JUNIA ISEN

Artificial Intelligence

Introduction

JUNIA-ISEN / M1 / 2024-2025
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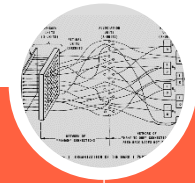
AI Timeline

1943
McCulloch & Pitts
First model of Artificial Neuron

1950
Turing Test
« Can machines think ? »

1955
John McArthy
The **AI** Term



1960
Perceptron
Trial & error

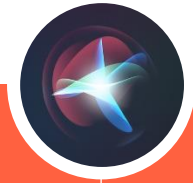
1964
Eliza
First Chatbot

70' .. 80'
AI WINTER

1997
Dragon Dictate
Speech recognition

1997
DeepBlue
beats G. Gasparov at chess

2009
Google
Self driving car



2011
Siri
Vocal Assistant

2011
IBM Watson
wins Jeopardy

2016..
TAY
Microsoft Chatbot

2017
AlphaGO
beats Lee Sedol at Go

2017
Transformers

2020
OpenAI GPT-3
Biggest AI Model

2020
AlphaFold 2

2021
Github Copilot

2022/2023
DALL.E 2
ChatGPT
Stable Diffusion
MidJourney
GPT-4
Google Bard
Bing Conversation
...

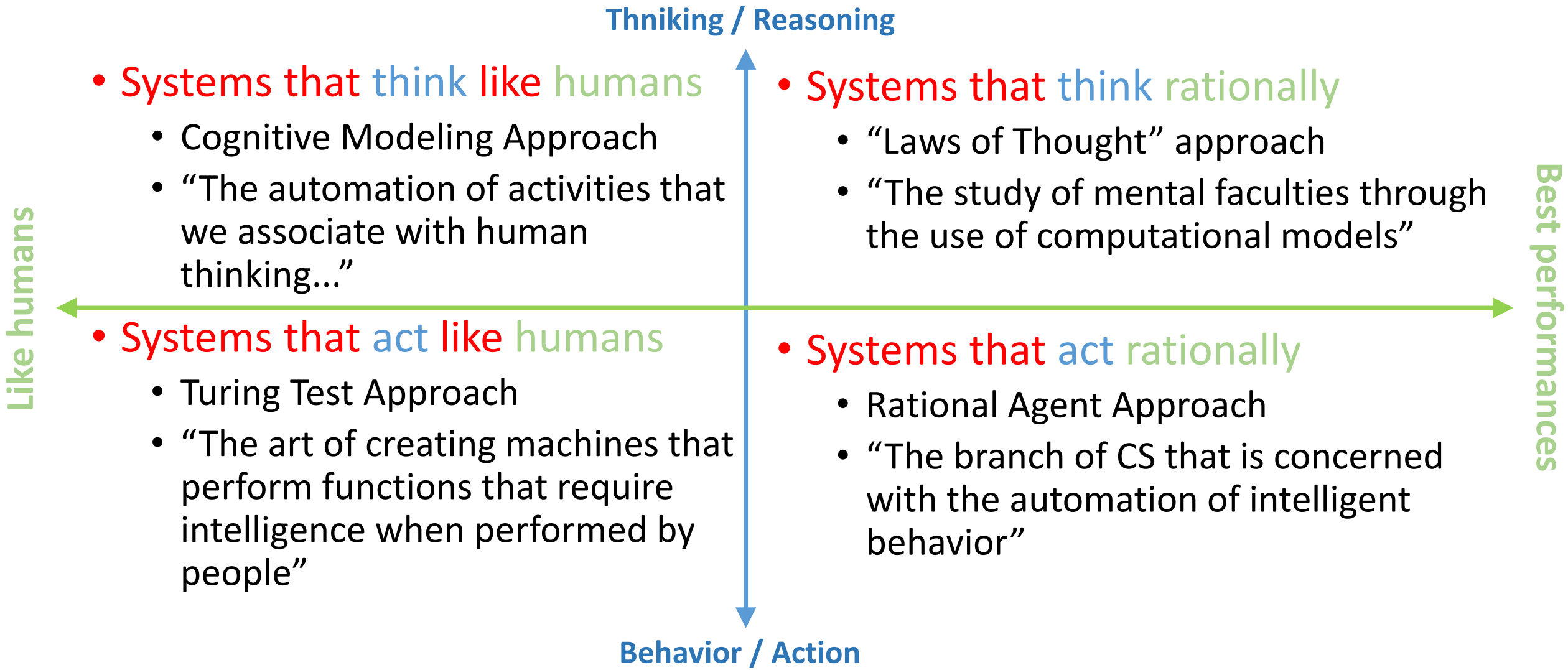
Videos

- **Machine Learning: Living in the Age of AI | A WIRED Film**
  https://www.youtube.com/watch?v=ZJixNvx9BAc
- **La ligne rouge est-elle franchie ? L'âge de l'IA**
  https://www.youtube.com/watch?v=UwsrzCVZAb8
- **AlphaGo The Movie**
  https://www.youtube.com/watch?v=WXuK6gekU1Y
- **The rise of AI**
  https://www.youtube.com/watch?v=eX7iYN4wCWo
- **AI pros and cons**
  https://www.youtube.com/watch?v=s0dMTAQM4cw

What is Artificial Intelligence?

- Not just studying intelligent systems, but building them…
- Psychological approach: an intelligent system is a model of human intelligence
- Engineering approach: an intelligent system solves a sufficiently difficult problem in a generalizable way

What is Artificial Intelligence? (Again)



- Systems that think like humans
  - Cognitive Modeling Approach
  - "The automation of activities that we associate with human thinking..."
- Systems that think rationally
  - "Laws of Thought" approach
  - "The study of mental faculties through the use of computational models"
- Systems that act like humans
  - Turing Test Approach
  - "The art of creating machines that perform functions that require intelligence when performed by people"
- Systems that act rationally
  - Rational Agent Approach
  - "The branch of CS that is concerned with the automation of intelligent behavior"

Algorithms

Techniques

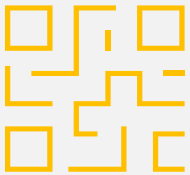
Concepts

Methods

Tools

Mimic human or other species

Deal whith huge amounts of complex data

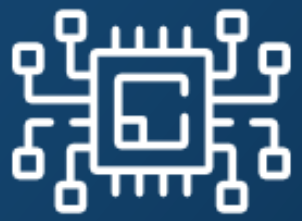


Discover and adapt
to new cases and situations

Artificial intelligence

Engineering of making intelligent machines and programs.

Rules



Machine Learning

Ability to learn without being explicitly programmed.

Examples

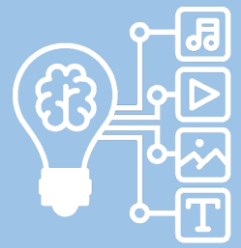
Deep Learning

Learning based on deep neural networks.

Experience

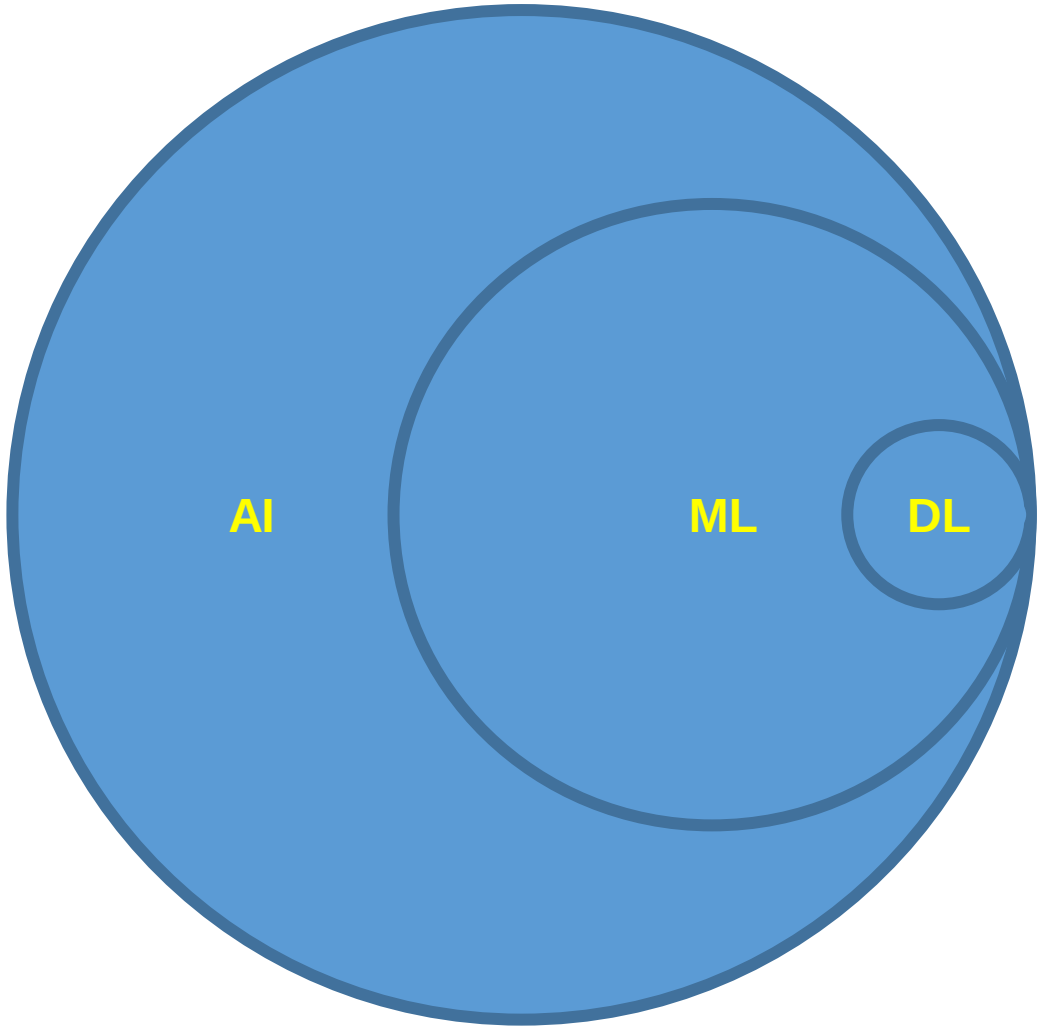
Generative AI

Generates new original outputs

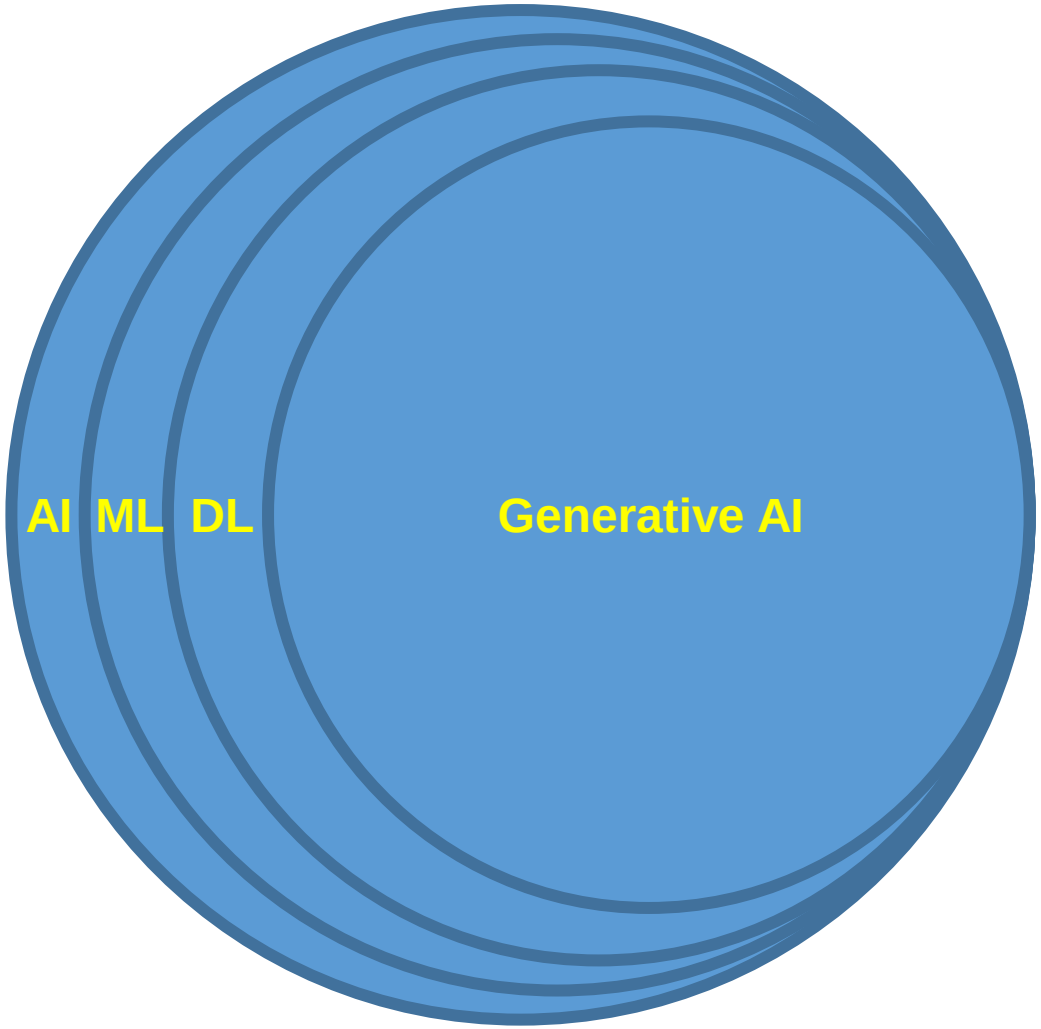


Creation

1950 1960 1980 1980 2000 2010 2015 2020 2022 2025



2012



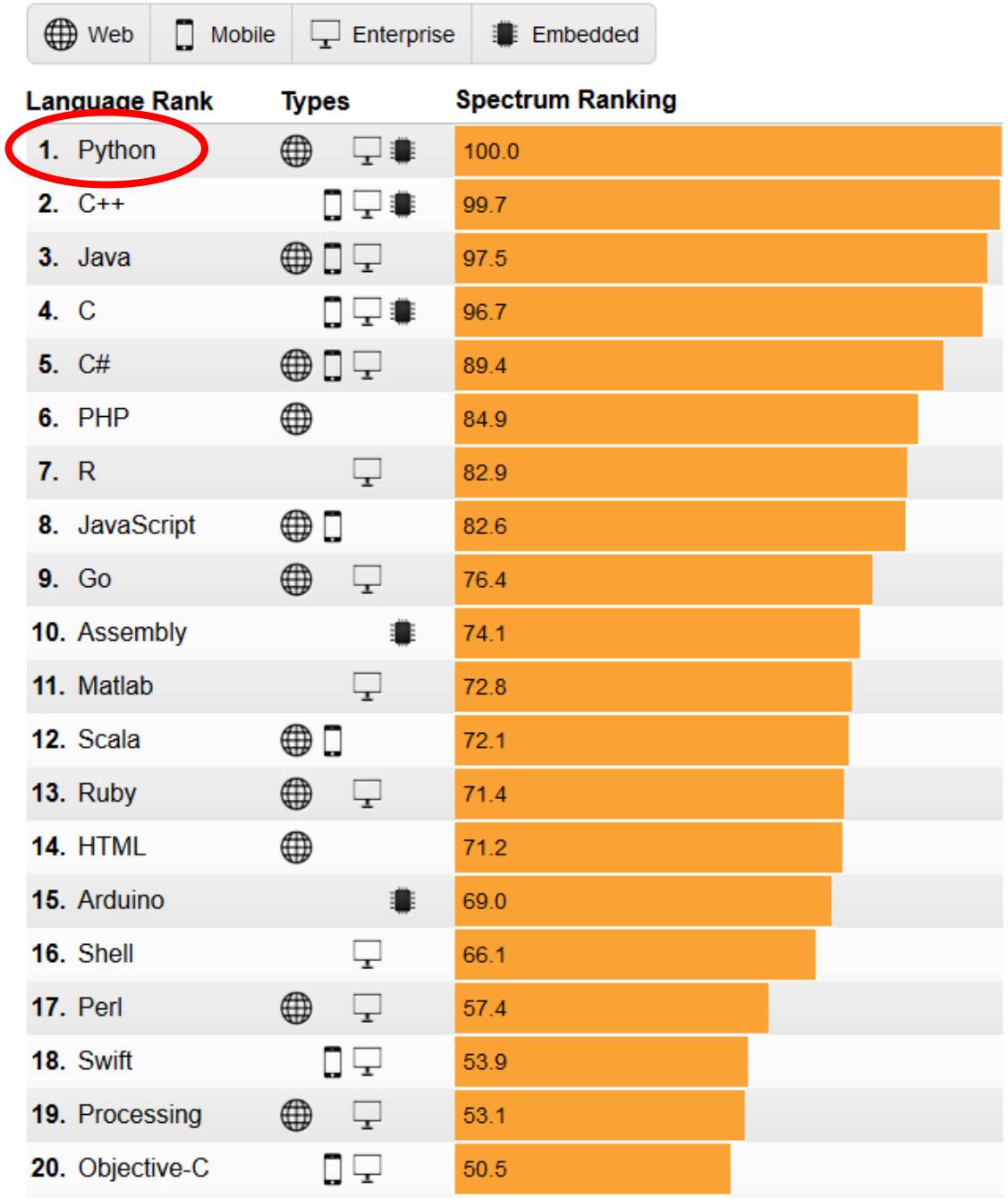
Today

Course program

- Introduction to Artificial Intelligence
- Machine Learning : Supervised Learning
- Machine Learning : Unsupervised Learning
- Introduction to Neural Networks
- Convolutionnal Neural Networks
- Deep Learning Architectures …

Labworks : Why Python?

- Python AI libraries: AIMA, pyDatalog, SimpleAI, EasyAi, OpenAI, …
- Python libraries for machine learning: PyBrain, MDP, scikit, PyML, ...
- Natural Language and Text Processing libraries.



Labwork #1

Getting started with python and numpy environments