AI ARTIFICIAL INTELLIGENCE

HISTORICAL MILESTONES

- 1950 Turing test
- 1997 Deep Blue
- 2016 AlfaGo
- 2020 ChatGPT 3
- 2022 DALL-E 2
- 2024 Sora

DEEP LEARNING

- CNN - Convolutional Neural Network
- RNN - Recurrent Neural Network
- GAN - Generative Adversarial Network
- Generator, Discriminator, Transformers
- Attention Mechanisms
- Encoder-Decoder Architectures

TERMINOLOGY

- Generative AI, LLM, Prompt
- Natural Language Processing
- Speech Recognition
- AGI, Singularity, ASI
- Hallucinations, Context Size
- Agents, AIA , Emerging Abilities
- GPU, Tensors, CUDA
- Jailbreak, Prompt Injection, Prompt Hacking

PREDICTIONS

- Singularity in 2024-25
- Employment crisis in 2025-26
  - programmers
  - finance
  - teaching
  - medicine

FUNDAMENTALS

- Machine Learning: -without explicit programming-
  - deep learning (complex neural networks)
  - Supervised and Unsupervised Learning
- Genetic Algorithms
- Search Algorithms
- Continuous Learning
  - retraining and reinforcement learning
- big data
  - Data Mining · Clustering
  - Data Engineer - builds data infrastructure
  - Data Scientist - analyzes patterns and trends
- Cybernetics -control and communication systems-
- Computer Vision -seeing and understanding it-

has these

is very connected with

has some

has a

poses

with

RISKS

- Replacing humanity
- Job losses
- Malicious use
  - Cyberattacks + AI
  - Cyberwars + AI
  - Aggressive states + AI
  - Cybercrime + AI
  - Deepfakes/deception + AI
- Legislation favoring monopolies
- Censorship, bias, loneliness
- Unpredictability unreliability
- Economic instability
- Loss of rights
  - privacy freedom
- Authority fallacy autoritarianism
- AI Affection vs. Human Intimacy

facilitates

LEARNING

- languages Deepai
- summaries
- questions & answers
- training
- self-evaluation
- writing improvement

facilitates

TEACHING

- Preparing materials
- Searching for information
- Summarizing topics
- Question and answer
- Exams and tests
- Evaluation
- Preparing Learning S.
- Fraud detection ??
  - AI Plagiarism Checker
  - plagiarism detector
  - Smodin.io

ALREADY AVAILABLE FUNCTIONALITIES

e.g.

- Finance: Fraud detection
  - risk analysis
  - investment management
- Healthcare: Diagnostic assistance
  - surgery assistance
- Science: drug development
  - algorithms AlfaDev
  - new materials GNoME
  - protein structure discovery
- Entertainment: Recommendations
  - more realistic games - generating music
- Education: Personalized learning
  - student evaluation
  - virtual tutoring
- Transportation: Autonomous vehicles
  - traffic management - route planning
  - waste management
- Manufacturing: - Automation
  - quality control
  - product. process optimization
- Agriculture: Crop monitoring
  - climate prediction
  - resource management
- Others: Customer service
  - machine translation
  - marketing and publicity

e.g.

ARTS

generación de:

- image SDXD
- video Canva
- sound / voice Narakeet
- writing udio
- songs Suno AI

about

teachable in

requires a ethical framework whith certain

LEARNING SITUATIONS

- How to generate ... ?
- What precautions to take?
- What values do we need?
- How to program with AI?
- Which IA tools to use for what?

VALUES

only possible with

Artificial intelligence

- Ethics: 2 approaches principles values
- Auditability/Transparency, Justice
- Privacy Security Well-being
- Ethical Responsibility
- Equality Democracy Sustainability
- Asimov's Laws of Robotics Alignment common good
- Control/Autonomy, Non-maleficence...
- Exploration and advancement in science & tech.

Users

- Critical Thinking Responsibility
- Honesty Discretion

FREE SOFTWARE

facilitates

protects against

- Opem standards
- OpenSource
  - access to training data
- A safeguard against:
  - monopolies
    - vendor lock in
    - the free drug tactic
    - clientelism
  - corruption
  - impunity
- Existing free software:
  - Hadoop Spark
  - pandas Scikit-learn

RESEARCH

- AI powered searches
  - Gemini Perplexity
  - Copilot
- Assess consensus
  - Consensus
- Scientific literature
- Update papers
- Find resources ChatPDF
- Summarize Resoomer
- Identify target areas

AIs PROGRAMAMING

- Function libraries
- Programming languages
- Free courses (without lock-in)
  in universities
  on YouTube
  ...

ACCESSIBLE + FREE

- Equal opportunity
- Educational independence
- +diversity -clientelism

Latest versions of the AI concept map (CCbySA4) at saberlibre.net/AI
More learning materials at Wikimedia and t.me/artificialintelligencekeys
Feel free to improve this map, share it, use it as you wish and please, translate it.
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