

# AI Primer

A brief introduction to Artificial Intelligence: Past, Present, and Future

# What Ever Happened to AI?



What we have been waiting for..

AI is surrounded by hype and technical jargon. Strip all that away and its pretty simple:

*AI allows a machine to understand what we say and the general intelligence to do what we tell it to do.*



What we have been settling for..

# AI Past

Decades ago (1980s) people were as excited about AI as they are today but the technology was completely different.

Researchers sought to put knowledge into machines one fact at a time.

One approach, expert systems, was based on programming rules. Another approach, semantic networks, attempted to break down language (essentially just words) into a computable form.

Both approaches were called “knowledge representation” or, more commonly today, *symbolic AI* and even Good Old-Fashioned AI.

*Symbolic AI did not work—Not really AI*



## The AI Winter 1990 – 2000

Symbolic AI was so over-hyped and so under-delivered that people became disillusioned about the whole notion of AI for awhile.

# AI Today

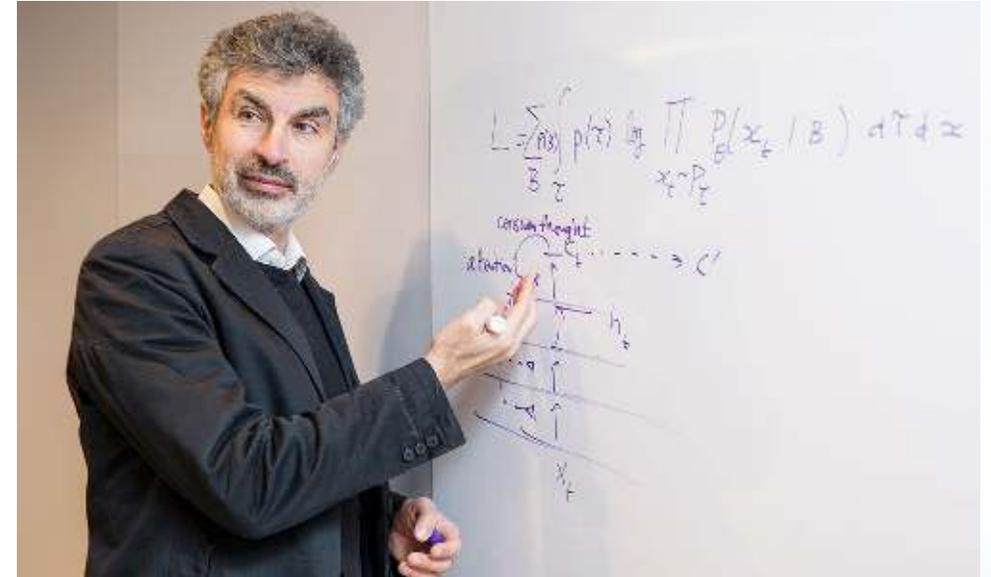
Today's AI technology, Machine Learning, is radically different from the old days.

“Learning” here does not mean acquiring knowledge but rather “training” huge networks of interconnected “artificial neurons” to recognize patterns in vast databases.

These approaches are called connectionist AI.

Even it's most ardent practitioners freely admit that connectionist approaches cannot understand our language and lack general intelligence.

So not *really* AI.



Yoshua Bengio, Machine Learning pioneer:  
“In terms of how much progress we’ve made in this work over the last two decades: I don’t think we’re anywhere close today to the level of intelligence of a two-year-old child.”

Has AI been over-hyped again? Is another AI Winter on the horizon?

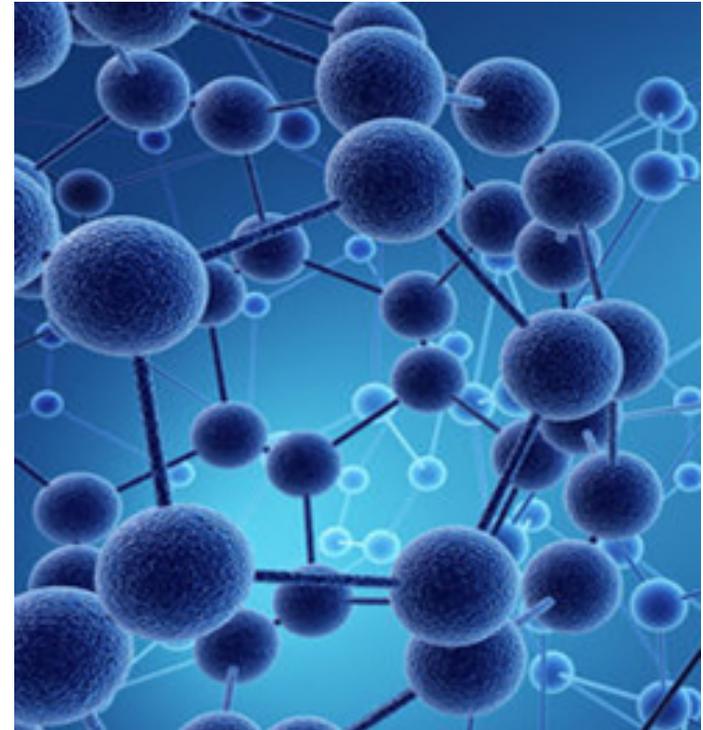
# AI Future

The *symbolic* approaches of the past failed while the *connectionist* approaches of today are hugely limited and not expected to realize “knowledge of the world,” for decades, if ever.

But the future of the AI we have been expecting and waiting for is not decades away but just around the corner.

New Sapience has created “Machine Knowledge” a technology that can assemble an unlimited number of new ideas from a small set of simpler ones.

Machine Knowledge can comprehend language with all its contextual complexity, reason about the world, and explain its conclusions.



Like the material world, knowledge is composed of core building blocks that only combine in certain ways.

# What Machine Knowledge is *not*

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- *Connectionist AI* such as Big Data or Machine Learning and Natural Language Processing (NLP) software used in chatbots like SIRI or Alexa that have no knowledge of what the words mean.
- *Symbolic AI* such as expert systems and semantic networks; discredited paradigms of the past
- *Neural-Symbolic AI* a recent trend based on trying to combine the first two in hopes their limitations will cancel out.

# What Machine Knowledge *is*

A self-extending, non-symbolic, non-semantic *model* of reality that learns cognitively by reasoning about new information without being trained against datasets.

A platform and operating system for innumerable applications based on knowledge rather than information.

A technology that comprehends human language like humans do; opening the flood gates of cognitive learning through reading and conversation.

The Real AI that opens the door to the long-awaited automated world of unlimited productivity.



The Core Model, the crown jewel of our technology, functions like digital DNA; a compact specification for unlimited cognitive learning in machines.



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Contact:

Bryant Cruse

[bcruse@newsapience.com](mailto:bcruse@newsapience.com)

M: 410-271-4908

[www.newsapience.com](http://www.newsapience.com)