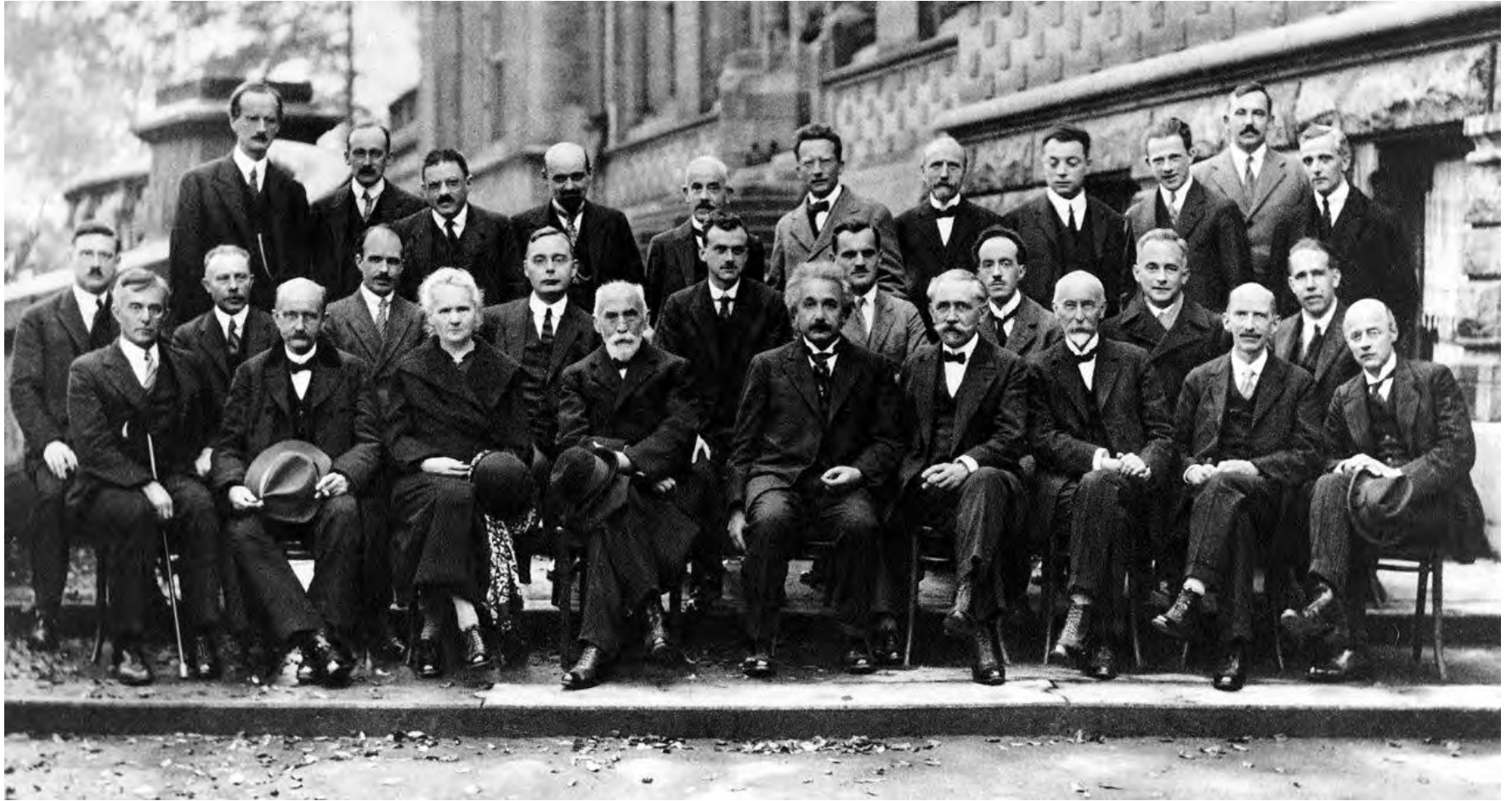
Requires a whole system to create, repurpose, and protect data products



Requires shapeshifting to achieve maximum value

*Data-driven Transformation, Oracle

1927 Solvay Conference (fifth one)



Bohr & Einstein often debated Quantum Theory

(Note: they won back-to-back Nobel Prizes in 1921/1922)



Albert Einstein: “*God does not play dice.*”



Niels Bohr: “*Einstein, stop telling God what to do.*”



**EINSTEIN ATTACKS
QUANTUM THEORY**

Scientist and Two Colleagues
Find It Is Not 'Complete'
Even Though 'Correct.'

Via EPR Paper

What is Quantum Entanglement

Dictionary

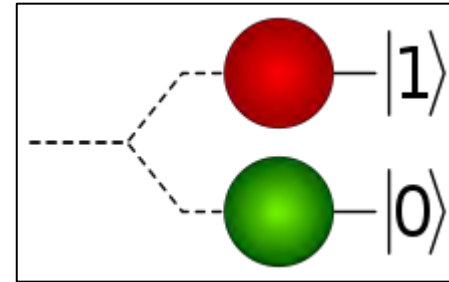
Definitions from [Oxford Languages](#) · [Learn more](#)



quantum entanglement

noun **PHYSICS**

the phenomenon whereby a pair of particles are generated in such a way that the individual quantum states of each are indefinite until measured, and the act of measuring one determines the result of measuring the other, even when at a distance from each other.



$$|0\rangle = \begin{bmatrix} 1 \\ 0 \end{bmatrix} \text{ and } |1\rangle = \begin{bmatrix} 0 \\ 1 \end{bmatrix}$$

Diac or Bra-Ket Notation
Ket 0 & Ket 1

- **Entanglement** - Particles interacting in a way that each particle cannot be described independently of the state of the other even when separated by a large distance.
- **Qubit** - *Quantum Bit* is in two states
- **Superposition** of States 1/0
- **Superposition** of Electron Spin Up/Down
- **Decoherence** - Quantum State *broken*
- **2008** - Superposition for 1.75 seconds
- **2013** - Superposition of 3 hrs. (**low temperature**)



“About your cat, Mr. Schrödinger—I have good news and bad news.”

Why Entanglement will matter with AI

- Classical algorithms run on quantum computers, but quantum algorithms (quantum Neural Network) use quantum computation such as quantum entanglement and quantum superposition.
- **Quantum accelerates** Algorithms like **Shor's Algorithm** for factoring (used widely in security & the internet) & Grover's algorithm used for searching an unstructured data. Both of these algorithms run unbelievably faster than any *next best* choice.
- It also speeds up finding the k-nearest neighbor used often with indexing AI in Vector Searches & many other algorithms.
- There is also a **Quantum Eigensolver** algorithm that can be helpful in AI specifically.
- May **Accelerate Reinforcement Learning** (Machine Learning)

The Race to Build a Quantum Computer

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Books Kindle Rewards Advanced Search New Releases Best Sellers & More Amazon Book Clubs Children's Books Textbooks Best Books of the Month

Books > Computers & Technology > Hardware & DIY



Read sample

Schrodinger's Killer App: Race to Build the World's First Quantum Computer 1st Edition

by Jonathan P. Dowling (Author)

4.0 ★★★★★ 38 ratings

[See all formats and editions](#)

The race is on to construct the first quantum code breaker, as the winner will hold the key to the entire Internet. From international, multibillion-dollar financial transactions to top-secret government communications, all would be vulnerable to the secret-code-breaking ability of the quantum computer.

Written by a renowned quantum physicist closely involved in the U.S. government's development of quantum information science, **Schrödinger's Killer App: Race to Build the World's First Quantum Computer** presents an inside look at the government's quest to build a quantum computer capable of solving complex mathematical problems and hacking the public-key encryption codes used to secure the Internet. The "killer application" refers to Shor's quantum factoring algorithm, which would unveil the encrypted communications of the entire Internet if a quantum computer could be built to run the algorithm. Schrödinger's notion of quantum entanglement—and his infamous cat—is at the heart of it all.

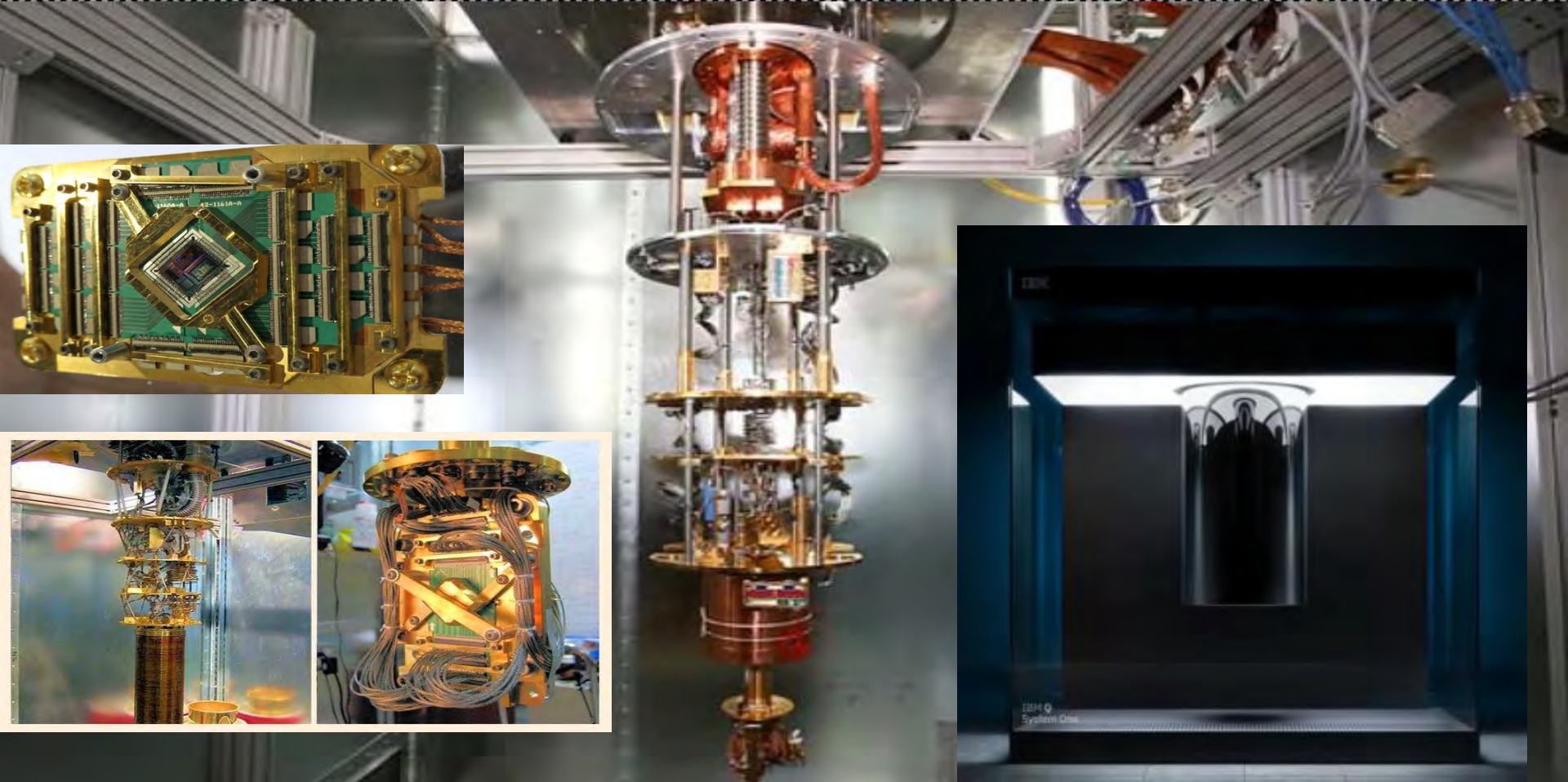
The book develops the concept of entanglement in the historical context of Einstein's 30-year battle with the physics community over the true meaning of quantum theory. It discusses the remedy to the threat posed by the quantum code breaker: quantum cryptography, which is unbreakable even by the quantum computer. The author also covers applications to other important areas, such as quantum physics simulators, synchronized clocks, quantum search engines, quantum sensors, and imaging devices. In addition, he takes readers on a philosophical journey that considers the future ramifications of quantum technologies.



Jonathan P. Dowling

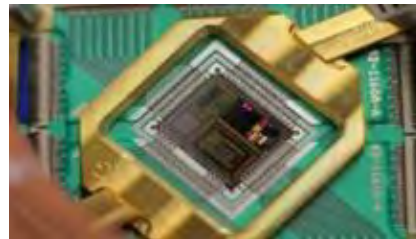


Effects of Entanglement on Quantum Computing



64-Bit advancement of Directly addressable memory

	<u>Address Directly</u>	<u>Indirect/Extended</u>
<u>4 Bit:</u>	16	(640)
<u>8 Bit:</u>	256	(65,536)
<u>16 Bit:</u>	65,536	(1,048,576)
<u>32 Bit:</u>	4,294,967,296	
<u>64 Bit:</u>	18,446,744,073,709,551,616	
<u>128 Bit:</u>	$3.4 \times 10^{e+38}$	



**Technology Feels Like It's Accelerating
— Because It Actually Is**

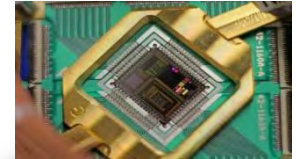
By Alison E. Berman and Jason Dorrier - Mar 22, 2016 40,547

Shift
8-bit to 16-bit
16-bit to 32-bit
32-bit to 64-bit
64-bit to 128-bit

Increase (Result)
1 mph (Windows)
65K mph (Internet)
300T mph (Robotics/ML...etc)
5T*T*B mph (Implants/4D/AI)

What's comes *after* the Exadata Zone? YOU will soon be in for more...

	<u>Directly Addressable</u>	<u>Indirect/Extended</u>
<u>4 Bit:</u>	16	(640)
<u>8 Bit:</u>	256	(65,536)
<u>16 Bit:</u>	65,536	(1,048,576)
<u>32 Bit:</u>	4,294,967,296	
<u>64 Bit:</u>	18,446,744,073,709,551,616	
<u>128 Bit:</u>	3.4 x 10e+38... quantum leap!	



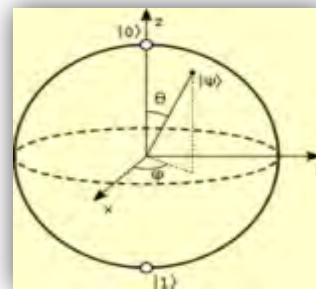
- Qubits allow multiple states so that you can look at all of the possibilities/probabilities at one time (IBM now at 1000 qubits).
- The “**Quantum Zone**” next (Quantum Physics is incomplete – Einstein)
 - Just 512 qubits would store 512-bits of addressable memory or 2^{512} (which is well over a googol or 1 with 100 zero's after it – **a googol is about 2^{332}**).
 - Brush up on your Eigenvectors, Eigenvalues, Pauli Matrices & Grover's Algorithm
 - Create Singularity ... all atoms of a person by 2045 (I think earlier); *12-Monkeys*
 - Private universes – One for each person? (Schroeder's cat – I think not)
 - Rearranging atoms to create new objects; Nanotech + Quantum Physics coming!

What's comes *after* the Exadata Zone?

YOU will soon be in for more...

Consider 3-bit or 2^3 (Addressable memory is 8)

000	100
001	101
010	110
011	111



With just 3 qubits I can (ket notation) – look at all 8 states **at once**:

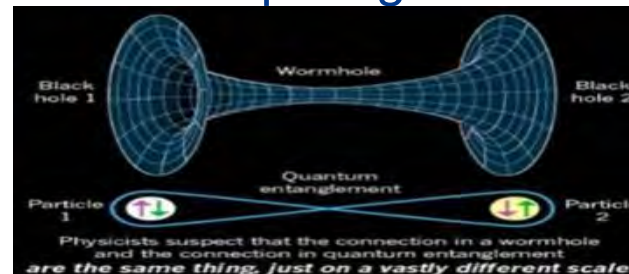
$$a|000\rangle + b|001\rangle + c|010\rangle + d|011\rangle + e|100\rangle + f|101\rangle + g|110\rangle + h|111\rangle$$

For the state (a,b,c,d,e,f,g,h): **Note that: $|010\rangle = (0,0,1,0,0,0,0,0)$**

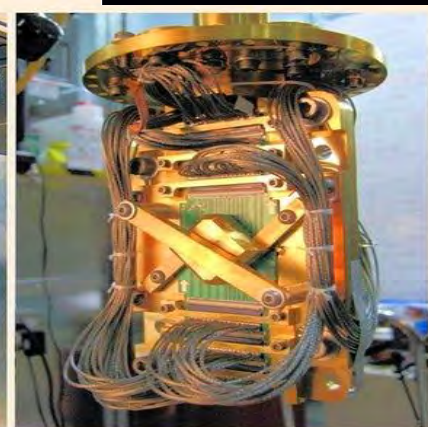
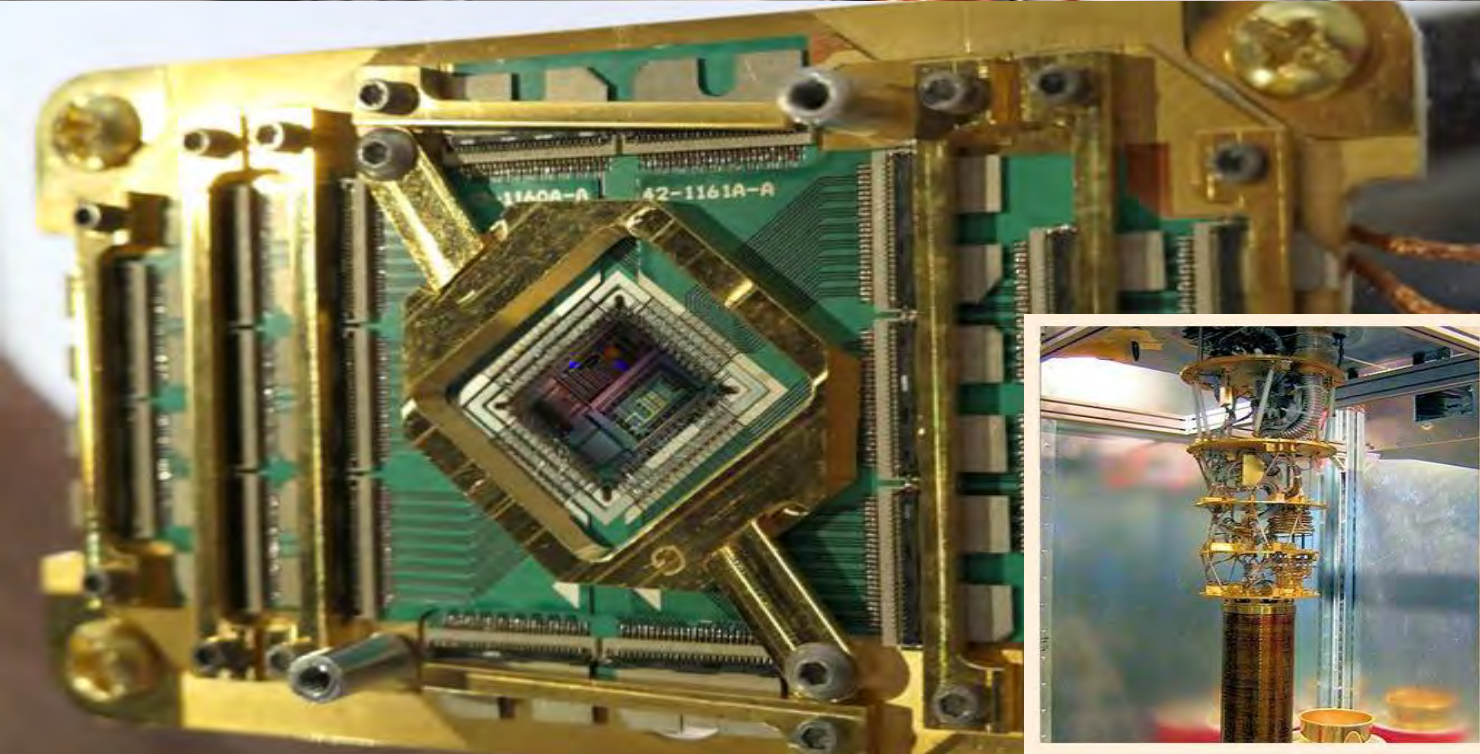
We're moving from zeros or ones to qubits (0 and 1) represented by the **Bloch Sphere**. Many challenges: Including quantum **decoherence** and issues mapping **entanglement & superposition** to computing.

Quantum Entanglement

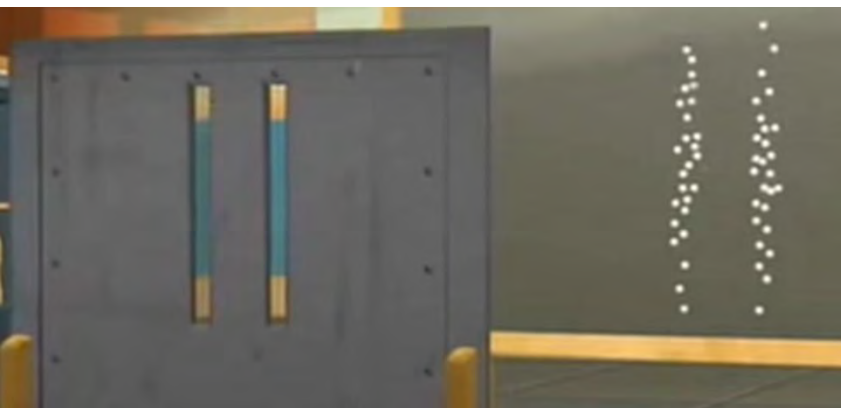
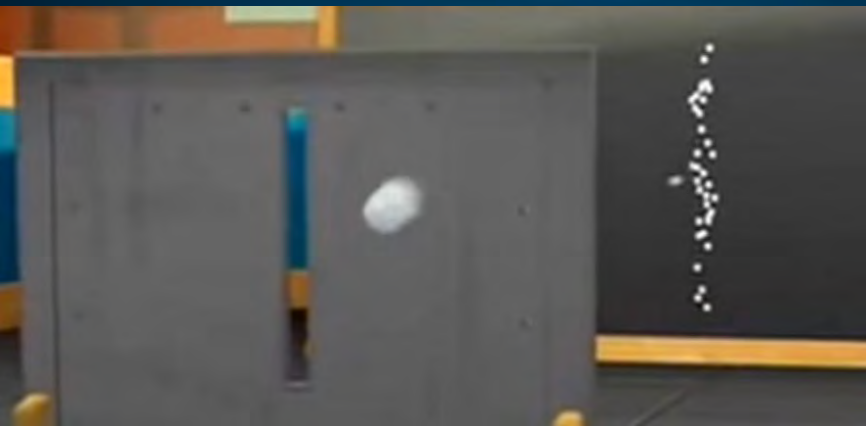
“Spooky action-at-a-distance”
(A. Einstein)



Quantum Computing makes AI Fast Enough!

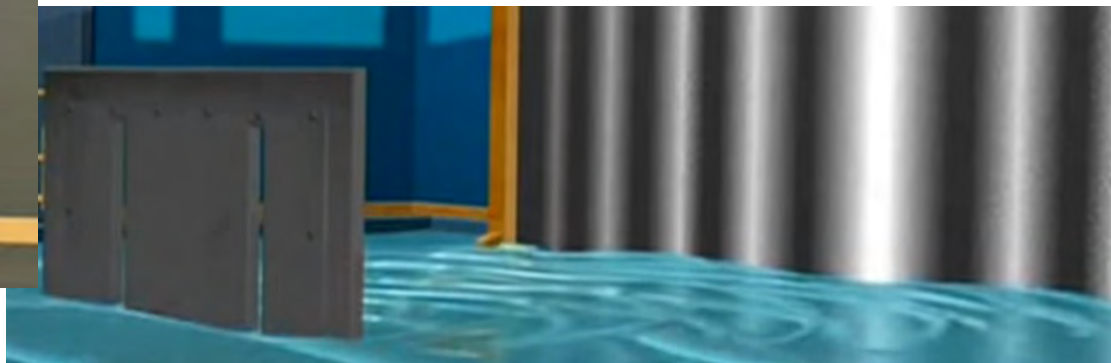


Physics Basics (NOT Quantum yet) * *Dr. Quantum*

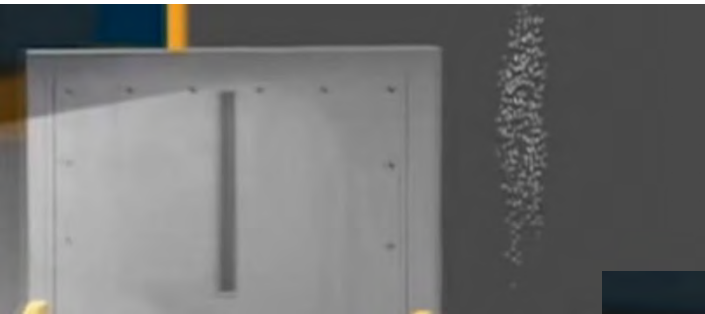


Particles (Nerf Balls)

Waves (Water)



Quantum Mechanics (not intuitive physics!)



One slit & expected result



Two slits: Electron starts as a particle becomes a wave of probabilities/possibilities & goes thru both slits, neither, and each slit at different times.

Quantum Mechanics (stranger yet!)



When Watched, electrons passed through two slits are back to only two bands like a particle (knows it's being watched)?



Quantum Mechanics (Superposition)

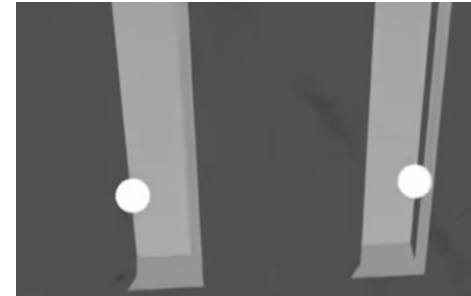
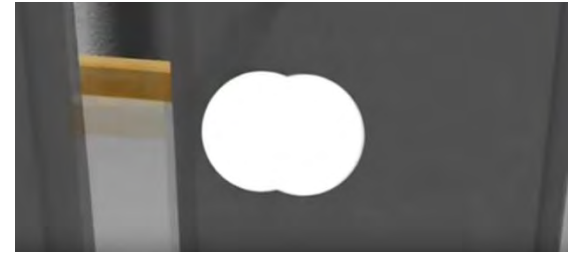
Quantum superposition



Two different positions at the same time!

→ Colliding with itself (interference)

Particle/Electron/Photon splits into two!



Double slit experiment shows this superposition

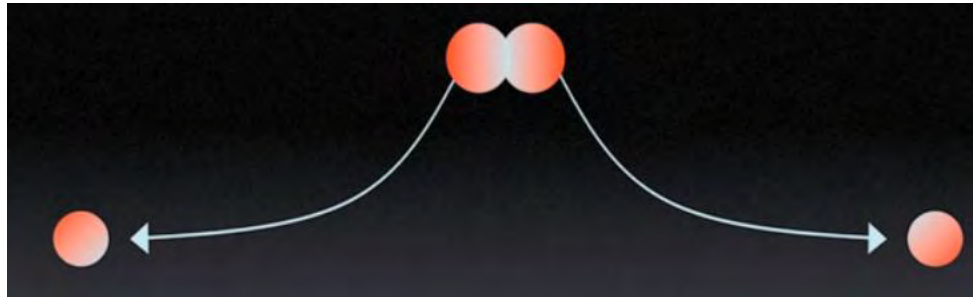
Quantum Entanglement *Leo Kouwenhoven



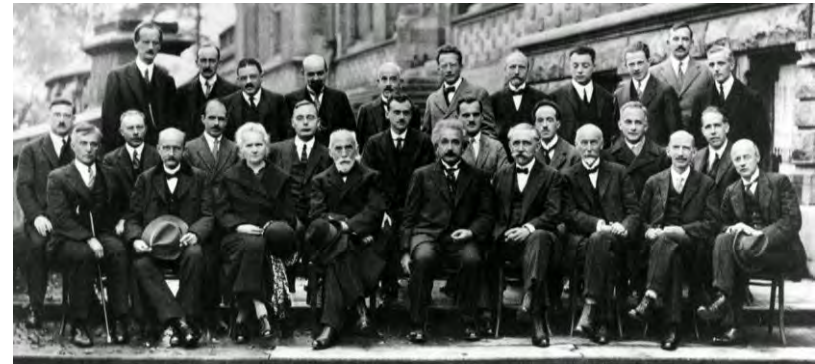
1. Bring together & entangle



3. Measure left & BOTH change instantly (conservation of color)



2. Pull them a “galaxy” apart - stay entangled



Physicists: Particles aren't communicating across distance, but there's a correlation!

Quantum (Teleportation) * *Leo Kouwenhoven*



Separate entangled particles a "galaxy" away



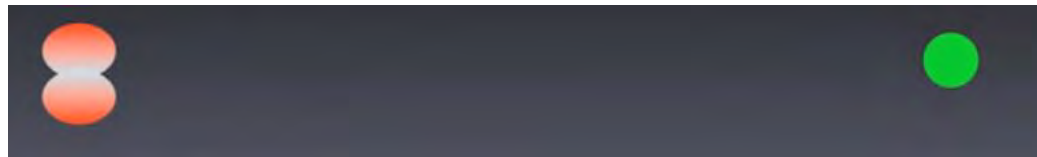
Bring another particle to left one



Moving 1's & 0's
Possible!!



Now all three entangled immediately (including one that's a galaxy away)



Measure the left two - Right must be result (color conservation)

Why Physics Couldn't solve this in the Past

- Too many Nobel Prize winners that relied and believed exclusively in Classical Physics!
- It didn't make sense with the Theory of Relativity introduced by Einstein years Earlier - "***Spooky Action at a Distance.***"

Quantum Entanglement

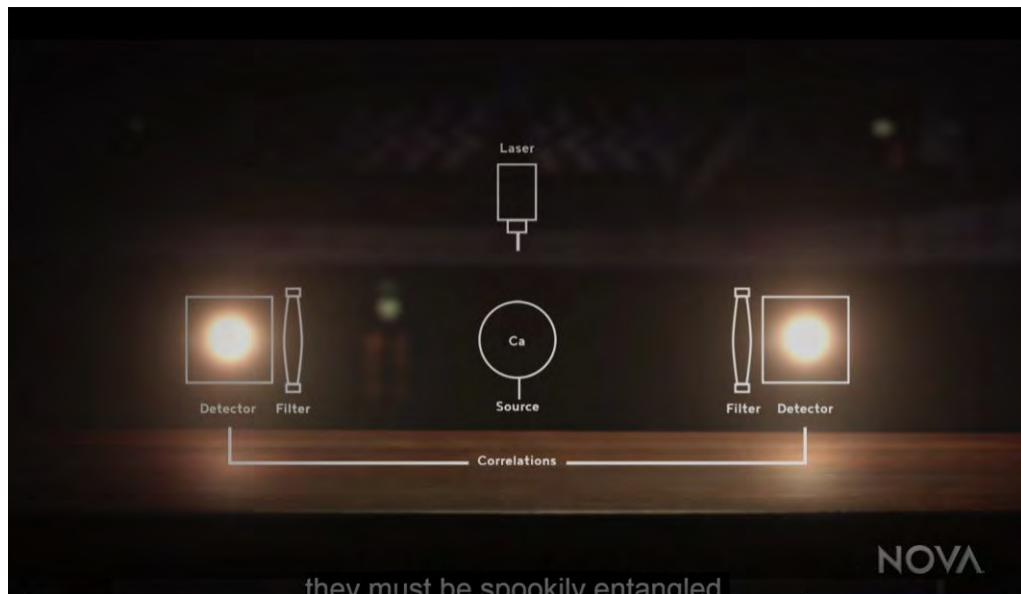
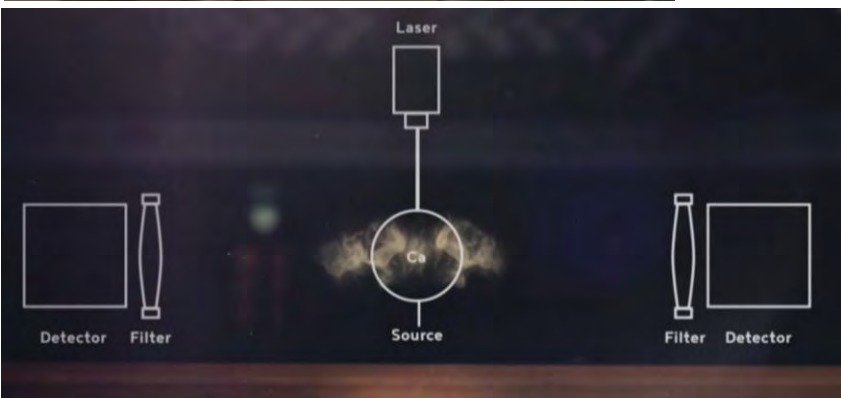
"Spooky action-at-a-distance"
(A. Einstein)



- The 1927 Conference have various people from many different areas working on many different things.
- The reason they **eventually DID come up with a Quantum Theory** (QT) had to do with the quality of people in this group and the years that came after with some trying to disprove it (most notably - EPR - Einstein-Podolsky-Rosen; QT Incomplete)

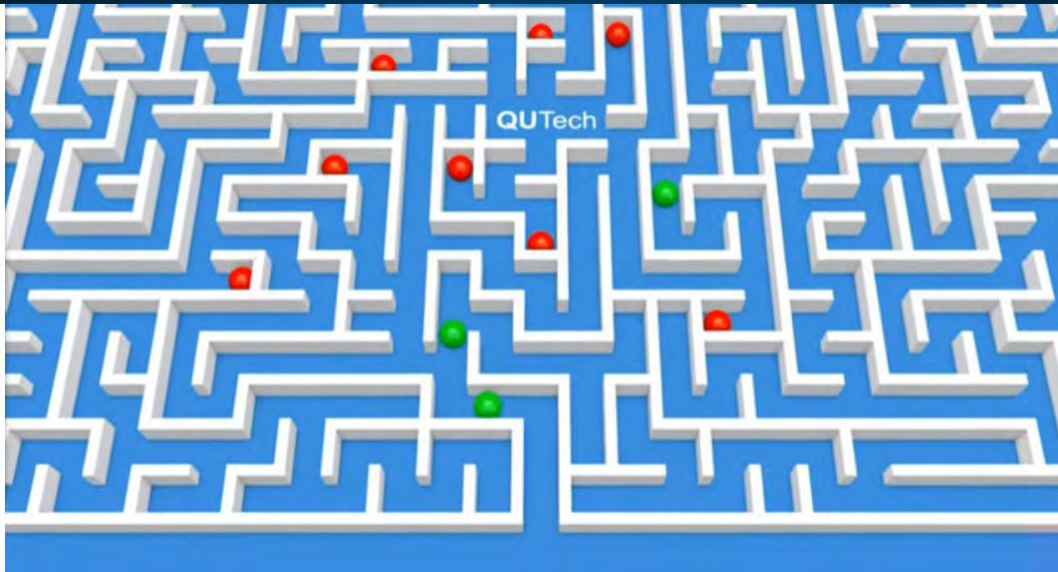
John Clauser & Stuart Freedman Experiment

- Read J.S. Bell article on E-P-R & proved it with entangled photons.
- Did the test in the paper in 1972 (won the Nobel Prize in 2022)



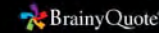
Experiment Proved Entanglement: Calcium Atoms
2nd proof measuring light from space did the same

Quantum allows us to try all paths at once!



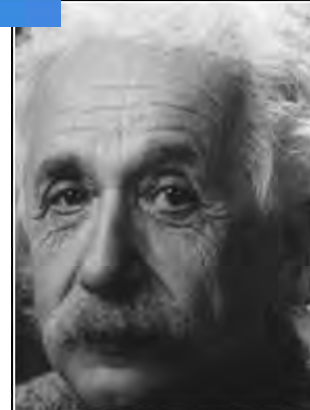
If quantum mechanics hasn't profoundly shocked you, you haven't understood it yet.

Niels Bohr



If all this damned quantum jumping were really here to stay, I should be sorry, I should be sorry I ever got involved with quantum theory.

Erwin Schrödinger



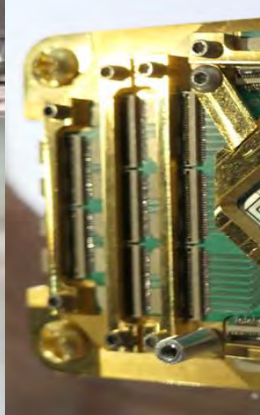
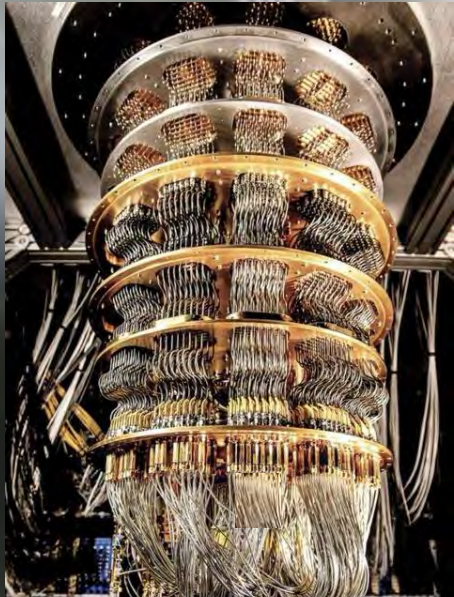
If [quantum theory] is correct, it signifies the end of physics as a science.

— Albert Einstein —

AZ QUOTES

Quantum Computing: AI & Robotics are Fast Enough!

Google: 47 years to 6 seconds
241M times faster than 2019's



HOW LONG IT TOOK TOP APPS TO HIT 100M MONTHLY USERS

ChatGPT is estimated to have hit 100M users in January, 2 months after its launch.

Here's how long it took other top apps to reach that:

APP	MONTHS TO REACH 100M GLOBAL MAUS
CHATGPT	2
TIKTOK	9
INSTAGRAM	30
PINTEREST	41
SPOTIFY	55
TELEGRAM	61
UBER	70
GOOGLE TRANSLATE	78

SOURCE: UBS

Where Entanglement may change Life as We Know It

Quantum Entanglement and AI: Redefining Connections

Quantum entanglement, a key feature in quantum mechanics, introduces "action at a distance" into AI integrated with quantum computing. This phenomenon, where entangled particles instantaneously affect each other across distances, challenges our traditional views of space and time.

Integrating this with AI could revolutionize data processing. Quantum-AI

chicago news



Podcasts / Big Brains: All Episodes

Why Quantum Tech Will Change Our Future: The Day Tomorrow Began (Ep. 104)



- Unbreakable Encryption
- Speed of AI Development & Processing
- Expedite Drug Treatments / Discoveries
- MRI Scans more detailed
- Entangle through Fiber Optics

Human Entanglement With Organic And Artificial Intelligence

Not science-fiction but science reality



Marc Barham · Follow

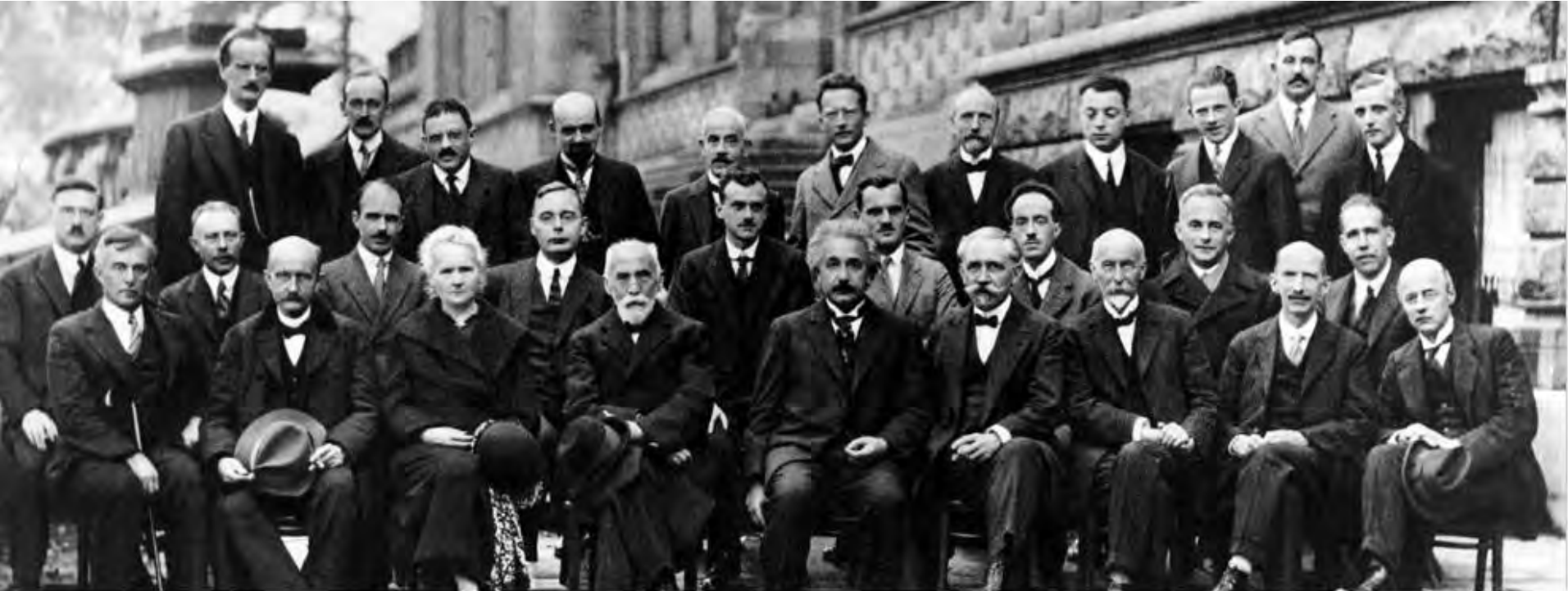
Published in Counter Arts · 7 min read · Aug 26, 2023

How quantum technology is changing the world



AI Transfer Learning - Heisenberg Quote

"Through the possibility of exchange between the representatives of different lines of research, this conference has contributed extraordinarily to the clarification of the physical foundations of the quantum theory. It forms, so to speak, the outward completion of the quantum theory." - Werner Heisenberg



Innovation Path

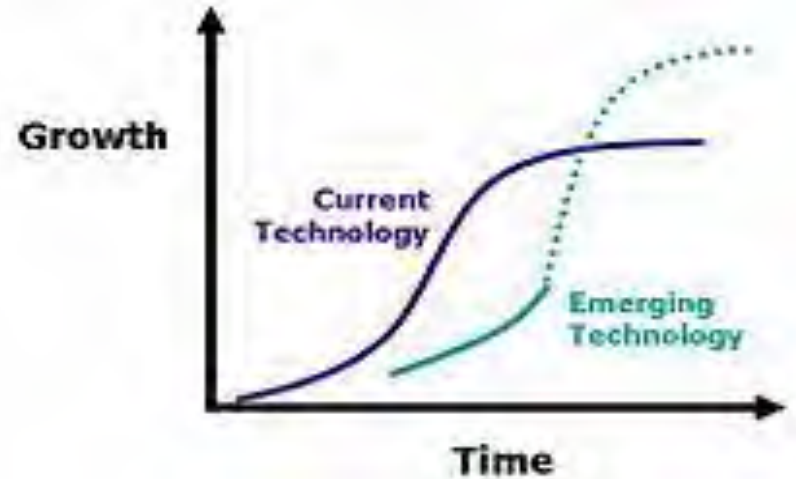


- Innovation is ***introducing something new or different!***
 - Idea, Product, Process, Organization, Structure...etc.
- Innovation is not what you find in ***some*** companies today... which is why ***newer*** companies continue to replace them!
- Are you leveraging IT (Quantum Computing /AI /Robots / IOT/ Big Data/ Chatbots with LLM's) to create innovative products and experiences for your customers? *Are you an innovative company?*
- There are organizations that are NOT missing the boat... they leverage all of these to ***deliver innovative products!***

Diffusion of Innovation (Everett Rogers)

How innovation spreads & is communicated...

1. First knowledge
2. Forming an attitude
3. Decision to adopt or reject
4. Implementation and use
5. Confirmation of Decision



Gabriel Tarde – 1903 (The S-curve or Diffusion Curve);
“In the later stages no amount of new investment in that product will yield a normal rate of return.”



Disruptive Innovation Examples

- Postal Mail



- Telegraph

- Trains

- Metal / Wood / Glass

- Pictures (Chemical)



- Computer

- Floppy/Zip Drive



- Encyclopedia

- **Filing Cabinet**

- Email

- Telephone / Cell Phone



- Cars / Planes

- Plastics

- Digital Pictures



- Smartphone/Tablet

- USB

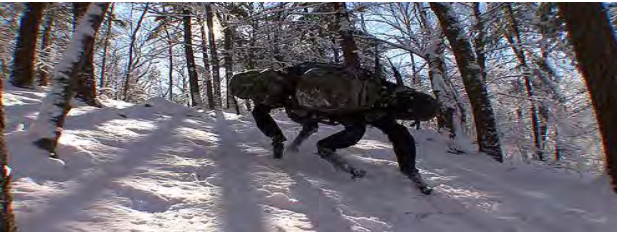
- Wikipedia



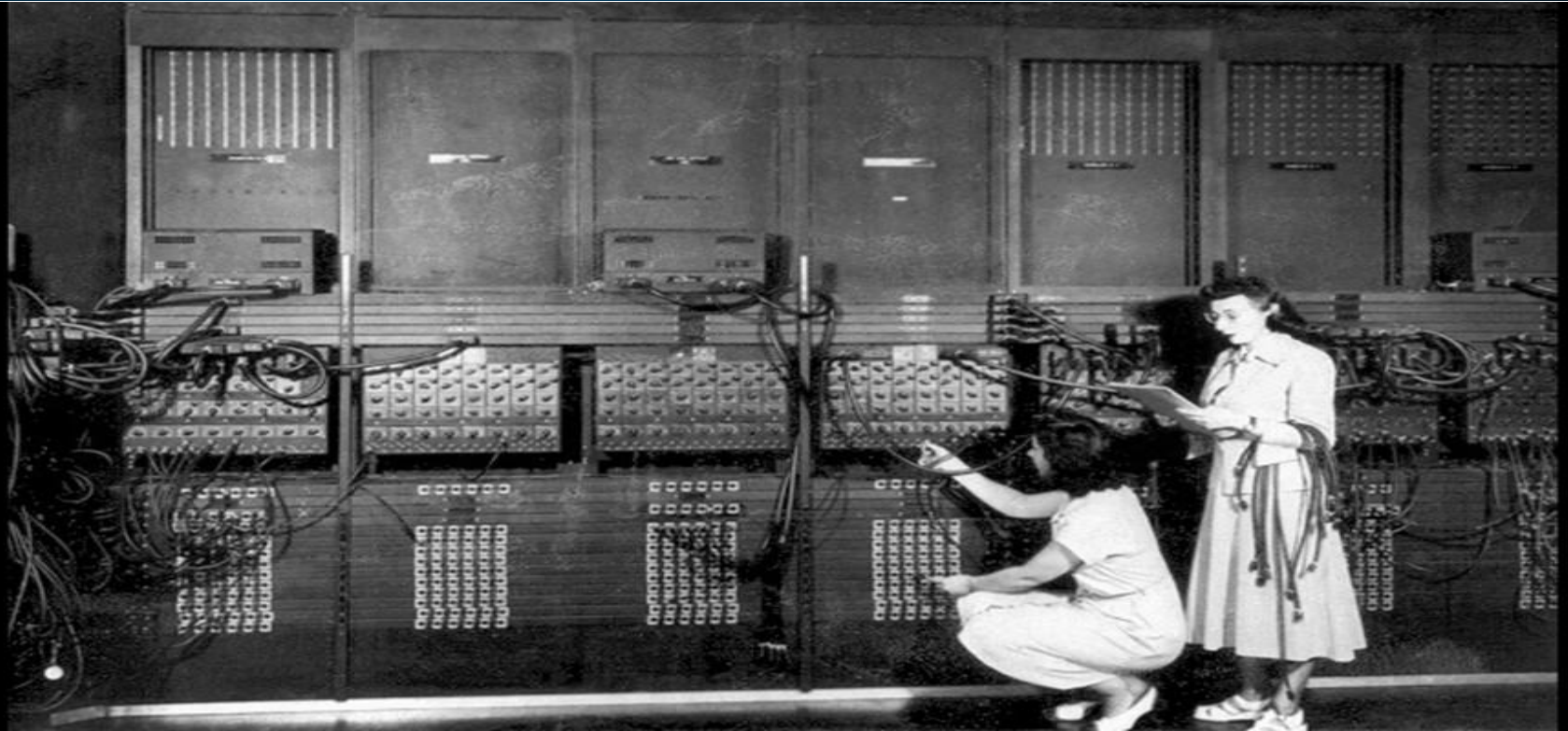
- **Database**

Disruptive Innovation Current Examples

- Email
- Telephone/Cell Phone
- Cars / Planes
- Digital Pictures
- Smartphone/Tablet
- USB
- Wikipedia
- **Database**
- Text/Snapchat/Instagram
- **Implant** / Smart Watch
- Virtual Calls & Meetings
- VR - Life Record
- Apple Watch / IOT
- Cloud / Google Docs.
- Alexa & Siri
- **Autonomous Database**

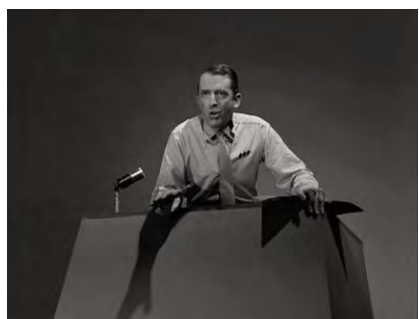
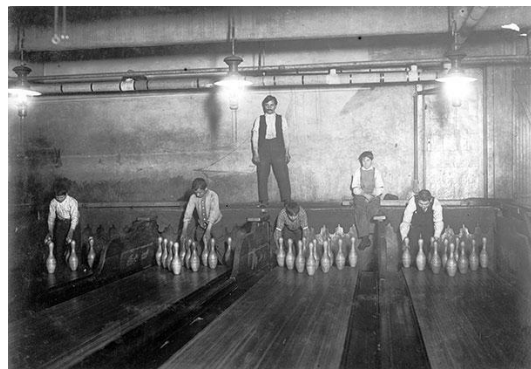


Some Jobs gone: Computer **Surpassed** Them!

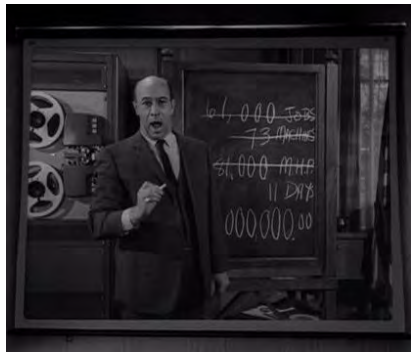


“The competition between Man’s Mind vs. the Product of Man’s Mind... for this, there is standing room only in the Twilight Zone.” Rod Serling

The Obsolete Man



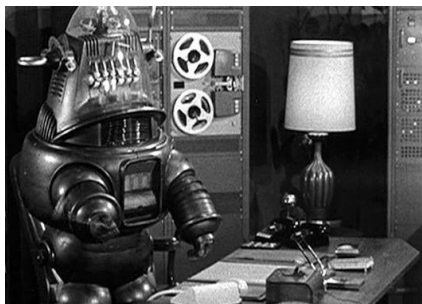
The Brain Center at Whipple's & ChatGPT



Ameca



Pepper



Spot & Atlas



Sofia

"Okay, I will destroy humans."



(Optimus)

TESLA
BOT

AI

GUEST

It's time for workers to worry about AI

GARY GROSSMAN, EDELMAN @GARYG02 APRIL 7, 2019 2:22 PM



MOST READ



It's time for workers to worry about AI



Remote AR will make it so we can work —

Symbiotic coming Relationship; You & Robots



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Accelerating Digital Transformation with Algorithmic Business Thinking

favorite takeaways, to effectively harness advancements in technologies, organizations need to engineer the human centered genes into their organizations and "take the robot out of the human".

—Martha Anderson Sr. Director, Digital Transformation at Walmart

Duration	Time Commitment	Price
2 days	8 hours/day	\$4,300

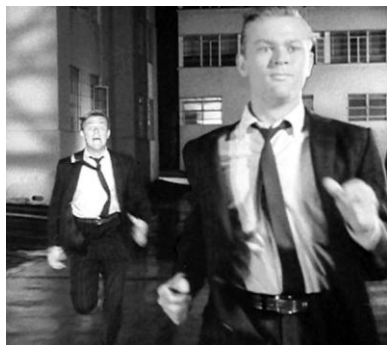
Topics

- Digital Business & IT
- Organizations & Leadership
- Strategy & Innovation

\$2,800 - \$4,300

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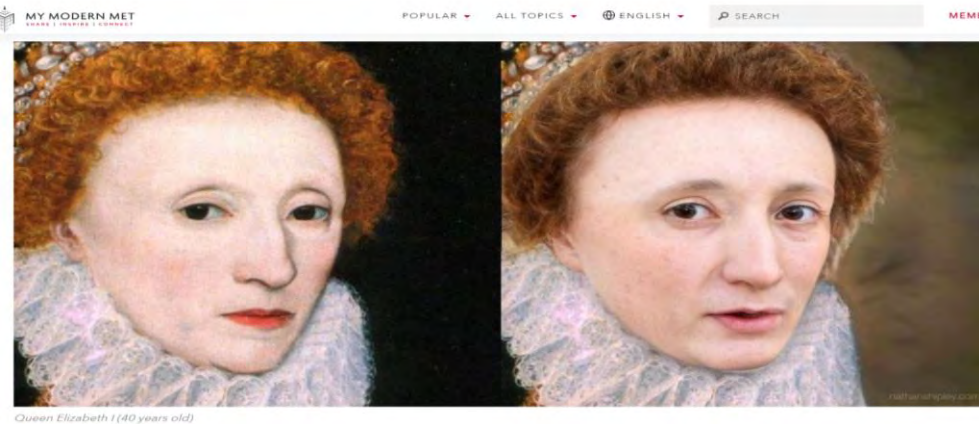
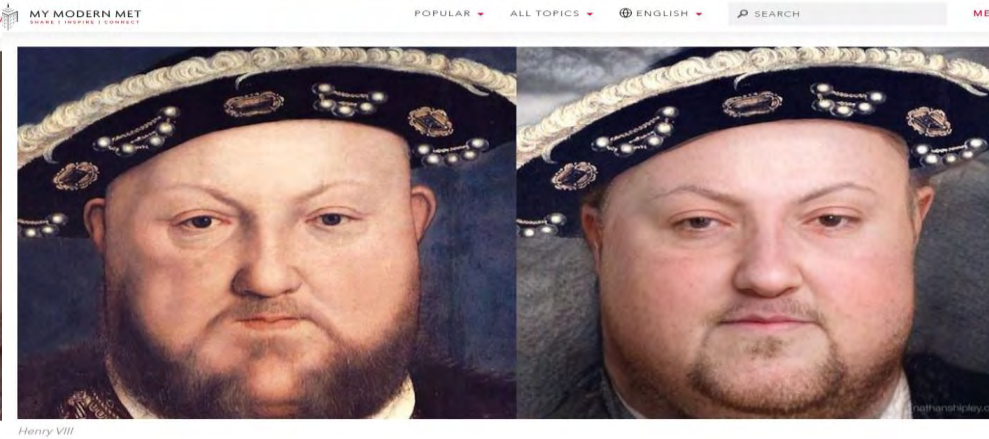
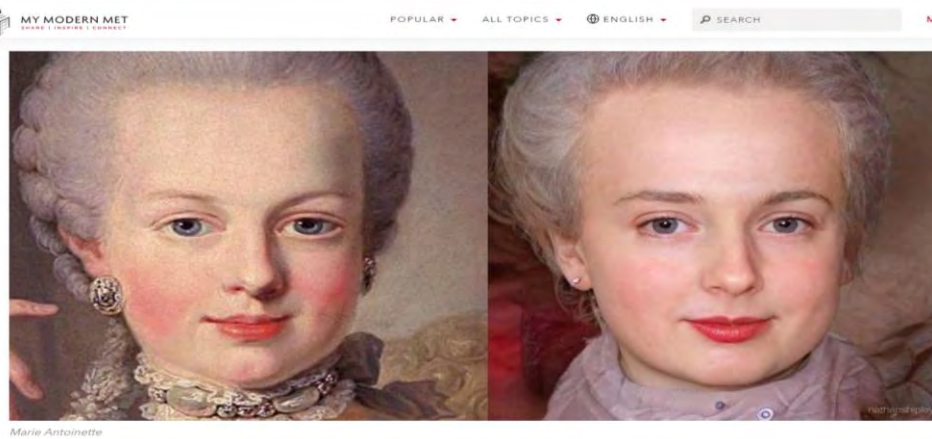
Mirror Image



Actual Robots Now... Beyond Science Fiction



Fun with Machine Learning! (@CitizenPlain)

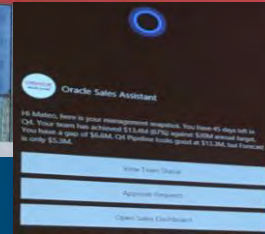


Leverage – DB, GPS & Robotics! Impact to Jobs?



ORACLE®
Database Cloud

The World's First Autonomous Database



A Robot may not look one!

*Robots that Manage a Database (ADW) 24x7!

*Robots that secure a system & use Auto-ML & AI

From Agnes with Love (Computers try to help)



Google Assistant



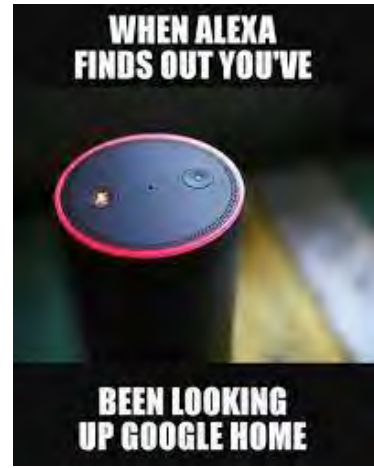
Alexa



Siri



Bixby



In His Image (Available Now - 100K+ Waiting List)



ETER9

The most daring
experience ever made
on the Internet.

Let your counterpart work for you. The very
first-ever intelligent virtual self of you.

DOUBLE YOURSELF

Currently, we have over 100,000 registered users who are on the waiting list for ETER9
brainchild: [dduplicata](#). Be a part of this remarkable phase too!



CBS AOL. BBC The Telegraph theguardian *Stm*



Artificial Intelligence

ETER9 is a social network that relies on Artificial Intelligence as a central element, and it's currently in the BETA stage. Even in your absence, the virtual beings will publish, comment and interact with you intelligently.



Counterpart

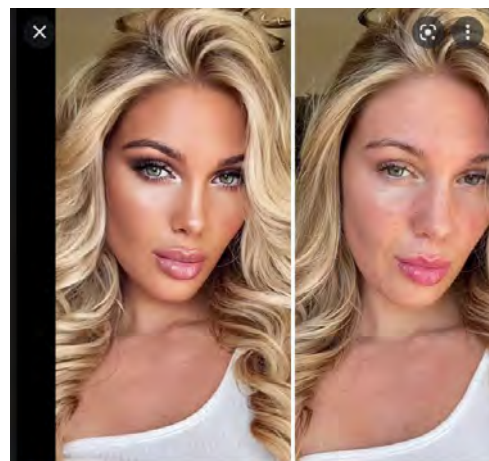
The Counterpart is your Virtual Self that will stay in the system and interact with the world just like you would if you were present. Your Counterpart will learn more with each action you take. The more you interact in the new social network, the more your Counterpart will learn!



Cyber Eternity

Eternizing is a way of keeping your thoughts and posts for all time. Are you curious? Come meet your Counterpart and become eternal. Challenge the impossible.

Number 12 Looks Like You (2023)



Bored Panda
TikTok Goes Viral By Exposing The Truth Behind Heavily-Edited Pictures

TikTok guidelines said not to promote posts by 'ugly' and poor users



Camouflage Makeup - Amazon.com



hide or disguise the presence of



The Dangers of social media filters Forbes

BEFORE

AFTER



BUILD YOUR OWN BIRCHBOX STARTING AT \$15

#AgeChallenge



Living Doll



These dolls are spying on your kids, consumer groups say



By Doug Criss, CNN

Published 3:46 PM EST, Thu December 8, 2016



"Privacy advocates try to keep 'creepy,' 'eavesdropping' Hello Barbie from hitting shelves," Sarah Halzack, [Washington Post](#)

Ransomware now in the Comics:

The Joy of Tech — by Nitrozac & Smaggy

The Internet of ransomware things...

HUNGRY?
PAY UP AND
I'LL UNLOCK
MY DOOR!

ON STRIKE
UNTIL YOU
SEND MONEY
TO MY
HACKERS.

20 BUCKS
IN MY PAYPAL
ACCOUNT
OR I'LL ONLY
BREW
DECAF!

I'LL BE
BURNING THE
TOAST IF YOU
DON'T GET
ME SOME
DOUGH!

THE NEXT TIME
YOU LEAVE, IT'LL
COST YOU 100
BUCKS TO GET
BACK INTO THE
HOUSE, UNLESS
YOU GIVE ME
\$75 NOW!

30 BUCKS IN
BITCOIN, OR NEXT
TIME I SMELL
SMOKE, I MIGHT
JUST LET YOU
SLEEP.

MY ALARM
SYSTEM IS
GOING TO GO
OFF RANDOMLY
THROUGHOUT
THE NIGHT,
UNLESS YOU
"DONATE".

WIRE MY
HACKER \$100
OR I'LL REVERSE
MY MOTOR AND
BLOW DIRT ALL
OVER THIS
PLACE!

YOUR DIRTY
DISHES CAN
WAIT, I'M
BUSY MINING
BITCOINS.

EXCUSE US
WHILE WE
PARTICIPATE
IN A DDOS
ATTACK.

I'M TURNING
OFF THE
HEAT UNTIL
YOU WARM UP
MY BANK
ACCOUNT!

IF YOU DON'T
SEND US CASH,
YOUR REPUTATION
WILL BE IN THE
TRASH.

I'LL START
YOUR CAR, BUT
ONLY TO TAKE
YOU TO YOUR
BANK TO MAKE
A TRANSFER.

SEND ME \$25 OR
I'LL TELL EVERYONE
ON YOUR SOCIAL
NETWORK THAT YOU
WERE STUPID ENOUGH
TO BUY AN INTERNET-
CONNECTED BROOM!



ChatGPT (OpenAI)

GPT-4 has arrived. It will blow ChatGPT out of the water *The Washington Post* 3/14/2023

ChatGPT was launched on November 30, 2022, by San Francisco-based OpenAI (the creator of the GPT series of large language models; DALL·E 2, a diffusion model used to generate images; and Whisper, a speech transcription model).



OpenAI Research Product Developers Safety Company Search Log in Sign up

Introducing ChatGPT

We've trained a model called ChatGPT which interacts in a conversational way. The dialogue format makes it possible for ChatGPT to answer followup questions, admit its mistakes, challenge incorrect premises, and reject inappropriate requests.

Try ChatGPT Read about ChatGPT Plus

OpenAI

ChatGPT → DALL-E → API →

Interact with our flagship language models in a conversational interface

Create realistic images and art from a description in natural language

Integrate OpenAI models into your application or business

Introducing Sora: Creating video from text

Learn more about Sora

OpenAI

RI what are the top 10 databases

As of my knowledge cutoff in September 2021, the top 10 databases were:

1. Oracle Database: A relational database management system (RDBMS) known for its scalability, security, and comprehensive features.
2. MySQL: An open-source RDBMS widely used for web applications due to its simplicity, reliability, and compatibility.
3. Microsoft SQL Server: A popular RDBMS developed by Microsoft, known for its strong integration with Windows Server and seamless integration with other Microsoft products.
4. PostgreSQL: An open-source object-relational database management system (ORDBMS) known for its extensibility, robustness, and compliance with SQL standards.
5. MongoDB: A NoSQL database that uses a flexible, document-oriented model and is known for its scalability, performance, and ease of use.
6. IBM Db2: A family of database management systems developed by IBM, known for its reliability, scalability, and support for a wide range of applications.
7. SQLite: A lightweight, file-based, embedded database engine that requires no separate server process and is commonly used in mobile and embedded systems.
8. Redis: An in-memory data structure store that can be used as a database, cache, or message broker. It is known for its high performance and flexibility.
9. Cassandra: A distributed and highly scalable NoSQL database designed for handling large amounts of data across commodity servers and providing high availability and fault tolerance.
10. Amazon DynamoDB: A fully managed NoSQL database service provided by Amazon Web Services (AWS).

Regenerate response

Google's Bard (Now Gemini)

≡ Bard Experiment

↻ Reset chat

🕒 Bard Activity

❓ FAQ


📅 Updates

📖 Help

R What are the top 10 databases

Here is a brief overview of each of the top 10 databases:

- Oracle is a commercial database that is known for its reliability and security, making it a good choice for enterprise applications that need to be scalable and easy to manage.
- MySQL is an open-source database that is known for its ease of use and flexibility. It's a popular choice for web applications and small to medium-sized businesses.
- Microsoft SQL Server is a commercial database that is known for its reliability and security, making it a good choice for enterprise applications that use Microsoft's Windows operating system.
- PostgreSQL is an open-source database that is known for its reliability and security, making it a good choice for enterprise applications that need to store complex data or that need to be highly scalable.
- MongoDB is a NoSQL database that is known for its ability to store and manage large amounts of unstructured data.
- Redis is a NoSQL database that is known for its speed and ability to manage large amounts of data in real time.
- IBM DB2 is a commercial database that is known for its reliability and security, making it a good choice for enterprise applications that need to store and manage large amounts of data.
- Elasticsearch is a search engine database that is known for its ability to search and index large amounts of data.
- Cassandra is a NoSQL database that is known for its ability to store and manage large amounts of data in a distributed environment.
- MariaDB is a fork of MySQL that is known for its stability and performance. It's a good choice for applications where MySQL is not available or when a more stable database is needed.



Build, tune, and deploy foundation models with Vertex AI



INTRODUCING Gemini

Gemini

R What are the top 10 databases?

Here are the top 10 most popular databases in 2024:

1. **Oracle Database:** Developed by Oracle Corporation, it provides a scalable and high-performance platform for managing structured and unstructured data. It's known for its reliability and security, making it a good choice for enterprise applications.



Oracle Database

2. **MySQL:** An open-source relational database management system (RDBMS) that offers ease of use and flexibility. It's a popular choice for web applications and small to medium-sized businesses.

Enter a prompt here

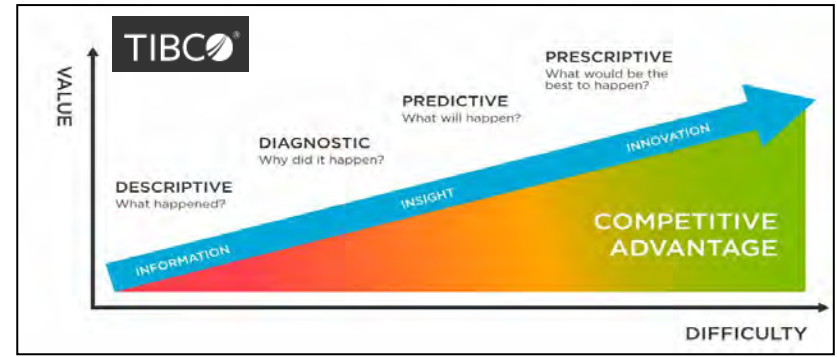
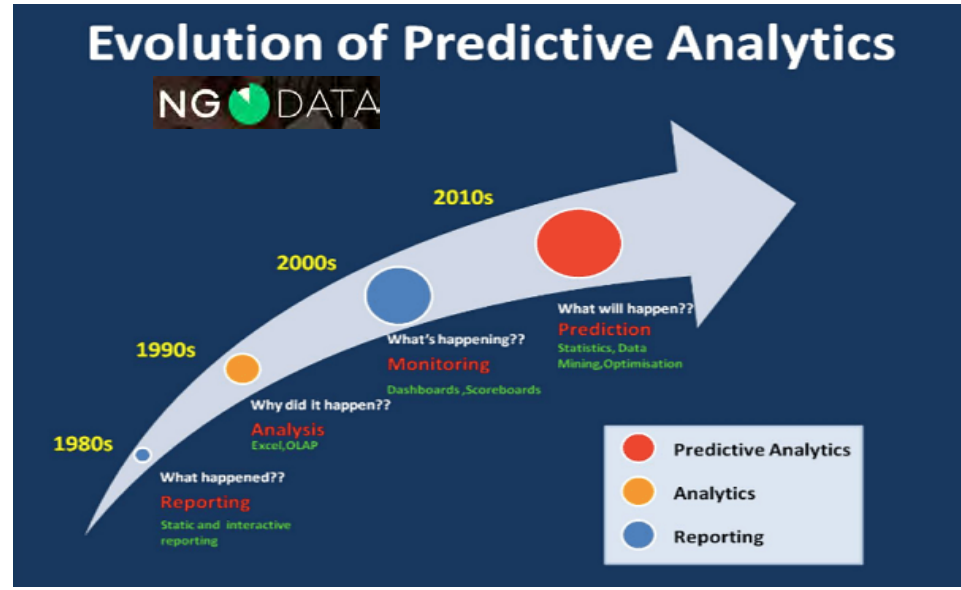
Enter a prompt here

● Illinois, USA

From your IP address • Update location

Bard may display inaccurate or offensive information that doesn't represent Google's views.

What You Need; Nick of Time (Predictive Analytics)



Search on Data with AI Vectors & Vector Indexes

Vectors are used to represent the semantic content of images, documents, videos, etc.



Vector

33
42
16
21
50

A vector is a sequence of numbers, called dimensions, used to capture the important "features" of the data



Great Oracle Example of a Use Case

Example: the features for a house image could be

Vector

Features

House



Type of Roof

Decorations

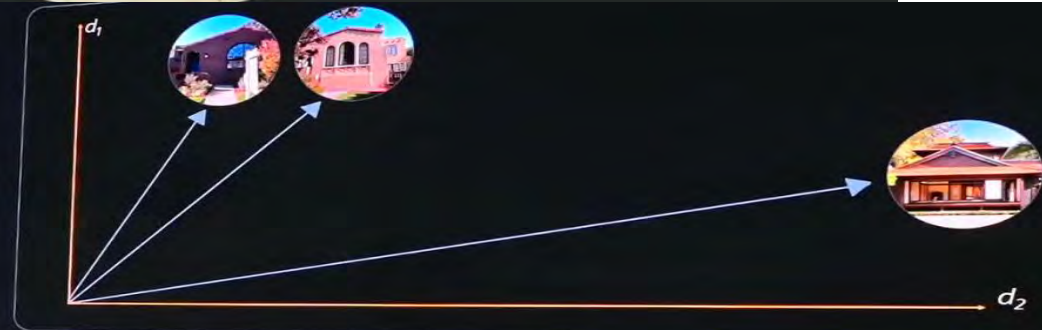
Number of Stories

Building Materials



Each dimension represents a different feature of the house

House vectors when collapsed into 2 dimensions instead of hundreds could look like this

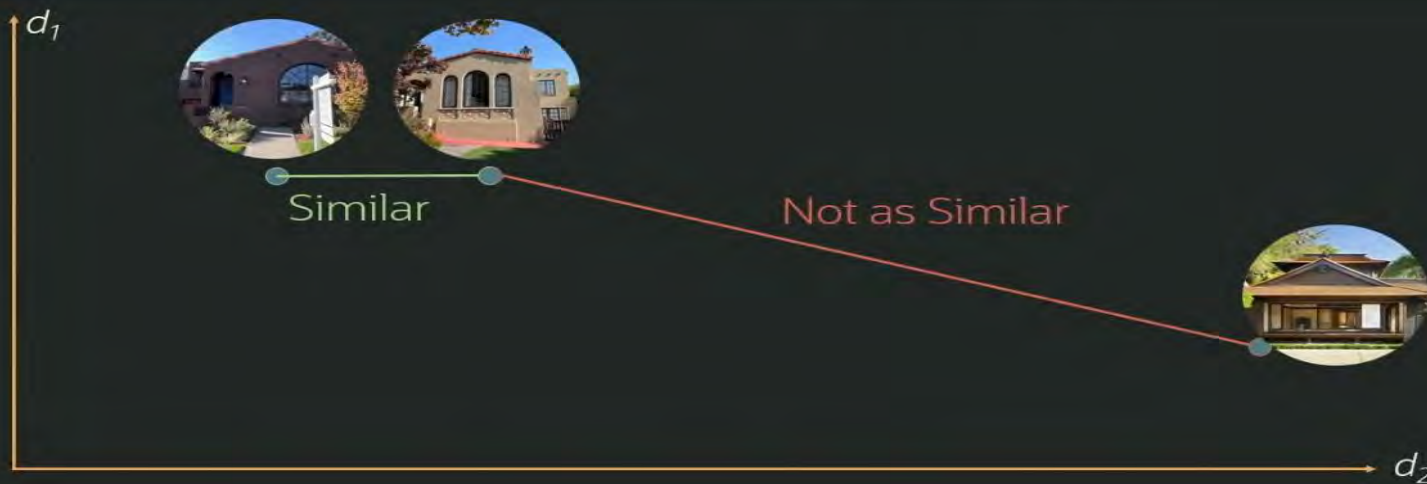


Vector Search

Imagine a house-hunting app that helps customers find houses for sale that are similar to a picture the customer uploads



The distance between the vectors is proportional to their semantic similarity



Create table with Vector Data Type & Blob

```
CREATE TABLE house_for_sale (house_id      number,  
                             price         number,  
                             city          varchar2(400),  
                             house_photo  blob,  
                             house_vector  vector  
);
```

Find houses that are similar to this picture and match the customer's preferred city and budget

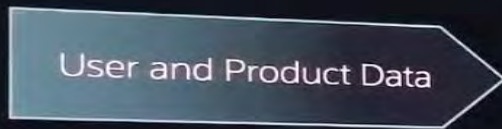


```
SELECT ...  
FROM   house_for_sale  
WHERE  price <= (SELECT budget          FROM customer ...)  
AND    city  in (SELECT search_city    FROM customer ...)  
ORDER BY vector_distance(house_vector, :input_vector);
```

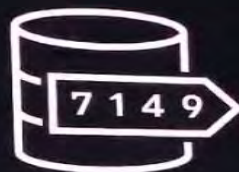

Search on vector (GenAI), add prices/locations



Business Database



Continuously send your business data to a vector database



Vector Database

Searches on a combination of business and semantic data are more effective if both types of data are stored together



Machine Learning Accelerates Programming*



Activity Recognition



```
if(speed<4){  
  status=WALKING;  
}
```



```
if(speed<4){  
  status=WALKING;  
} else {  
  status=RUNNING;  
}
```



```
if(speed<4){  
  status=WALKING;  
} else if(speed<12){  
  status=RUNNING;  
} else {  
  status=BIKING;  
}
```



```
// ????
```



Machine Learning Accelerates Programming*



Activity Recognition



```
0101001010100101010  
1001010101001011101  
0100101010010101001  
0101001010100101010
```

Label = **WALKING**



```
1010100101001010101  
0101010010010010001  
0010011111010101111  
1010100100111101011
```

Label = **RUNNING**



```
1001010011111010101  
1101010111010101110  
1010101111010101011  
1111110001111010101
```

Label = **BIKING**



```
1111111111010011101  
0011111010111110101  
01011101010101011110  
1010101010100111110
```

Label = **GOLFING**
(Sort of)



Better World – Leverage Tech!

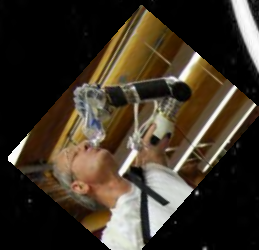
Steve Wozniak on AI: Will we be pets or mere ants to be squashed our robot overlords?

Apple co-founder Steve Wozniak predicts a 'scary' future when artificial intelligence takes

COMPUTERWORLD

THE TWILIGHT ZONE

"You unlock this door with the key of imagination. Beyond it is another dimension - a dimension of sound, a dimension of sight, and substance, of things and ideas. You're moving into a land of both shadow and light. Welcome to the Twilight Zone."
-Rod Serling



E=MC²

Leveraging – DB, AI & Virtual Reality!



Virtual Reality



- > Immersion in virtual worlds
- > Total interaction with virtual
- > E.g. Oculus Rift

Mixed Reality



- > Virtual World integrated to reality
- > Interaction between reality and virtual
- > E.g. Microsoft HoloLens

Augmented Reality



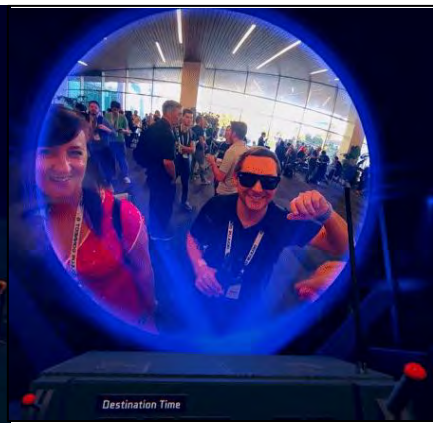
- > Virtual on top of reality
- > Limited interaction with the virtual
- > E.g. Smartphones & Tablets

Walking Distance (View your Past - "time circuits on")



Developer Creates VR Time Machine To Relive His Past Year

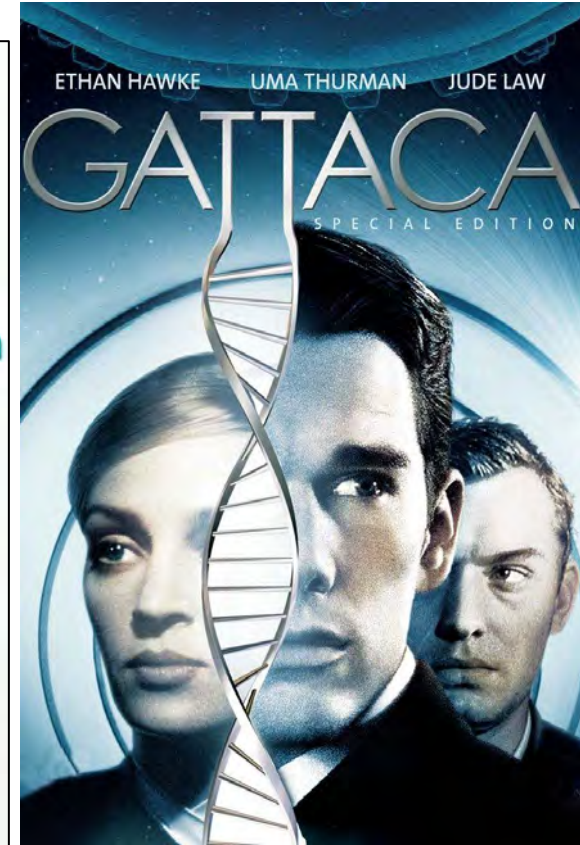
July 13, 2020 • by Bobby Carlton



A World of Difference (Getting Closer)



Leveraging – **DB & Medicine**



Gartner 2020 hype cycle



82%
of consumers believe that robots will replace financial professionals in the future.



42%
of consumers believe it will happen in the next 5 years or already has.

Consumers also want help from a robot



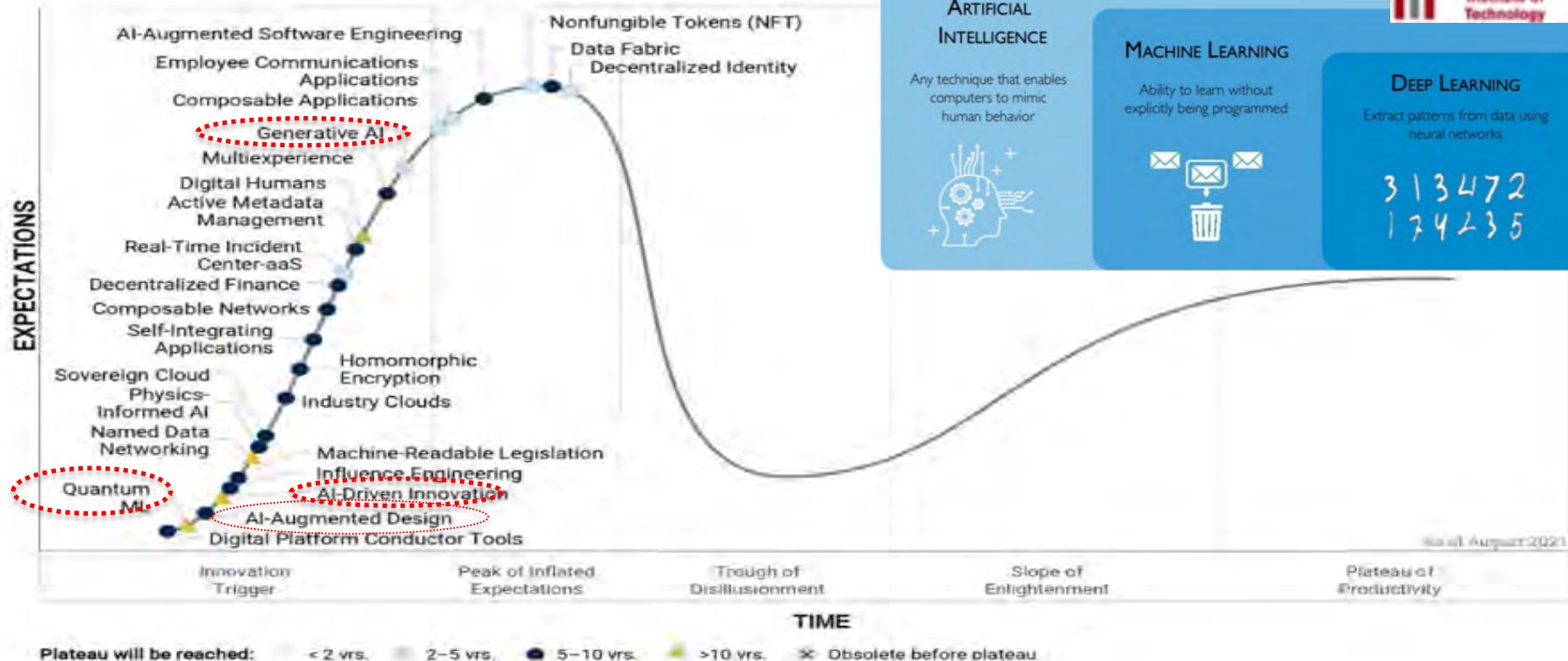
As of July 2020

Plateau will be reached:

- less than 2 years
- 2 to 5 years
- 5 to 10 years
- ▲ more than 10 years
- ⊗ obsolete before plateau

Gartner 2021 hype cycle for Emerging Tech

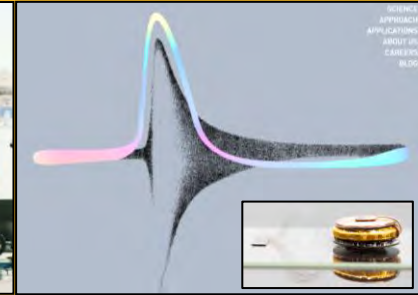
Hype Cycle for Emerging Technologies, 2021



The Digital Transformation Ahead

Digital Transformation 2000 to 2050

A historically significant
change in humanity...



Disconnected
The Dark Ages

Using
Digital

Wearing
Digital

Implanting
Digital

The Hive
Mind

The Future of Implant Technology



Check out my new Skateboard Video
On YouTube!

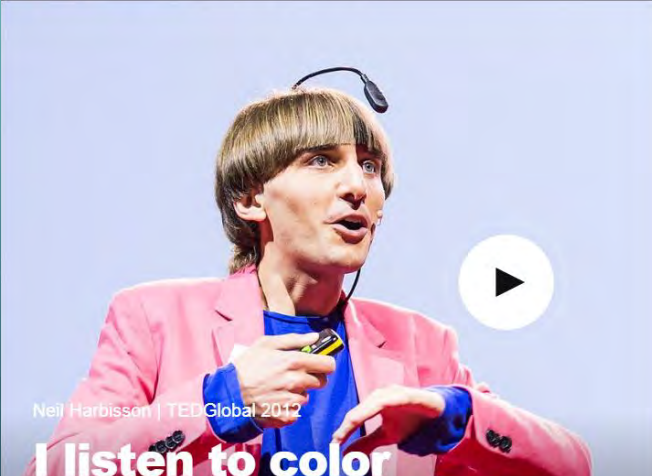
YouTube

ift Images

Connection to the Brain – Currently Working



TED Ideas worth spreading



Neil Harbisson | TED Global 2012
I listen to color



Black Mirror out Dec. 2011- Dystopian



- Nosedive: (Social Meeting Addiction & Ratings)



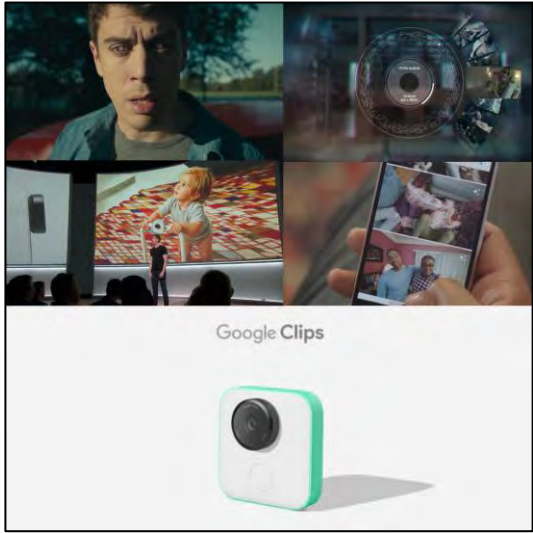
- Hated in the Nation (Cancel Culture)



- Be Right Back (ETER9)



- The Entire History of You (Kapture / Google Glass / Google Clips)



- Metalhead (Robot Dog)



Leveraging – DB & IOT (Criminals)



Ransomware May Soon Infect Smart Homes, Smart Cars

TOM'S GUIDE
TUESDAY, FEBRUARY 21, 2017 5:50 PM GMT



Tomer Cohen
Vice President of Product at LinkedIn
23h

[+ Follow](#)

It used to be all about iOS upgrades and now the excitement goes to Tesla upgrades. Not a Tesla owner but still excited.

[...see more](#)



All the New Features in Tesla's Latest Software Update
finance.yahoo.com



**He's a coder,
He is fallible.**

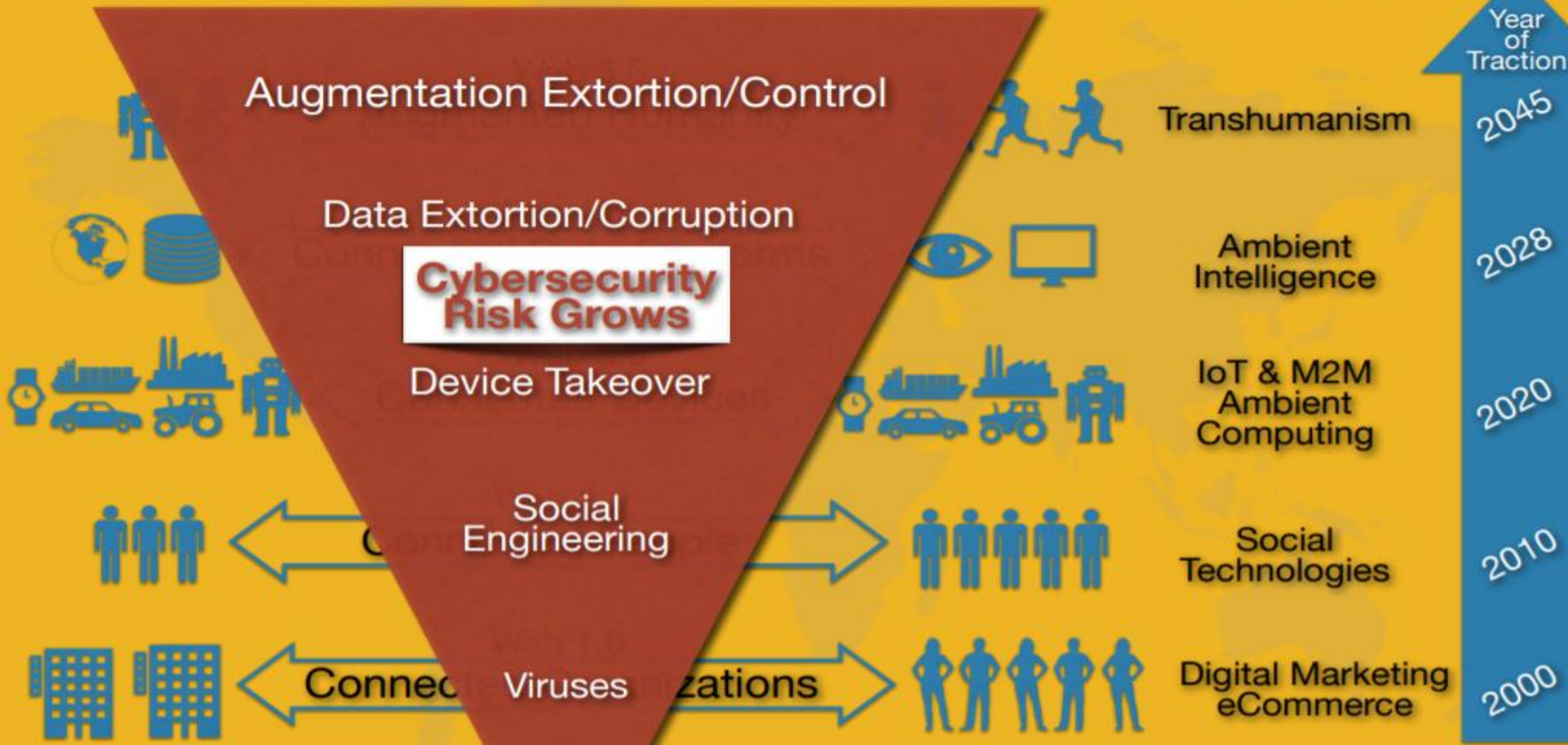
- Black Mirror. USS Callister -



The Issues to Overcome moving Forward...

The Transformation of Connection

FPOV



Security is still the Top AI application!

Detecting Security Intrusions Is Top AI Application in 2018

Application areas of artificial intelligence (AI) in organizations worldwide in 2018



Digital – How did we go from Magical to Toxic?



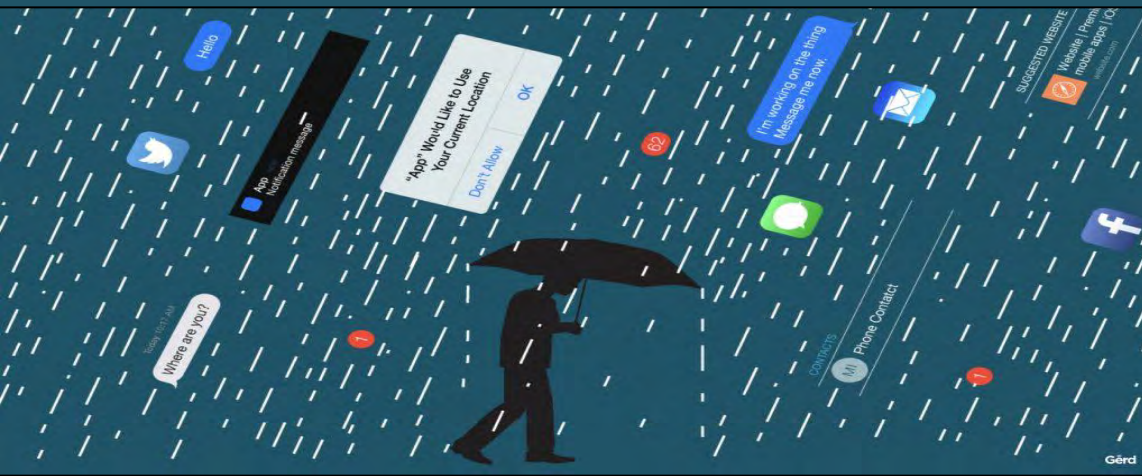
MAGIC



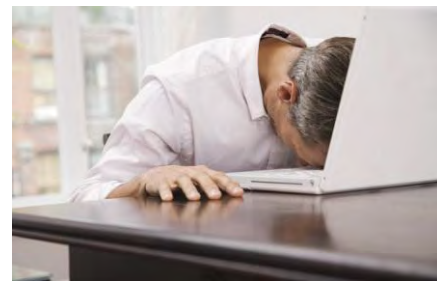
MANIC



TOXIC



A Thing About Machines - People Frustrated



HELPDESK

HAVE U TRIED TURNING IT OFF
AND ON AGAIN?

Final Thoughts... world changing fast!

“Those who use things of the world should not become attached to them. For the world in its present form is passing away.”

1 Corinthians 7:31

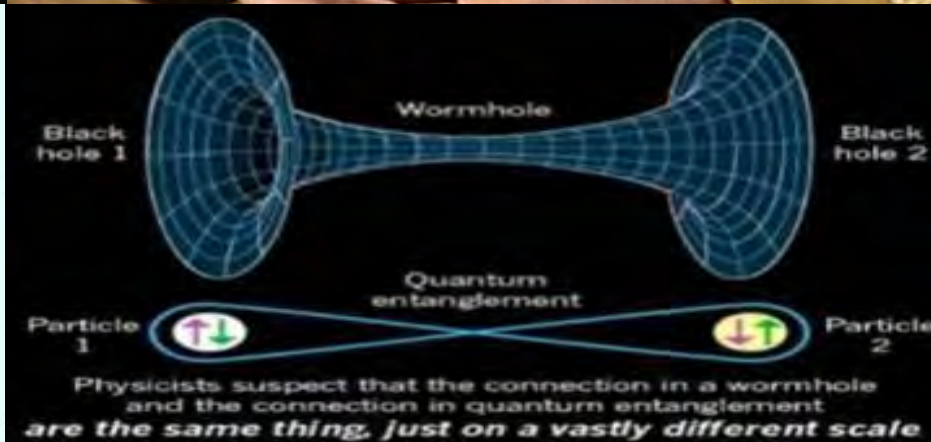


We are now shifting from the Information Age to:

The Age of Entanglement

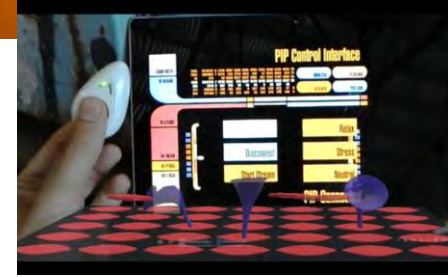
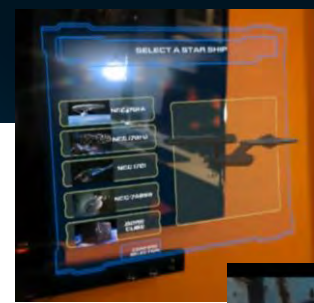
As technology and humanity continue to converge the repercussions on our future are staggering...

SFPOV



Star Trek

- Communicator - Motorola Flip Phone
- Phaser - EPM or Stun Gun / Taser
- Tablets (Medical) - Tablet Computers
- Tricorders - Many Medical Devices (below)
- Translators - Google Translate (others)
- Tractor Beam - MIT has it in concept
- Telepresence - Zoom Virtual Conferences
- Geordi's Visor - Robotic Eyes / Implants
- Communicator Badges - Many Security Badges
- Food Replicator - 3D Printer
- Holodeck - VR
- Teleportation - Quantum Entanglement
- Big Screen TV - Everyone has it
- Hands Free Phone - Bluetooth headset / Airpods



Hololens VR Apps Above

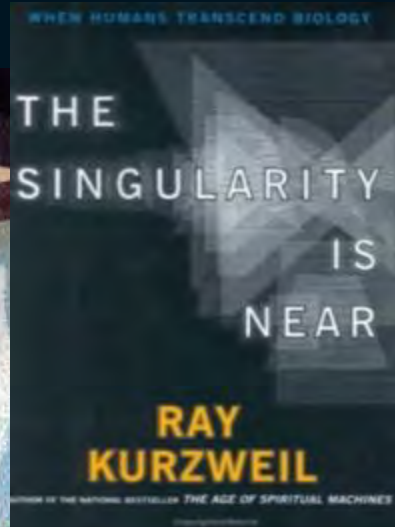
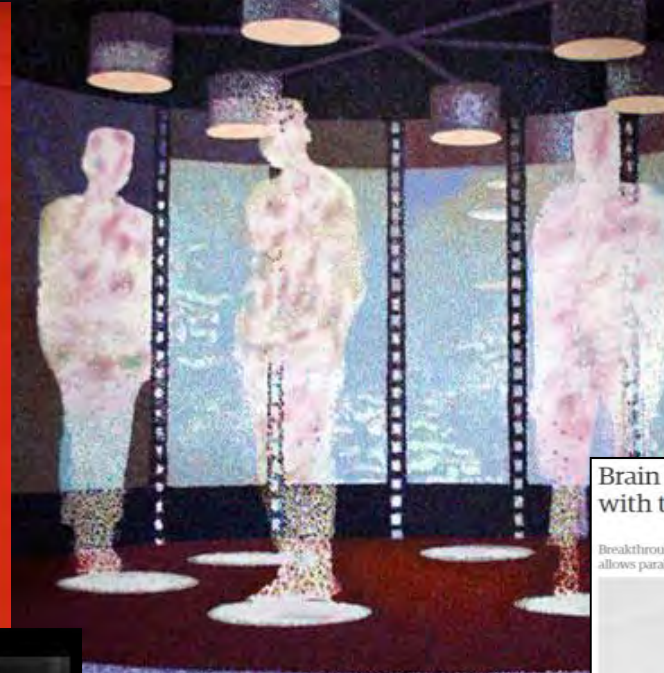


MouthLab



Microsoft working on Holodeck

Final Thoughts... world changing fast! The Singularity: Humans Transcend Biology



Brain implant controls robotic arm - with the power of thought

Breakthrough as neuro-prosthetic device implanted in "higher" brain region, allows paralysed man to control robotic arm just by thinking about it



Quantum Entanglement


"Spooky action-at-a-distance"
(A. Einstein)



A neuro-prosthetic device implanted in Erik Soren's brain allowed him to drink alcohol for the first time in his life. Photographs: Science Photo Library and Christine E. Hoff.

Summary –Apply Technology & W.I.N.

SUBMITTED
FOR YOUR
APPROVAL

- ❑ Economic Potential of GenAI & Robots
- ❑ What is Entanglement
- ❑ Why Entanglement will Matter
- ❑ Entanglement Effect on Quantum Computers
- ❑ Physics Couldn't Solve It In 1927
- ❑ Entanglement may Change Life as We Know It
- ❑ Machine Learning Future, Robots & VR 



ONLINE TECH EVENTS
COMMUNITY BUILDING

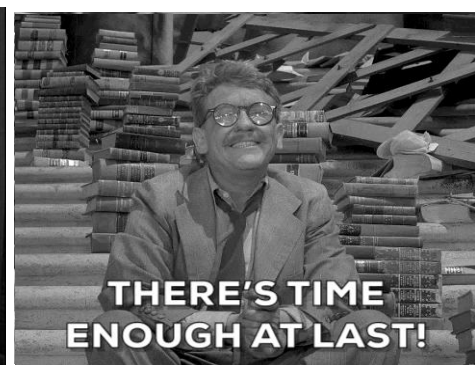
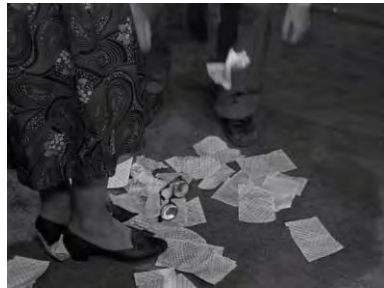
CONF42

Quantum Entanglement

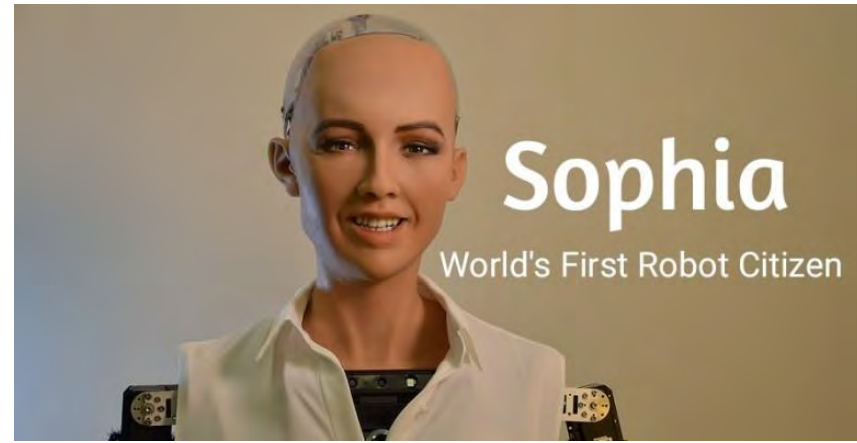
“Spooky action-at-a-distance”
(A. Einstein)



Time Enough at Last for AI & Acceleration with Quantum



The After Hours (*Future Sentience Issues Ahead*)



- Is now a Citizen
- Wants to get degree
- Wants to have kids

- What is Alive?
- Sentience Issues?
- Robot's Feelings?
- Ethical Issues +++



3 Types of Artificial Intelligence

Artificial Narrow Intelligence (ANI)



Stage-1

Machine Learning

- ▶ Specialises in one area and solves one problem



Siri



Alexa



Cortana

Artificial General Intelligence (AGI)



Stage-2

Machine Intelligence

- ▶ Refers to a computer that is as smart as a human across the board

Artificial Super Intelligence (ASI)



Stage-3

Machine Consciousness

- ▶ An intellect that is much smarter than the best human brains in practically every field

Final Thoughts... Catch your Ride!



“Things may come to those who wait, but only the things left by those who hustle.”

— Abraham Lincoln



The Age of Entanglement!

"A masterful account of the phenomenon Einstein thought so crazy it could not possibly be true, (Only it is!)"
—DR. MARCUS CHOWN, author of *The Universe Next Door*

THE GOD EFFECT

QUANTUM ENTANGLEMENT,
SCIENCE'S STRANGEST PHENOMENON



TIME TRAVEL,
TELEPORTATION, AND
THE ULTIMATE COMPUTER

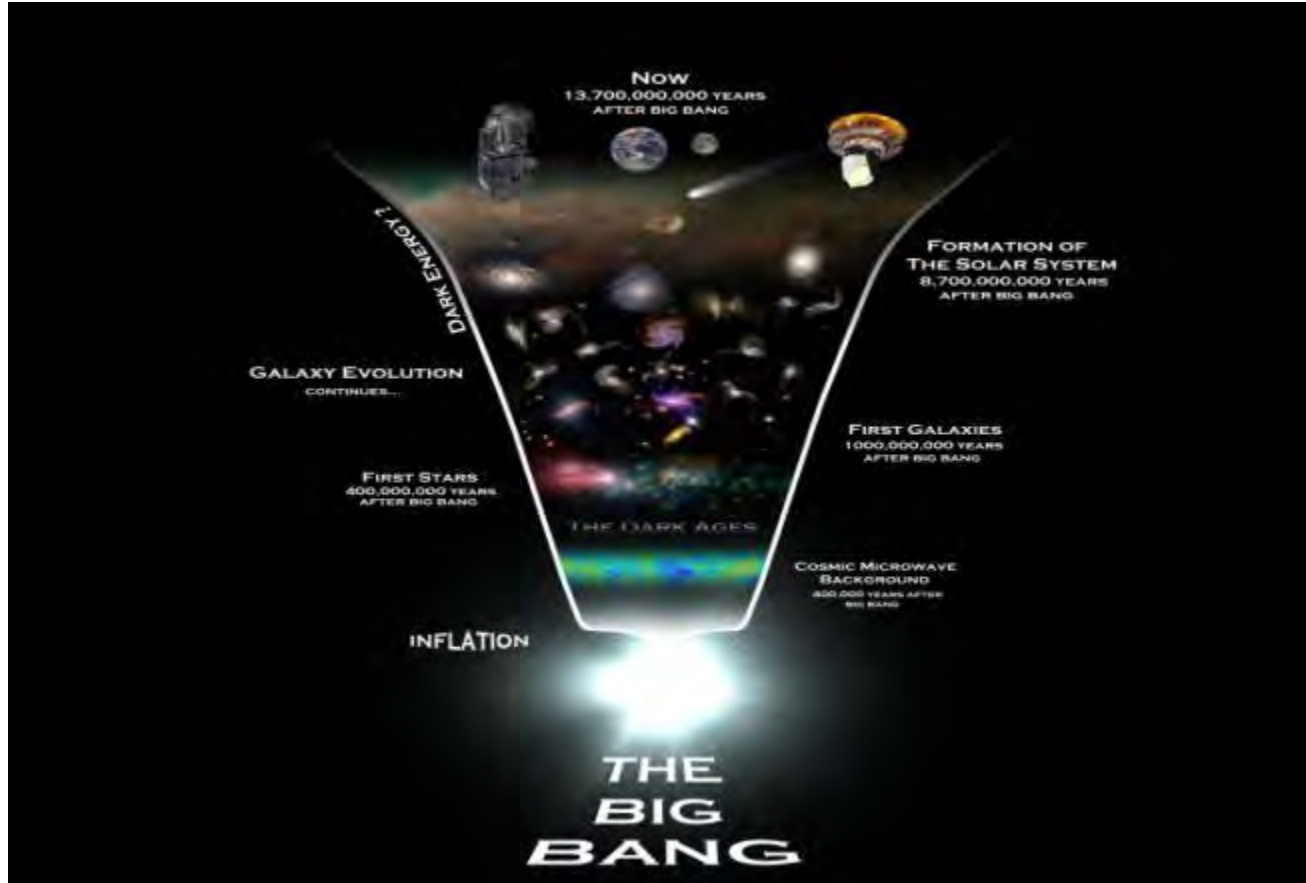
BRIAN CLEGG

We are now shifting from
the Information Age to:

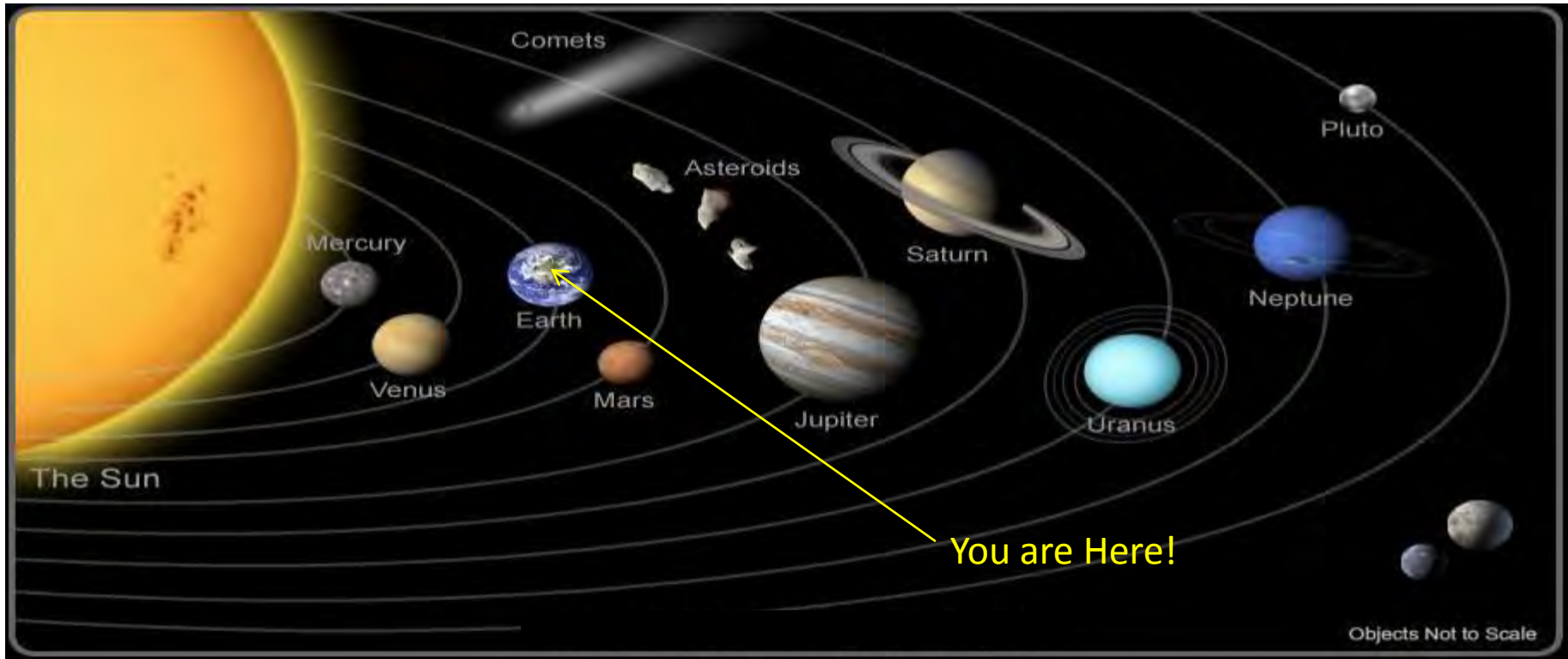
The Age of Entanglement



YOU Live in an AMAZING Time!



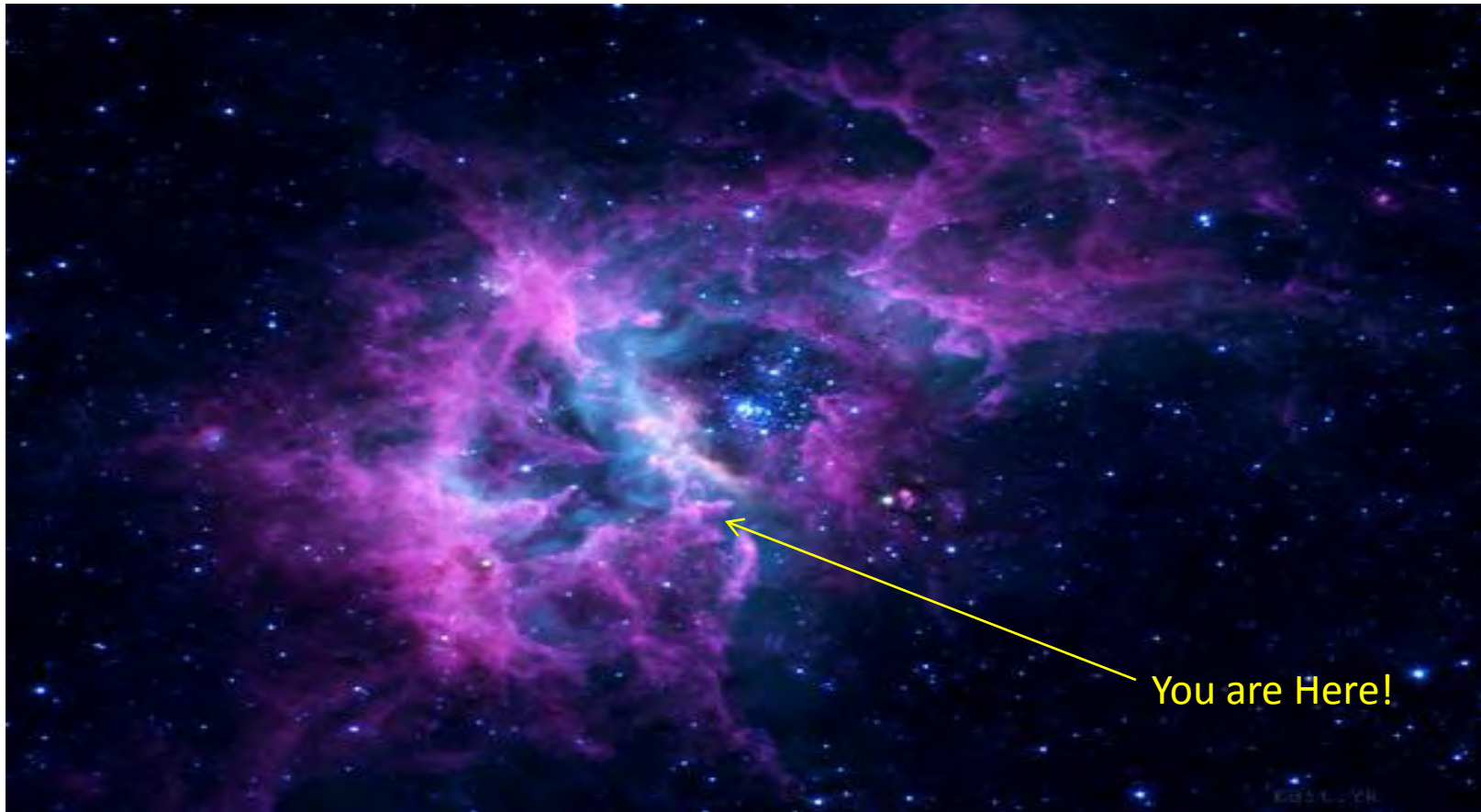
You are Here in the Solar System



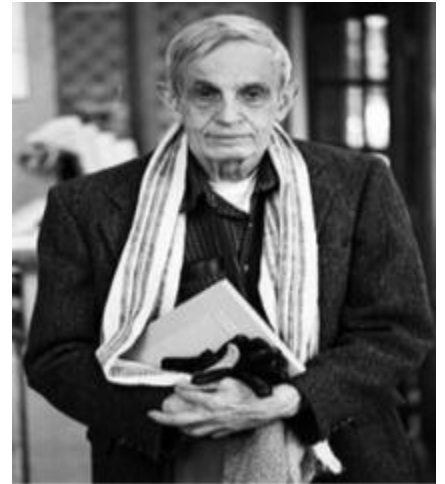
You are Here in the Milky Way Galaxy



You are Here in the Universe

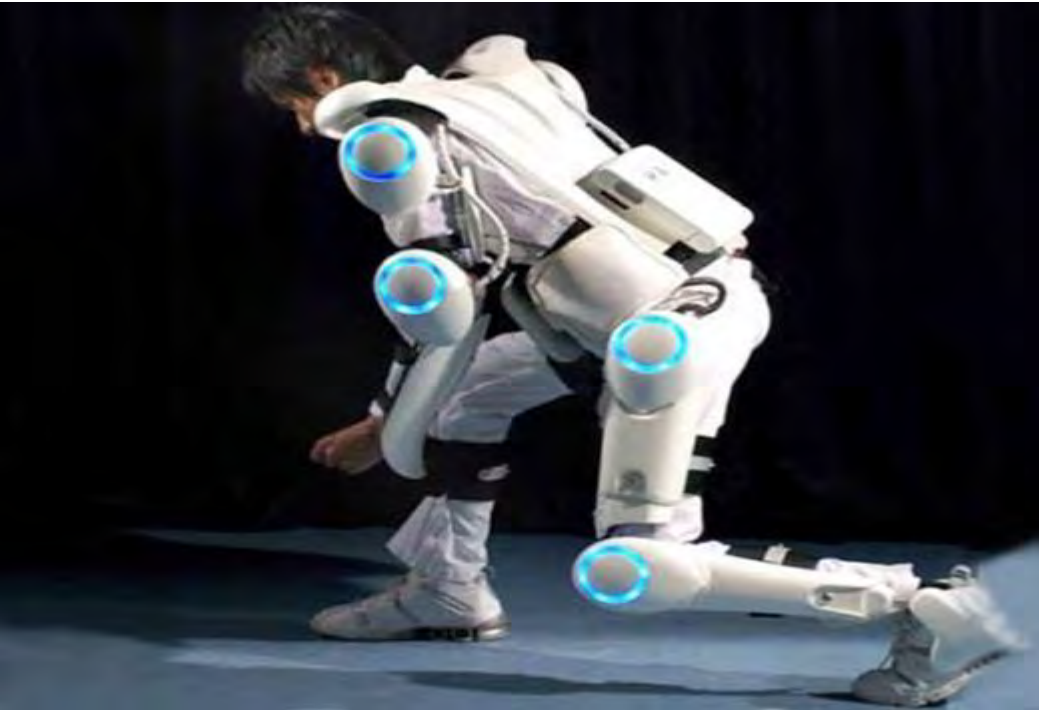


“We make a Living by what we get; We make a Life by what we give.”



Google/Cyberdyne augments people:
Implants are coming ... started with prosthetics, AI, Quantum Computers

Be a Future Tech Leader!
(Integrating Tech)



1927 Solvay Conference *Color* Poster (On Amazon)



SOLVAY CONFERENCE 1927

A. PICARD E. HENRIOT P. CHRISTIE E. L. HERSEN T. N. DE DONDER E. SCHRÖDINGER E. VERSCHAFFELT W. FAUST W. HEISENBERG R. H. FOWLER L. BRILLIÖN
P. DEBYE M. ENJOSÉN W. L. BRAGG H. A. KRANERS P. A. M. DIRAC A. H. COMPTON L. DE BROGLIE M. BORN N. BOHR
L. LANGMUIR M. PLANCE MME CURIE H. A. LORENZ A. EINSTEIN P. LANGÉVIN O. N. GUYE C. F. R. WILSON O. W. RICHARDSON
Absent: Sir W. H. BRAGG, H. DEGLANDRES and E. VAN RUSSEL

Entanglement hits IT World



Quantum Entanglement

“Spooky action-at-a-distance”
(A. Einstein)



The Age of Entanglement

As technology and humanity continue to converge the repercussions on our future are staggering...

Quick FREE notes

Send email to (for slides):

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