



HOW TO EMBRACE AI IN A RISK AVERSE ORGANIZATION

ISACA TAMPA BAY GOVERNANCE, RISK AND COMPLIANCE

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SYNIVERSE





AI

AGENDA

- History of Artificial Intelligence
- What is AI really?
- Risks & Challenges
- Opportunities

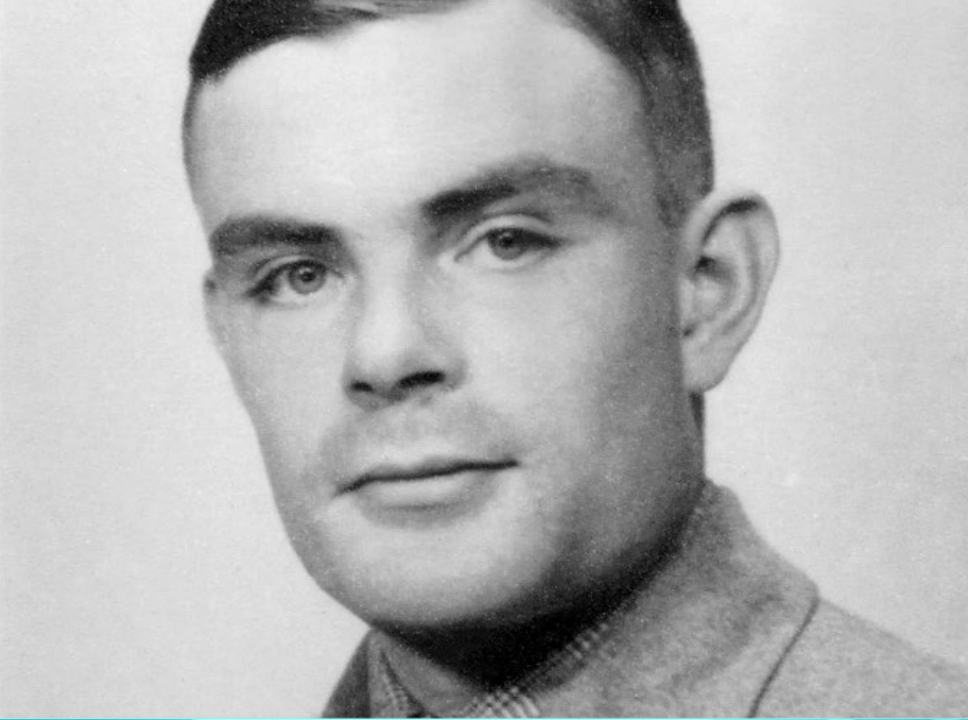
The background is a blue gradient. In the corners, there are white line-art illustrations of circuit boards or neural networks, with lines and small circles representing nodes.

HISTORY OF ARTIFICIAL INTELLIGENCE

FROM SCIENCE FICTION TO APPLIED SCIENCE

1920'S





1930'S/40'S/50'S

- Alan Mathison Turing
 - English mathematician, computer scientist, logician, cryptanalyst
 - Influenced the development of theoretical computer science
 - Considered to be the father of artificial intelligence
 - Co-creator of The Bombe
- Isaac Asimov publishes the sci-fi story, "I, Robot"

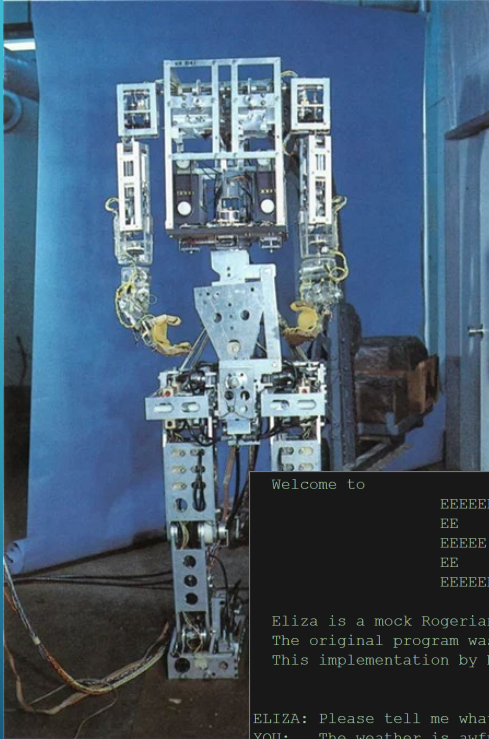
1950'S



Image source: <https://aiws.net/the-history-of-ai/aiws-house/this-week-in-the-history-of-ai-at-aiws-net-herbert-simon-and-allen-newell-develop-logic-theorist/>

- Developed *Logic Theorist*
 - Regarded as first AI program
- Dartmouth Summer Research Project on Artificial Intelligence (DSRPAI)
- The term Artificial Intelligence was coined

1960'S/70'S



```
Welcome to
EEEEEE LL      IIII ZZZZZZ  AAAAA
EE      LL      II      ZZ  AA  AA
EEEEEE LL      II      ZZ  AAAAAA
EE      LL      II      ZZ  AA  AA
EEEEEE LLLLLL IIII ZZZZZZ AA  AA

Eliza is a mock Rogerian psychotherapist.
The original program was described by Joseph Weizenbaum in 1966.
This implementation by Norbert Landsteiner 2005.

ELIZA: Please tell me what's been bothering you.
YOU:   The weather is awful.
ELIZA: I'm not sure I understand you fully.
YOU:   I hate the current weather.
ELIZA: You say you hate the current weather ?
YOU:   Yes, that's what I said.
ELIZA: I understand.
YOU:   Great.
ELIZA: Please go on.
YOU:   I would say it's your turn now!
ELIZA: Why are you concerned over my turn now ?
YOU:   █
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- AI BOOM
- ELIZA – developed at MIT by Joseph Weizenbaum
- WABOT-1 – first anthropomorphic robot
- AI research starts to see a decline

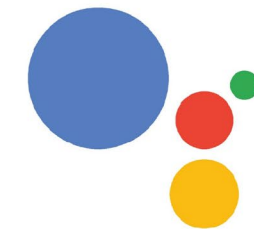
1980'S/90'S



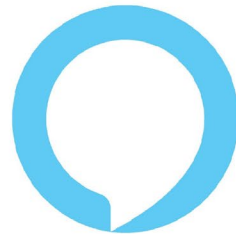
- Star Trek: The Next Generation
 - Introduction of Data
- IBM's Deep Blue computer beats chess champion Gary Kasparov



Bixby



Google Assistant



amazon alexa

2000'S

- 2011
 - IBM's Watson computer wins Jeopardy besting Brad Rutter and Ken Jennings
 - Apple introduces Siri
- 2012 Google Now
- 2014
 - Amazon Echo – Alexa
 - Microsoft Cortana
- 2016 Google Assistant

TODAY

November 30, 2022

- ChatGPT released
- 1M users in first five days
- 100M active users in first two months
- Trained on a massive corpus of text data, ~570GB of datasets, including web pages, books, and other sources







WHAT IS AI, REALLY?

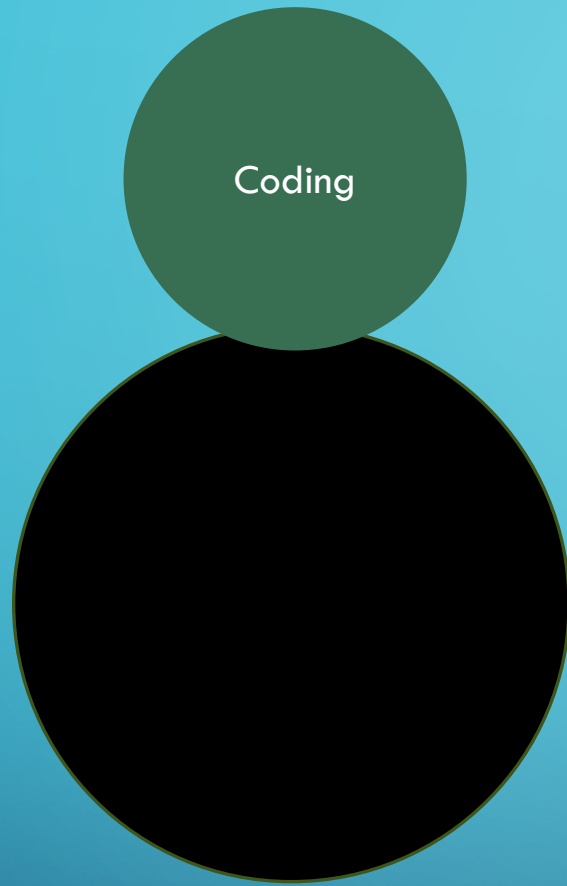
DEFINITION AND CLARITY



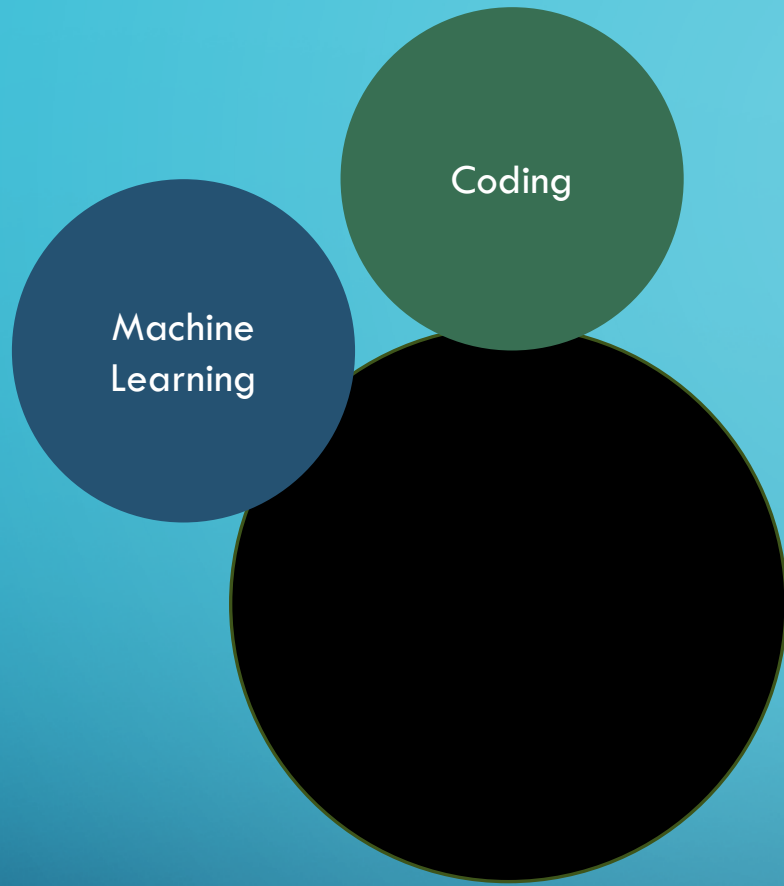
DEFINITION

Technology that enables computers and machines to simulate human intelligence and problem-solving capabilities

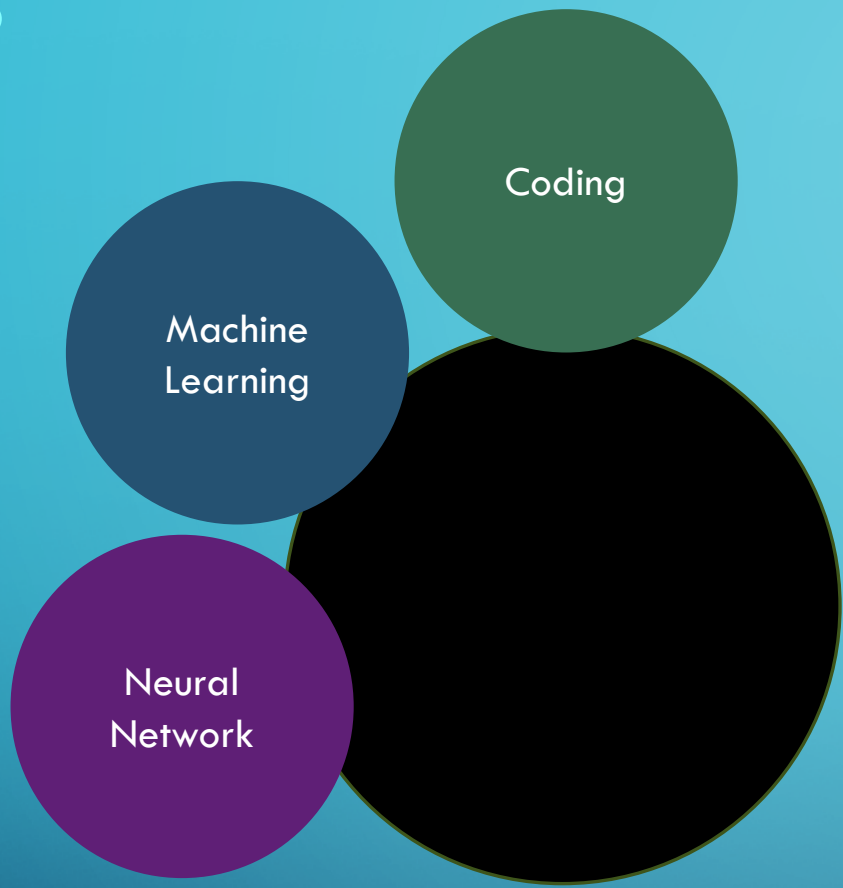




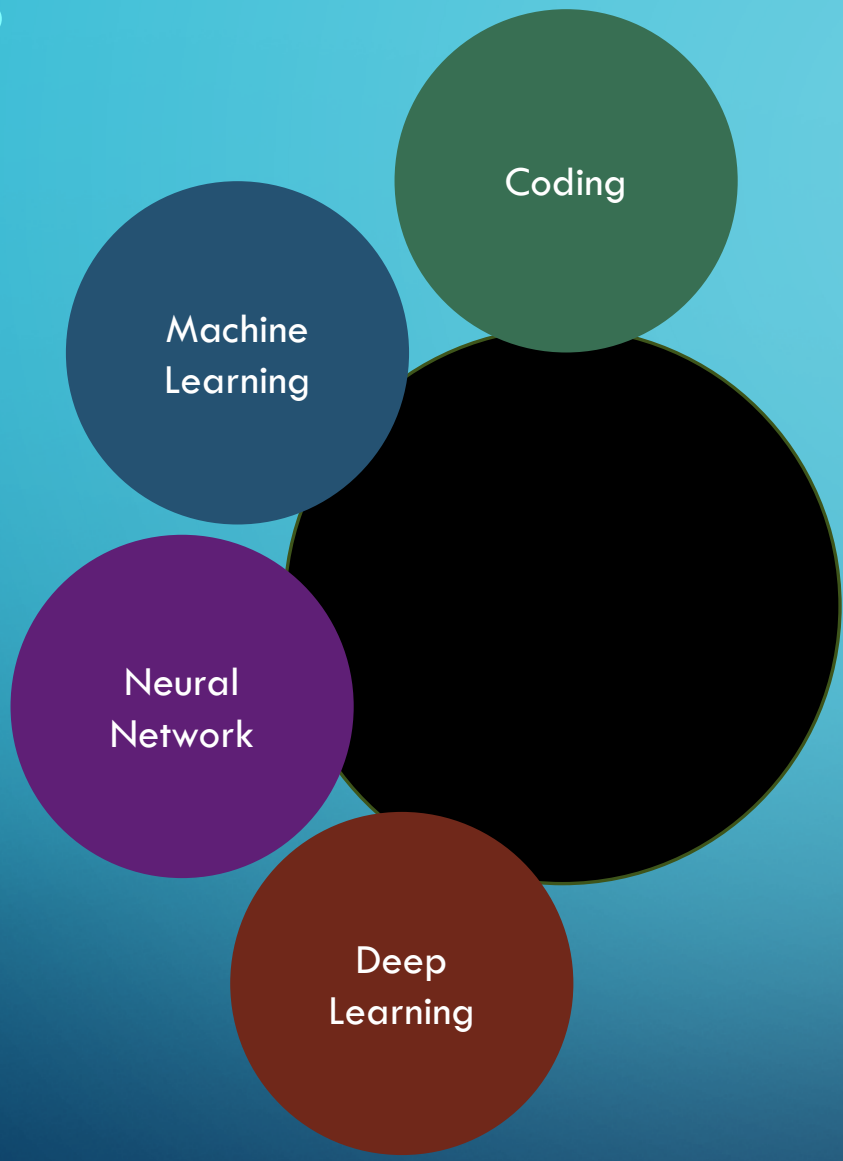
Serves as the language
that allows developers to
instruct machines and
create algorithms that
mimic human-like
cognitive processes



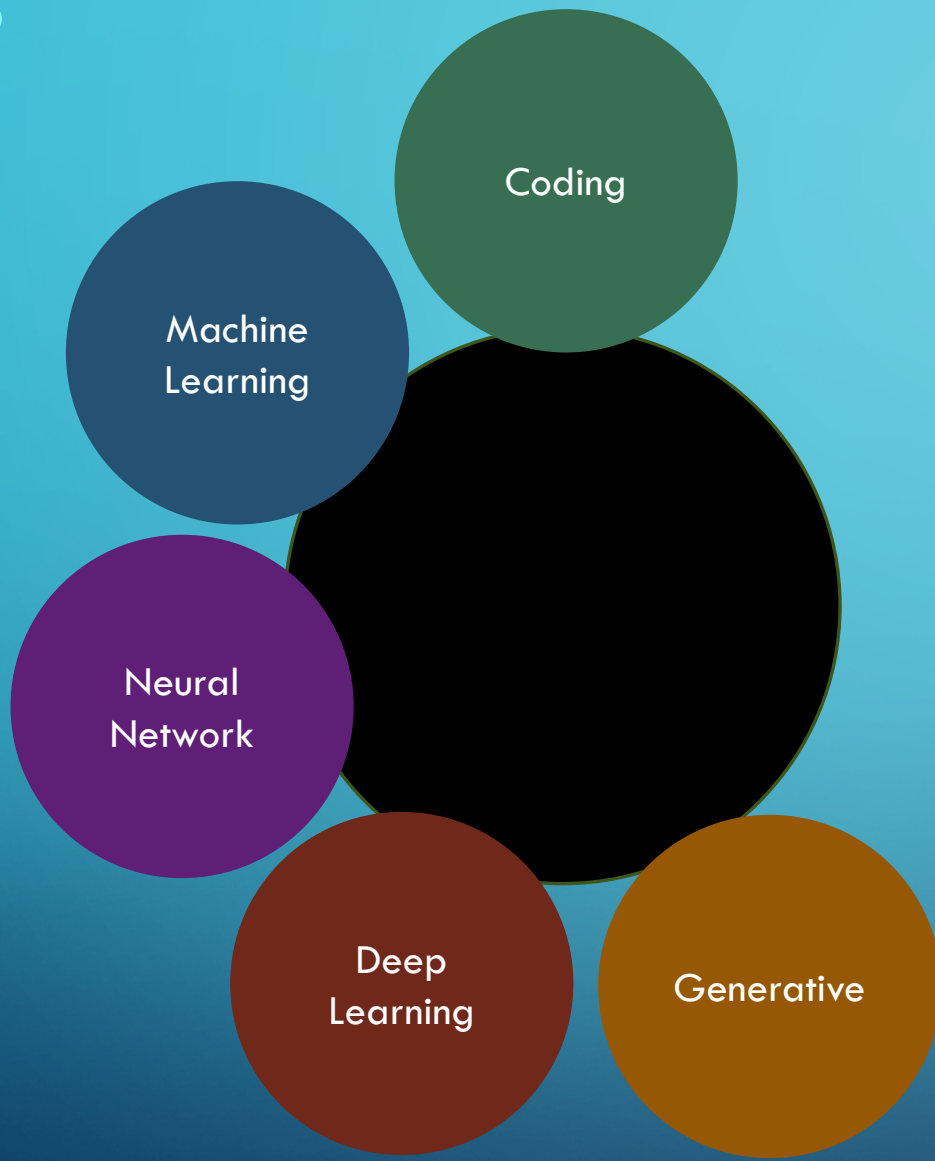
Algorithms that allow
computers to learn from
examples without being
explicitly programmed



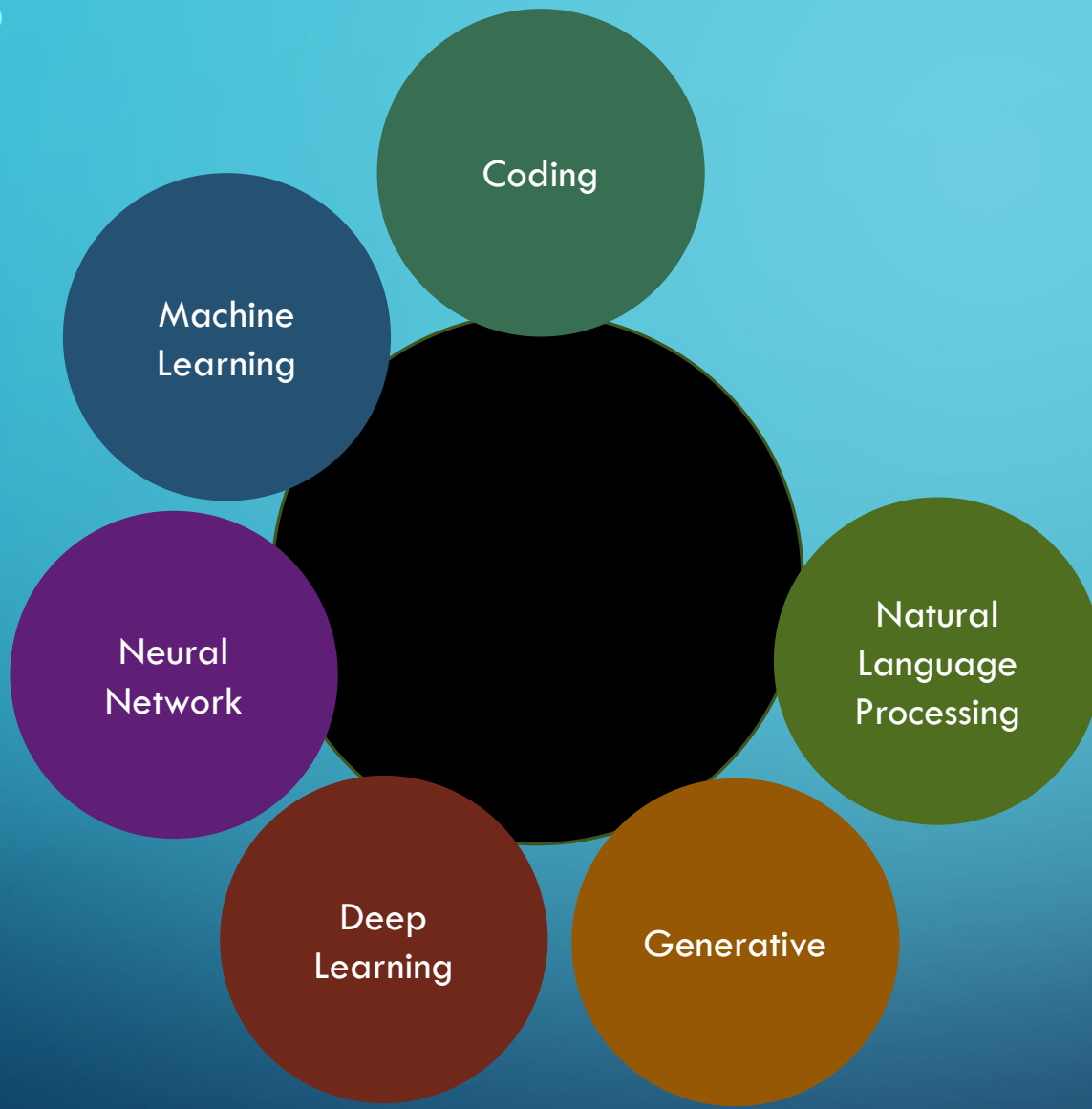
Machine learning program, or model, that makes decisions in a manner like the human brain, uses processes that mimic the way biological neurons work together to identify phenomena, weigh options, and arrive at conclusions



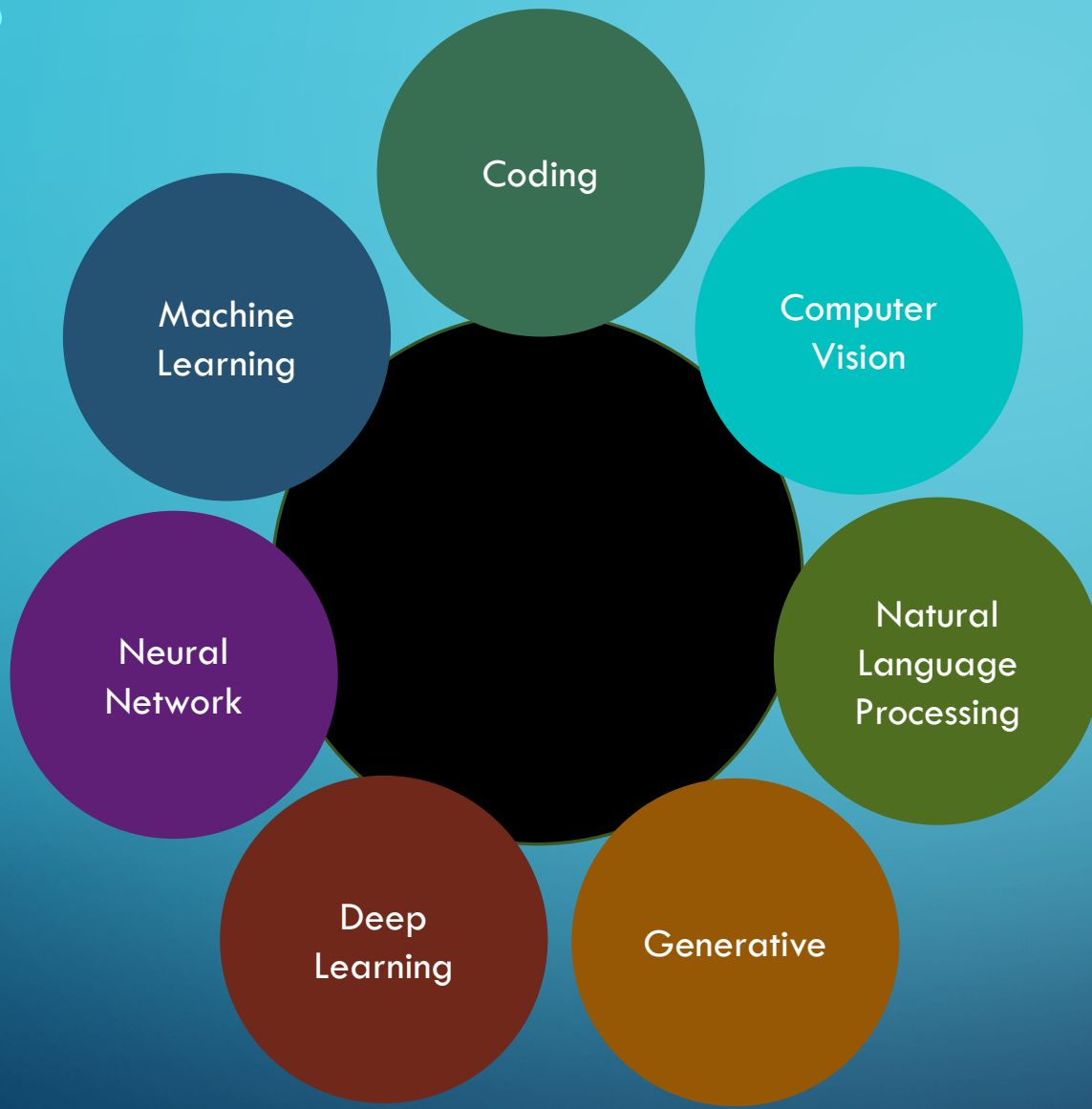
Subset of machine learning that uses multi-layered neural networks, called deep neural networks, to stimulate the complex decision-making power of the human brain



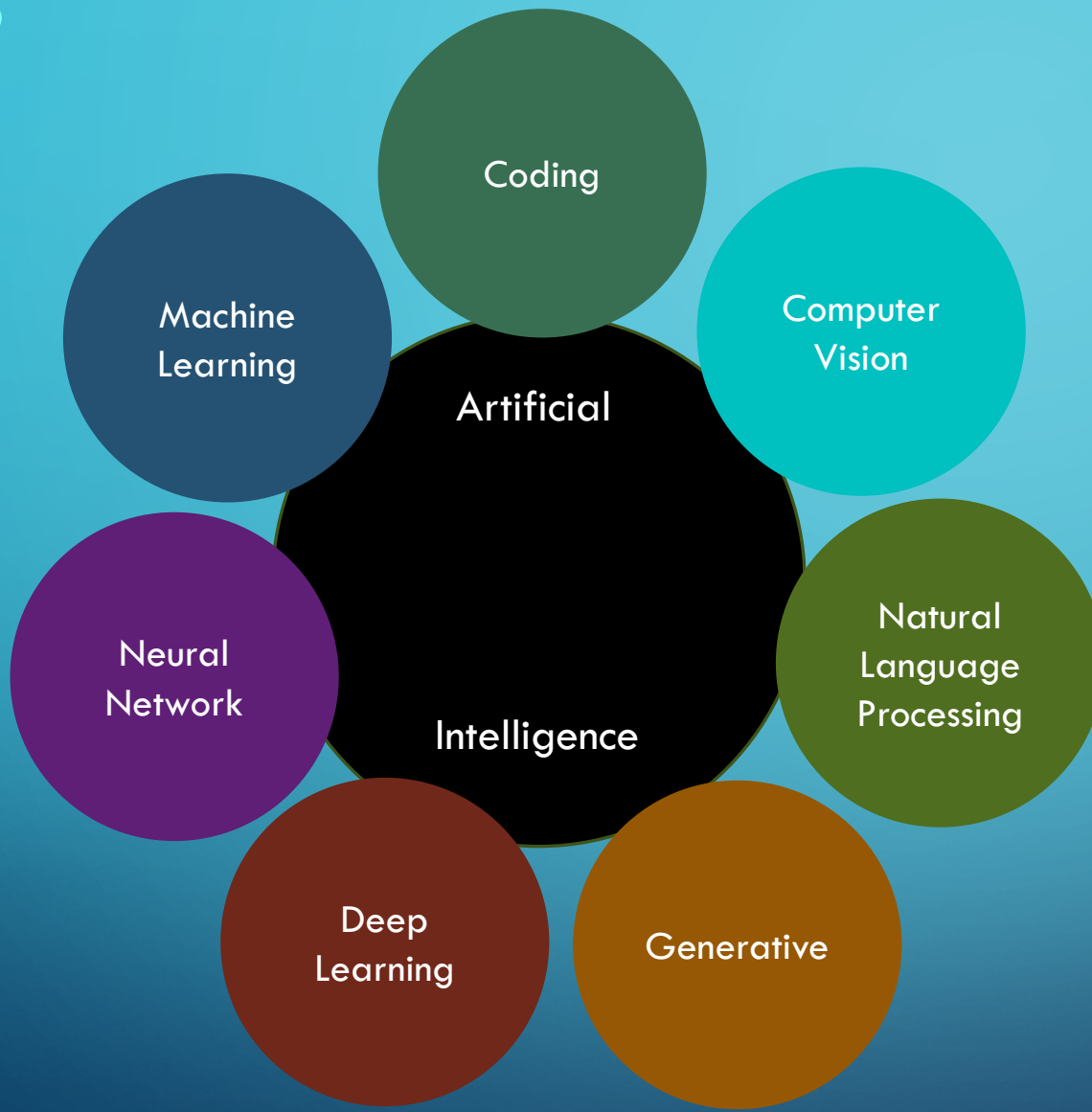
Subset of deep learning models that generate content like text, images, or code based on provided input, trained on vast data sets, models detect patterns and create output without explicit instruction, uses both supervised and unsupervised learning



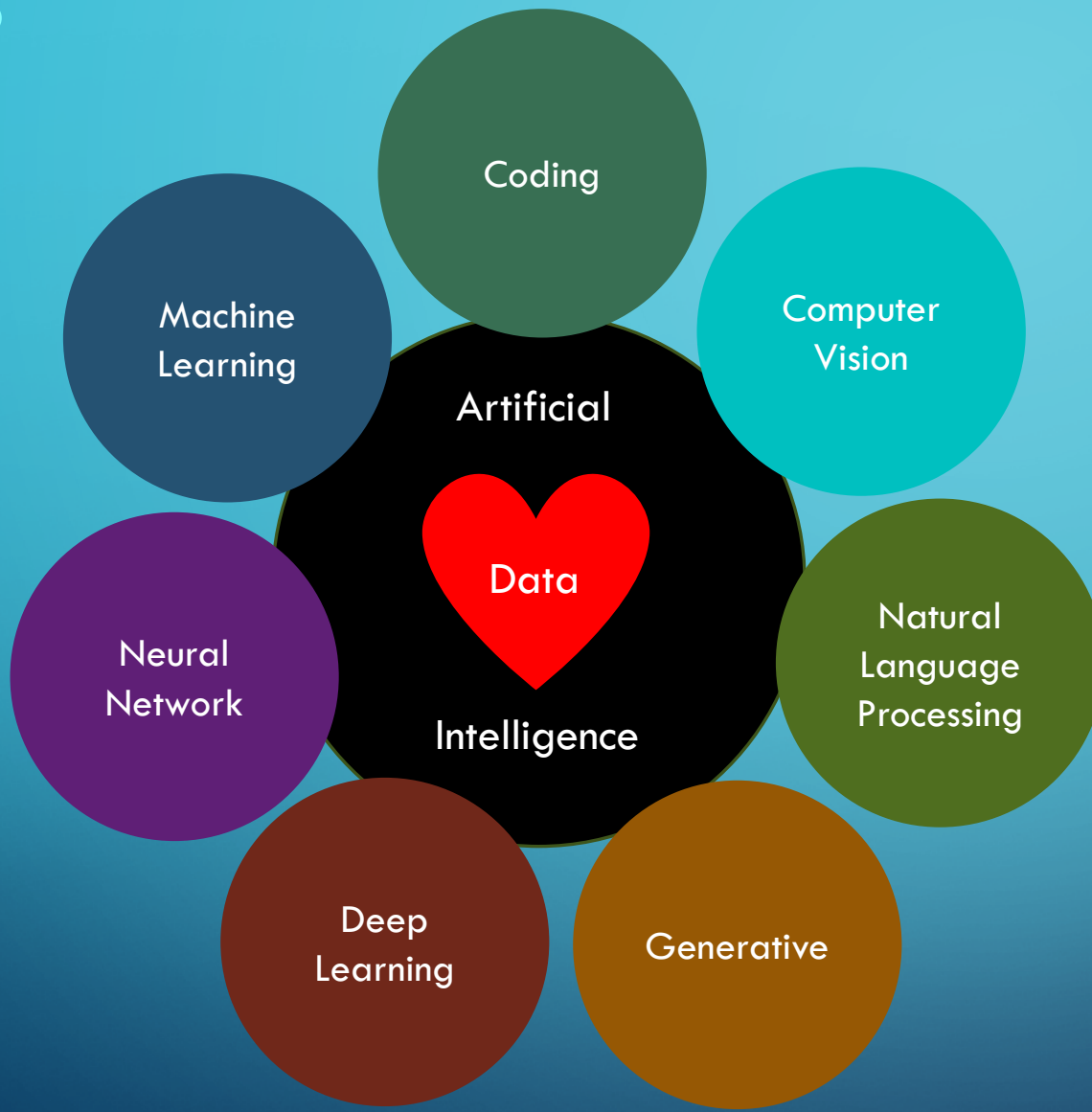
Combines computational linguistics (rule-based modeling of human language) with statistical and machine learning models to enable devices to recognize, understand, and generate text and speech



Uses machine learning and neural networks to teach computers and systems to derive meaningful information from digital images, videos, and other visual inputs and make recommendations or take actions



Technology that enables computers and machines to simulate human intelligence and problem-solving capabilities

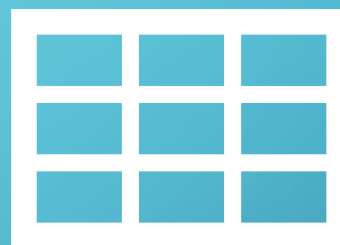


At the heart of AI,
machines need to access
and ingest the maximum
possible amount of
information for AI
applications

DATA & LEARNING

Structured
Data

Experimental and/or
computational databases



Unstructured
Data

Images, spectra, text



DATA & LEARNING

Supervised Learning

Use of labeled data sets to train algorithms to classify data or predict outcomes

Unsupervised Learning

Use of unlabeled data to discover patterns that help solve for clustering or association problems

Reinforcement Learning

Learns structures by being rewarded for desired behaviors and punished for bad ones, closest to human learning

TYPES OF AI

WEAK VS. STRONG

- Aka narrow AI or artificial narrow intelligence (ANI)
- Trained and focused to perform specific tasks
- Drives most AI today
- Enables Apple's Siri, Amazon's Alexa, IBM watsonx™, and self-driving vehicles



TYPES OF AI

WEAK VS. STRONG



- Artificial General Intelligence (AGI) and Artificial Super Intelligence (ASI)
- AGI
 - Theoretical form of AI where machines would have an intelligence equal to humans
 - Machines would be self-aware with a consciousness
- ASI
 - Machines would surpass the intelligence and abilities of the human brain

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RISKS AND CHALLENGES

SOCIETAL AND BUSINESS

TOP SOCIETY RISKS

- Lack of AI transparency and explainability
- Job losses due to AI automation
- Social Manipulation through AI algorithms
- Social surveillance with AI technology
- Lack of data privacy using AI tools
- Biases due to AI
- Socioeconomic inequality as a result of AI
- Weakening ethics and goodwill
- Autonomous weapons powered by AI
- Financial crises brought about by AI algorithms
- Loss of human influence
- Uncontrollable self-aware AI

TOP BUSINESS RISKS AND CHALLENGES



ACCURACY AND
ACCOUNTABILITY



SKILLS GAP



INTELLECTUAL
PROPERTY AND
LEGAL RISKS



COSTS



THE END OF
HUMANITY

AI ADOPTION RATES

Engaging in limited
implementation of AI

33%

22%

Aggressively pursuing
the integration of AI
across a wide variety of
technology product and
business workflows

45%

Still in the exploration
phase

PROHIBITION VS CAUTION

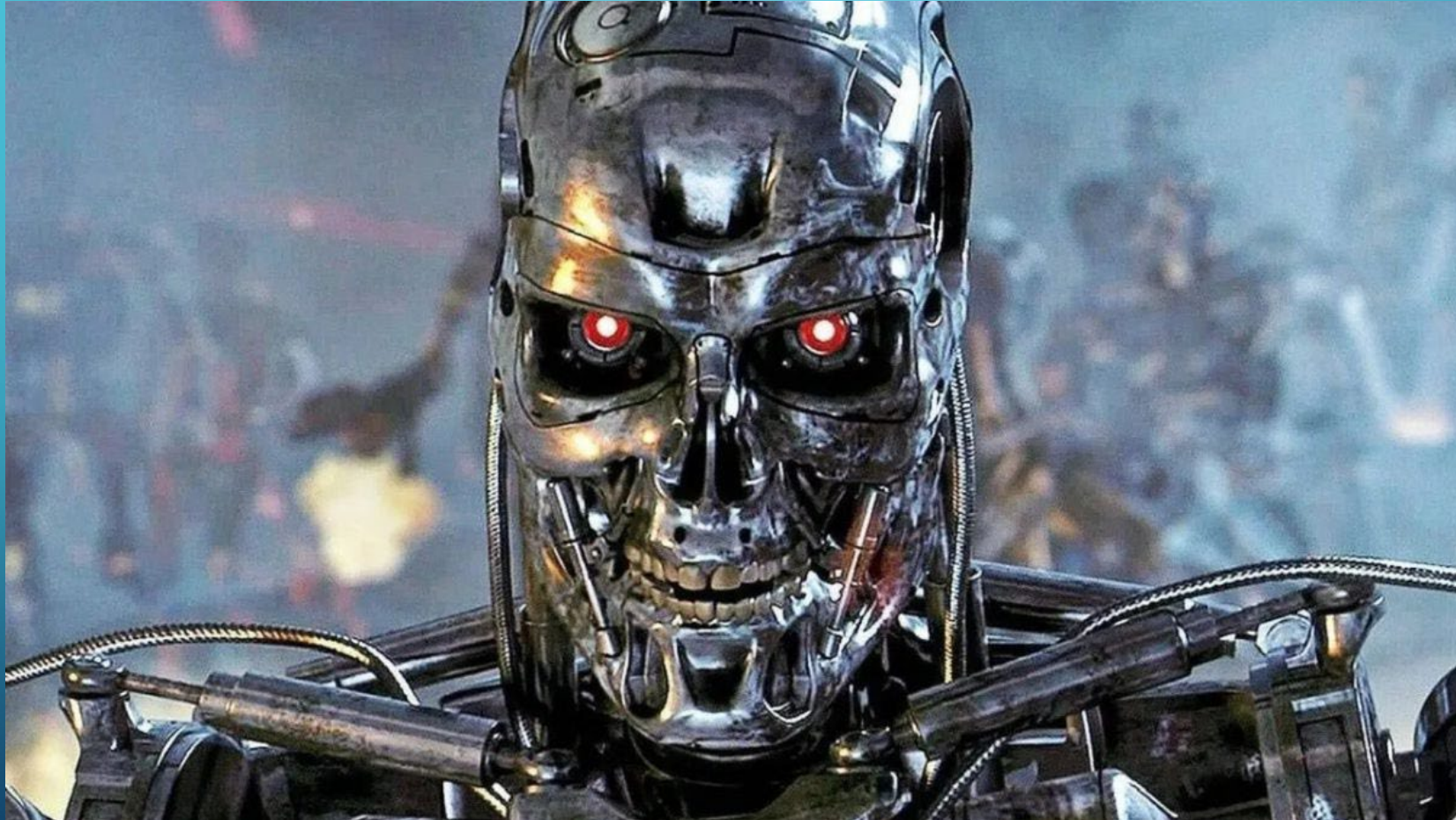


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OPPORTUNITIES

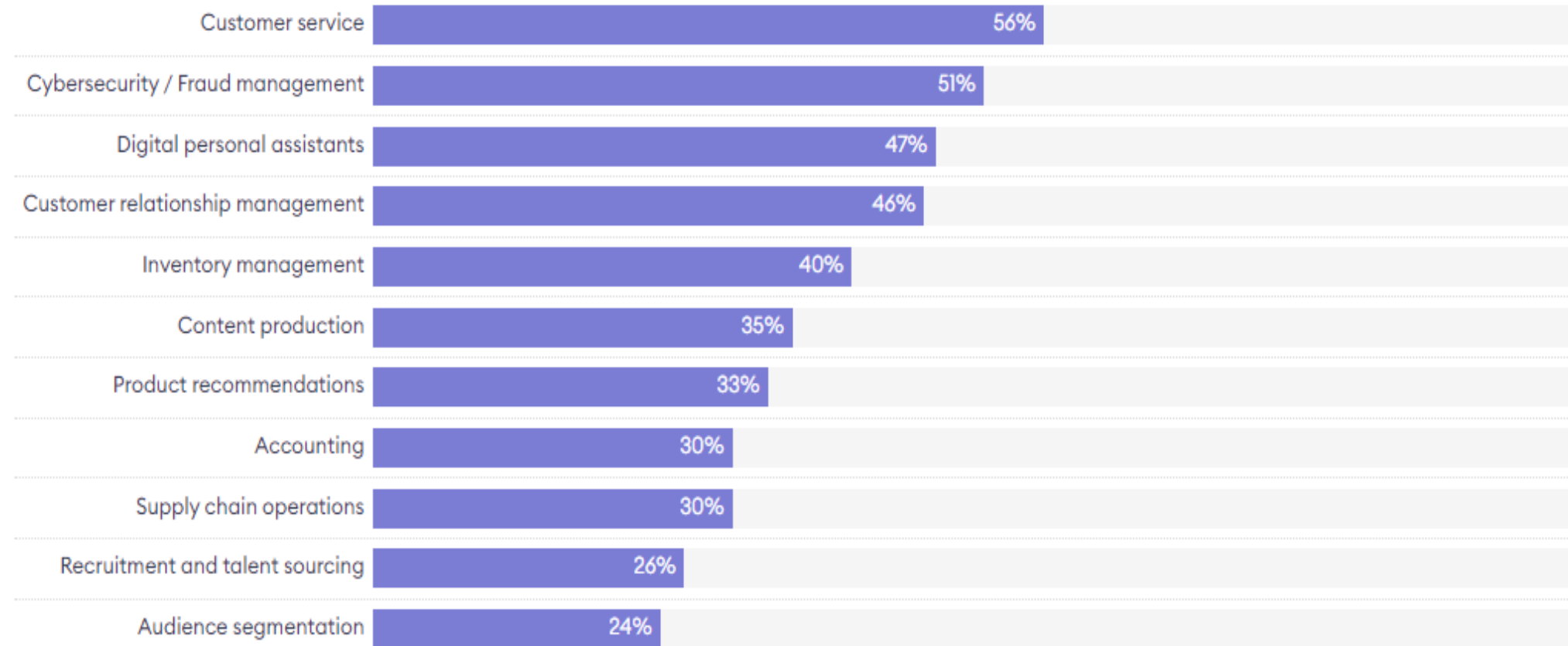
THE PURSUIT OF AI

HOW AI IS BEING USED



Top Ways Business Owners Use Artificial Intelligence

Forbes Advisor surveyed business owners to find out how they currently use or plan to use AI within their business



Source: Forbes Advisor • Embed

Forbes ADVISOR

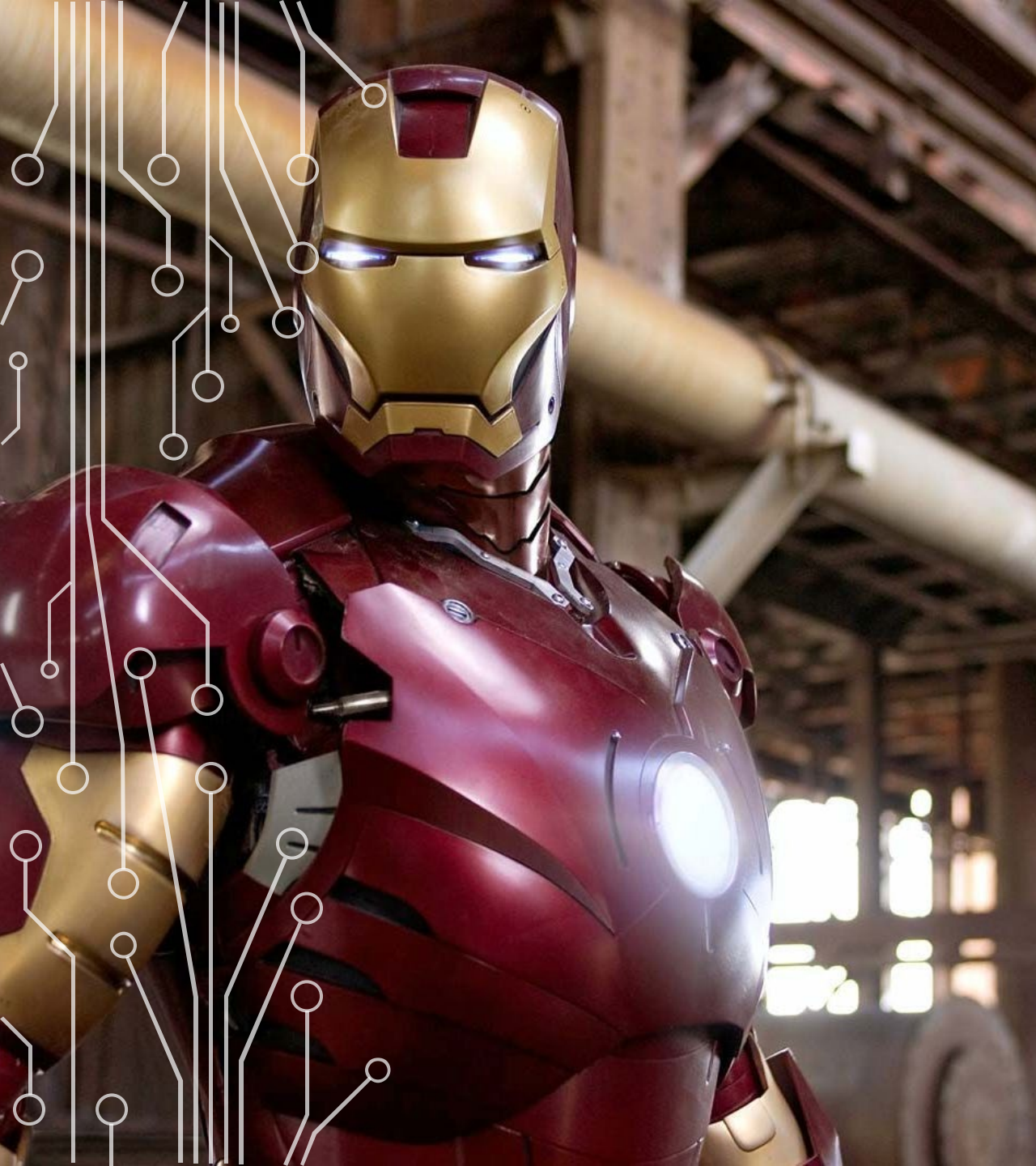
COMMERCIAL VS PUBLIC

COMMERCIAL

- Enacted when users login with school or work accounts
- User and organizational data are protected
- Prompts and responses aren't saved
- No eyes on access
- Chat data isn't used to train underlying LLM

PUBLIC

- Users personal accounts
- All information entered is used to train underlying language models
- Public data (read: searchable internet) has been used to train the system – aka web scraping
- No control over the AI model



AI IS: CAPABILITY ENHANCEMENT

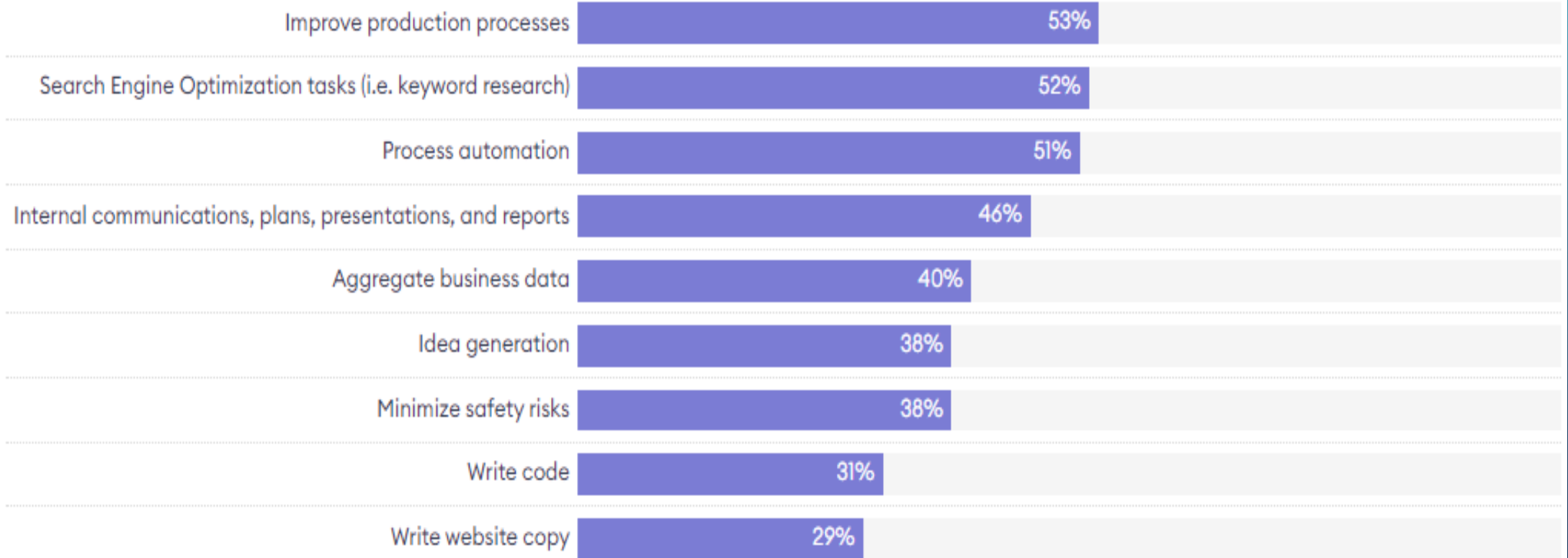


**HIGH
TIME**



**LOW
BRAIN**

Internal Processes Business Owners Use AI to Improve



Source: Forbes Advisor • Embed

Forbes ADVISOR



ADOPTING AI

- Understand what AI is and isn't
- Create an AI adoption strategy
- Assess organization's readiness
- Create a committee
- Find a champion
- Identify the risks
- Understand the impact
- Ensure the correct controls
- Pilot the program
- Don't underestimate people



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