

### 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

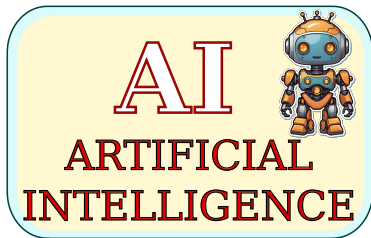
- Singularity in 2024-25
- Employment crisis in 2025-26
  - programmers
  - finance
  - teaching
  - medicine

### 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-

### ALREADY AVAILABLE FUNCTIONALITIES

- 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



### LEARNING

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

### 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

### 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?

### ARTS

- generación de:
- image • SDXD
  - video • Canva
  - sound / voice • Narakeet
  - writing • audio
  - songs • Suno AI

### RESEARCH

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

### AI'S PROGRAMMING

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

### ACCESSIBLE + FREE

- Equal opportunity
- Educational independence
- +diversity -clientelism

### VALUES

- 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

- Open 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