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

(AI has these)

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

(AI has a)

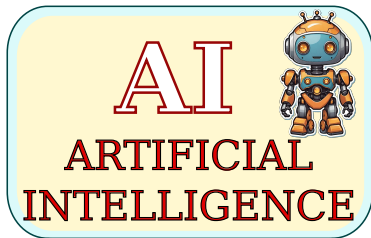## PREDICTIONS
- Singularity in 2024-25
- Employment crisis in 2025-26
  - programmers
  - finance
  - teaching
  - medicine

RISKS *(poses / with)*
- 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

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-

(AI is very connected with / has some / facilitates)

LEARNING *(facilitates)*
- languages · Deepai
- summaries
- questions & answers
- training
- self-evaluation
- writing improvement

TEACHING *(facilitates)*
- 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
  - drug development
- Transportation: Autonomous vehicles
  - traffic management
  - route planning
  - waste management
- Entertainment: Recommendations
  - creating more realistic games
  - generating music
- Education: Personalized learning
  - student evaluation
  - virtual tutoring
- Manufacturing: Automation
  - quality control
  - production process optimization
- Agriculture: Crop monitoring
  - climate prediction
  - resource management.
- Others: Customer service
  - machine translation
  - marketing and advertising
  - protein structure discovery.

ARTS *(about)*
generación de:
- image · SDXD
- video · Canva
- sound / voice · Narakeet
- writing
- songs
  - udio
  - Suno AI

LEARNING SITUATIONS *(teachable in / requires a ethical framework whith certain)*
- How to generate ... ?
- What precautions to take?
- What values do we need?
- How to program with AI?
- Which IA tools to use for what?

RESEARCH *(e.g.)*
- AI powered searches
  - Gemini · Perplexity
- Assess consensus
  - Consensus
- Scientific literature
- Update papers
- Find resources
- Summarize · ChatPDF · 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

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
- Caution, · 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