

Exploring the Genius of AI 2024



Noise, Data and Information

Developing Augmented Intelligence

Types of Artificial Intelligence

The Pitfalls of AI

The Human Dimension



Sifting through the noise!!

In a highly data-driven world, our problem is not one of scarcity but one of excess and attention. Important information and knowledge get lost in the noise.

What should we pay attention to?

How can we extract meaning?

What is the data telling us?

How can we apply what we have learned for other situations?



Noise



Data



Information



Knowledge



Data Acquisition & Mining



Data Analysis & Interpretation



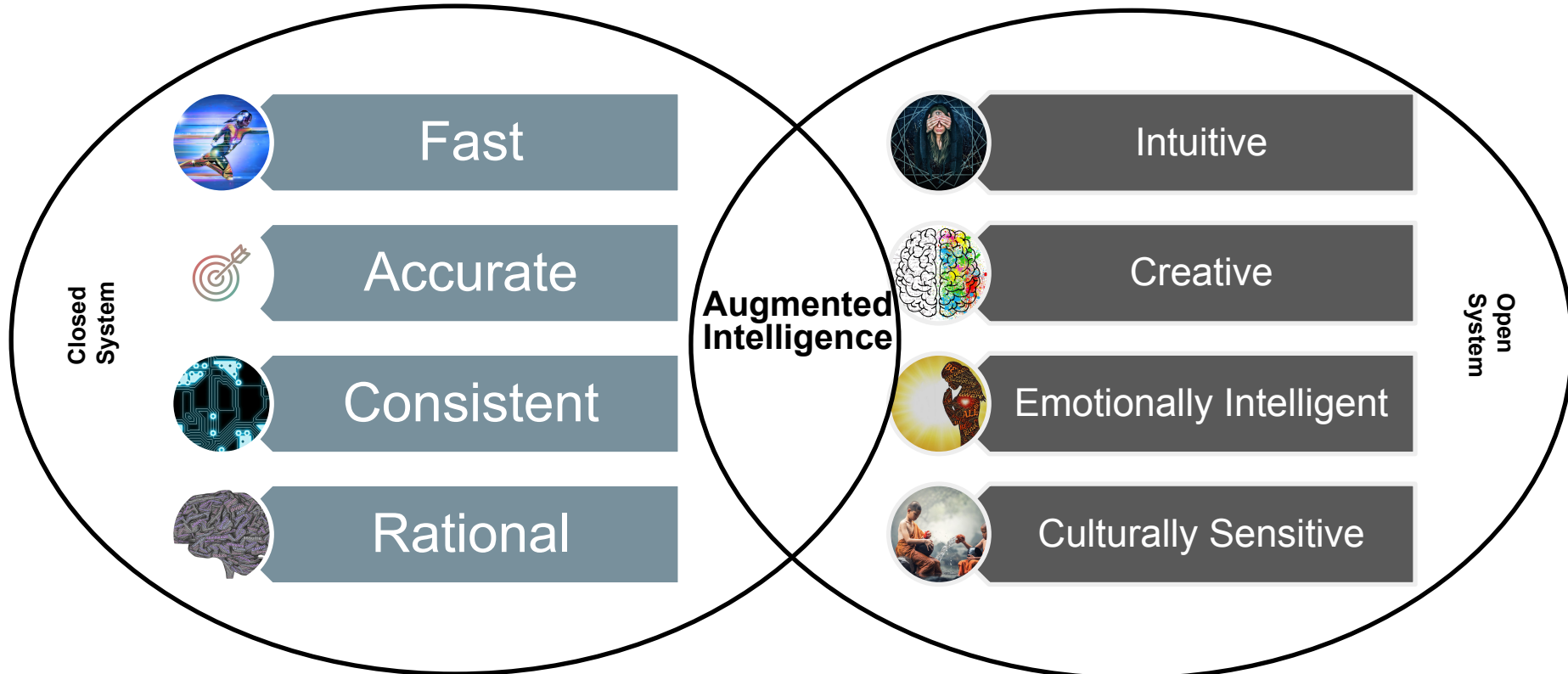
Augmented Intelligence



Augmented Intelligence: A winning team destined for greatness.....

Artificial Intelligence is the Mind

Human Intelligence is the Heart



Robots and Humans are not enemies. They complement each other.

Artificial Intelligence

Robotics

Move,
Assemble,
Pick & Sort

Machine Learning

Learn,
Analyse &
Predict

Communicate

Natural Language Processing

Human Intelligence

Creativity &
Imagination

Innovate

Heuristic
Capability

Teach &
Impart
Knowledge

Build
Relationships

Emotional Intelligence

Is Generative AI
Creating Overlaps
that are taking
over some
domains of
human
intelligence?

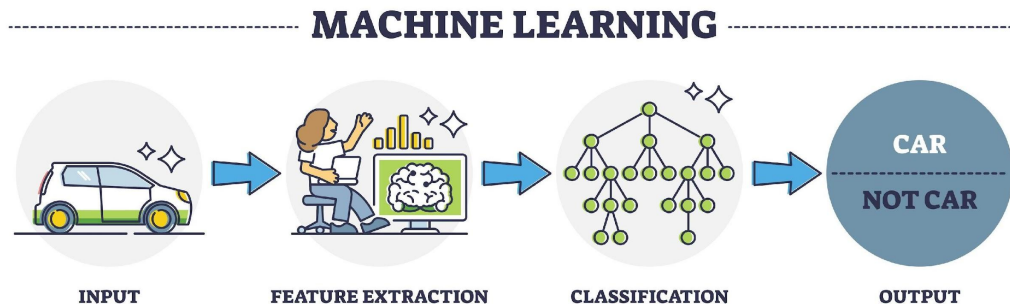


Machine and Deep Learning

Machine Learning and Deep Learning are all about analysis data and predicting outcomes.

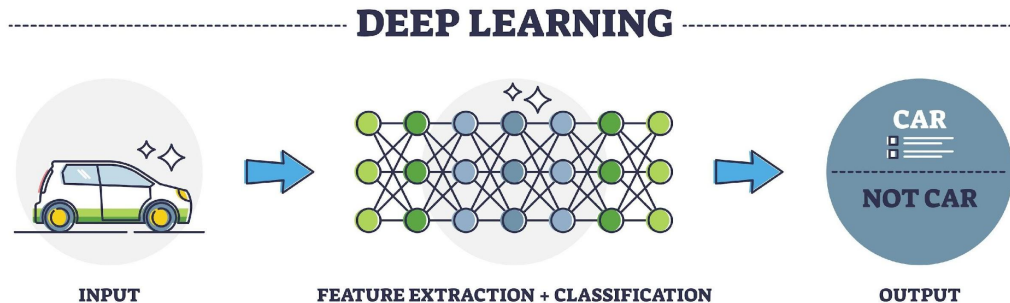
Machine Learning

Develops algorithms that allow computers to learn from and make predictions based on data. Example: Supervised learning, Unsupervised learning, and reinforcement learning.



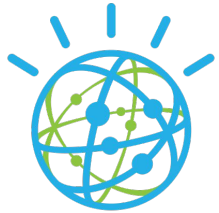
Deep Learning

Uses neural networks with many layers (deep neural networks) to analyze various factors of data. It's particularly effective in image and speech recognition.



Use Cases in Machine Learning

Health Care



IBM Watson

Predictive Analytics for
Disease Diagnosis

Retail

Recommendation
Systems



Agriculture

Precision Farming



JOHN DEERE

Finance

Fraud Detection



Transportation

Autonomous Vehicles



TESLA

Energy

Smart Grid
Management



Manufacturing

Predictive Maintenance



General
Electric

Cyber
Security

Treat Detection **DARKTRACE**



Use Cases in Deep Learning

Computer Vision



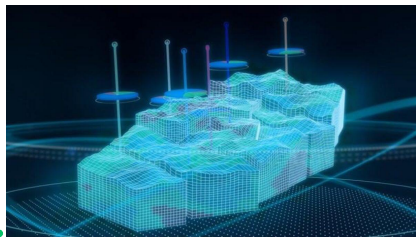
Image
Recognition



Facial
Recognition

Energy

Oil and Gas Exploration



Healthcare



Medical Image
Analysis



Predictive
Diagnostics

Retail



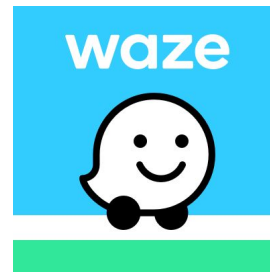
Visual Search

Entertainment



Content
Recommendation

Transportation



Traffic
Prediction &
Management



Natural Language Processing

NLP enables computers to understand, interpret, and generate human language in a way that is both meaningful and useful. This involves a variety of tasks that range from text analysis to language generation.

NLP Components

Linguistic Understanding

NLP Techniques

Syntax

Semantics

Pragmatics

Tokenisation

Part of Speech
Tagging

Named Entity
Recognition

Sentiment
Analysis

Machine
Translation

Speech
Recognition

Text
Summarisation

Topic Modelling



Use Cases in Natural Language Processing

Chat Bots and Virtual Assistants



Google Assistant

Machine Translation



Converting Text from one language to another.

Sentiment Analysis



Determining the emotional tone behind a body of text.

Information Retrieval

Search Engines extract data based on user queries.



SPAM Detection

Filtering out unwanted or harmful images



Text to Speech and Speech to Text



Converting written language to speech and vice versa

Content Generation

Tools that can write articles, generate reports or even compose poetry



Robotics

Robots are programmable machines capable of carrying out a series of actions autonomously or semi-autonomously. Robotics integrates principles from various disciplines, including mechanical engineering, electrical engineering, computer science, and artificial intelligence (AI).

The Key Elements of Robotics

Mechanical Structures

Frame & Body

Actuators

Sensors

Control Systems

Microcontrollers

Software &
Algorithms

Power Supply

Batters & PMS

Communication

Wired &
Wireless
Communication



Use Cases in Robotics

Manufacturing and Automation



Productivity & Precisions.

Health Care



Assistance in Surgery

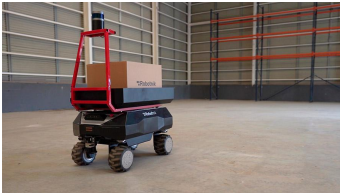
Agriculture



Automated Planting

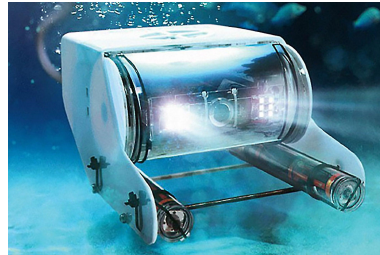
Logistics & Warehousing

Autonomous Mobile Robots



Exploration & Surveillance

Submersible Robots exploring ocean depths



Education & Research



Educational Robots

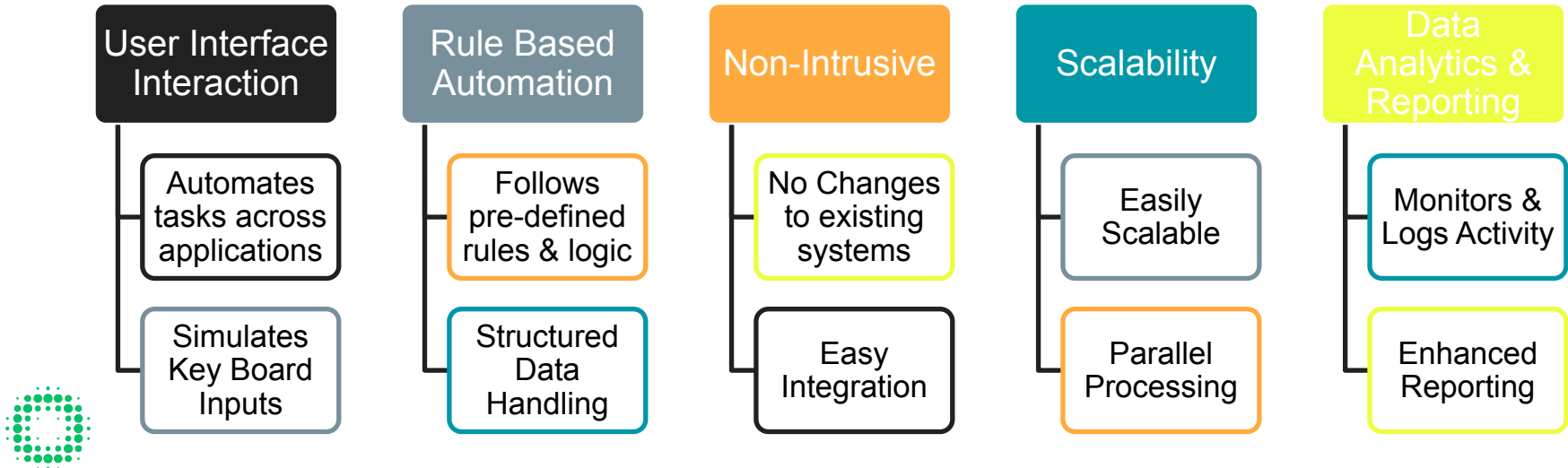


Robotic Process Automation

Robotic Process Automation (RPA) enables the automation of repetitive, rule-based tasks typically performed by human workers.

RPA uses software robots, to mimic and integrate human actions within digital systems to execute a business process.

Key Features



Use Cases in Robotic Process Automation

Finance & Accounting



Invoice Processing

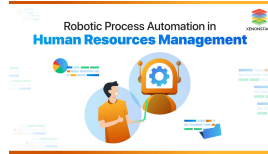


Reconciliation

**Supply Chain
Management**
Inventory
Management



Human Resources



Employee
Onboarding



Payroll
Processing

Shipment Tracking



Customer Service



Query Handling



Order
Processing

Healthcare

Patient Data
Management



Claims Data
Processing



The Pitfalls of AI



Bias and Fairness



Privacy and Security



Lack of Transparency & Accountability



Job Displacement & Economic Impact



Ethical Concerns



Dependence & Over Reliance



Misinformation & Manipulation



Control & Governance



Examples where AI has gone wrong!!!



Cambridge
Analytica

Extraction of more than 87 million accounts from Facebook allegedly used by Cambridge Analytical in favour of Donald Trump's election campaign in 2016



One million pictures of human faces were released without consent to carry out real time face recognition through an AI Based Algorithm without consent.

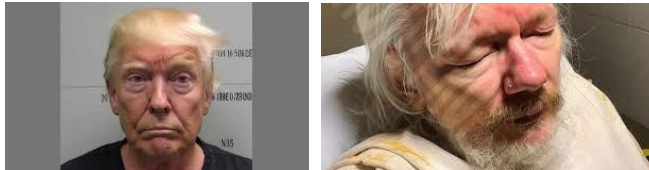


Project Nightingale

Allegedly using and processing medical records & data from millions of patients across 21 states without consent from Doctors and Patients



Use of an AI-enabled Hiring tool that unintentionally presented gender bias against women



Generation of several deep fake images such as Julian Assange in Prison and Donald Trump's mugshot.



Where does Human Intelligence Come In?

While AI excels at processing large volumes of data, identifying patterns, and performing repetitive tasks, humans bring creativity, ethical judgment, emotional intelligence, and the ability to navigate complex, ambiguous situations.



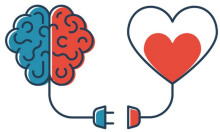
Interpretation and Context Understanding



Ethical Decision Making



Creativity & Innovation



Emotional Intelligence & Empathy



Handling Ambiguity & Uncertainty



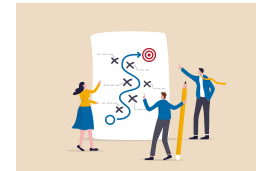
Skill Development & Continuous Improvement



Collaborative Decision Making



Error Detection & Mitigation



Strategic Planning

Thank you for your time!