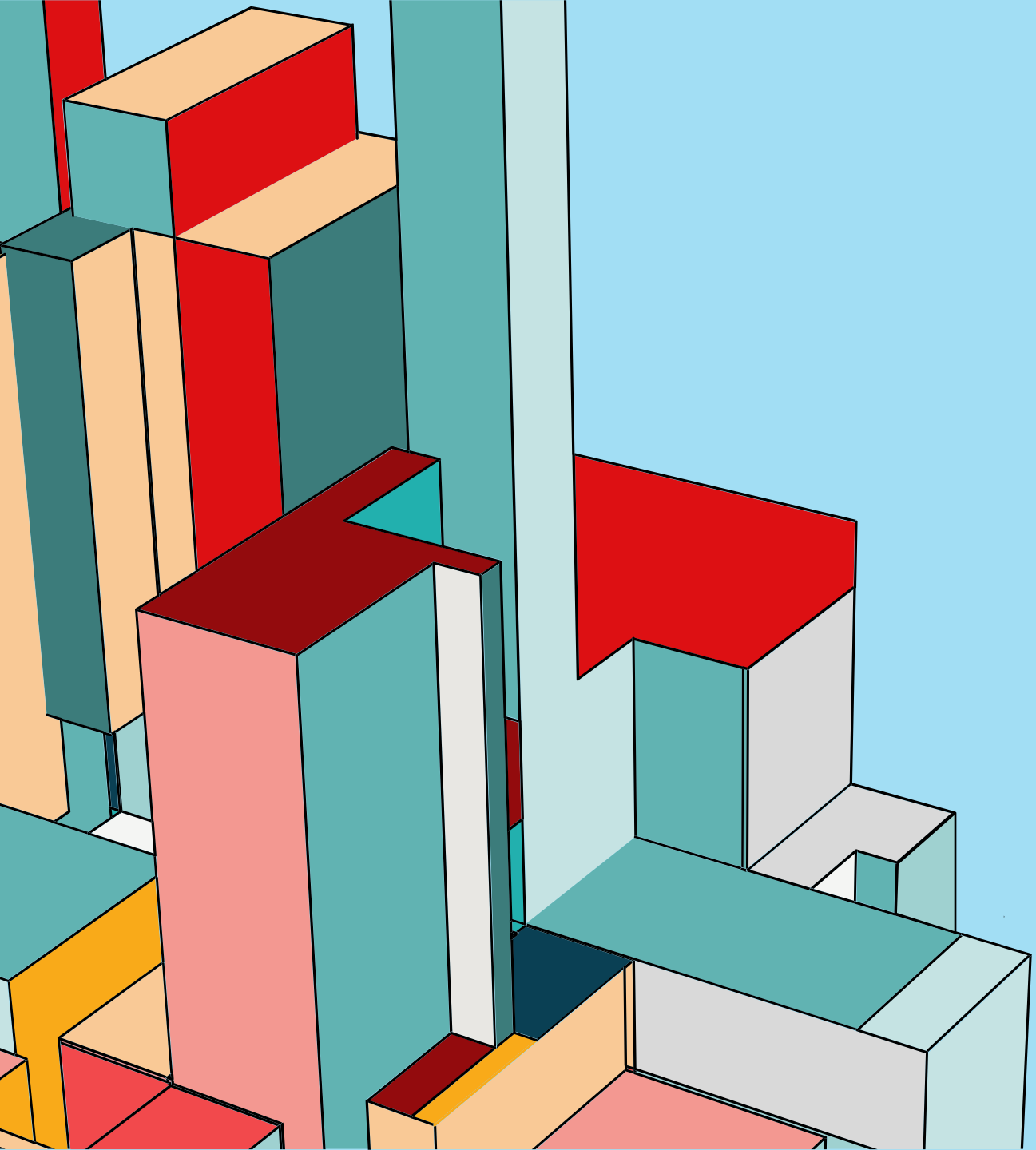


MACHINE LEARNING

WHAT IS MACHINE LEARNING?

Machine learning is a branch of artificial intelligence that allows systems to learn from data and improve their performance without manual programming. This technology analyzes data to identify patterns and use them to make predictions or decisions.

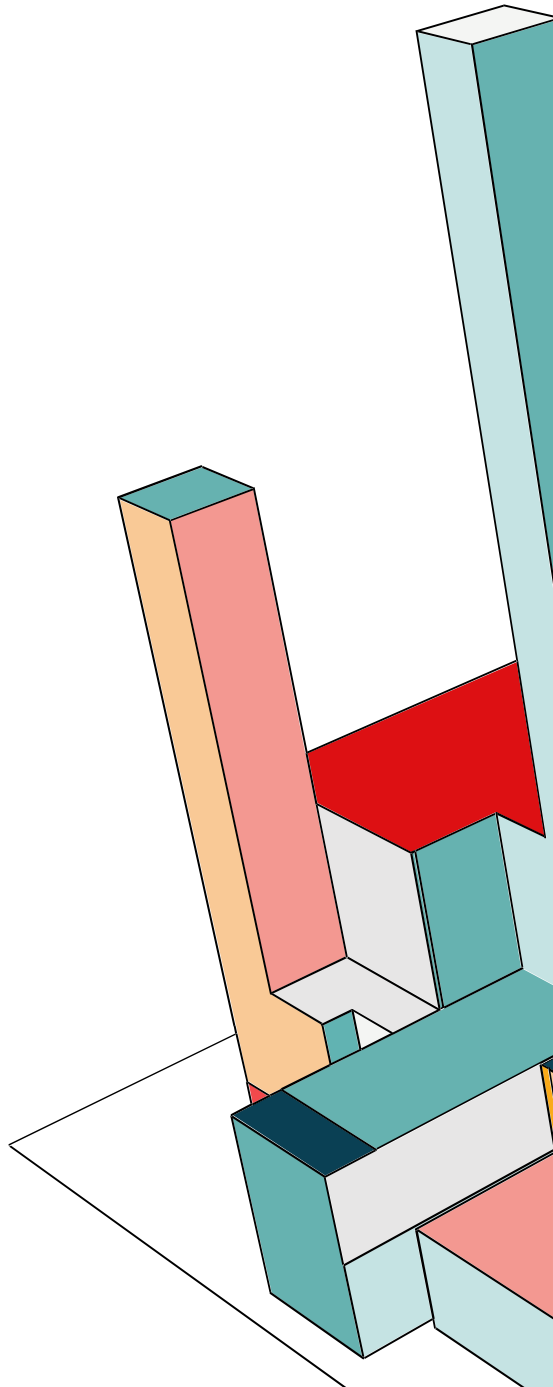
Three main types of machine learning:

Supervised learning: Trains on labeled data (such as detecting spam emails).

Unsupervised learning: Discovers patterns from unlabeled data (such as clustering).

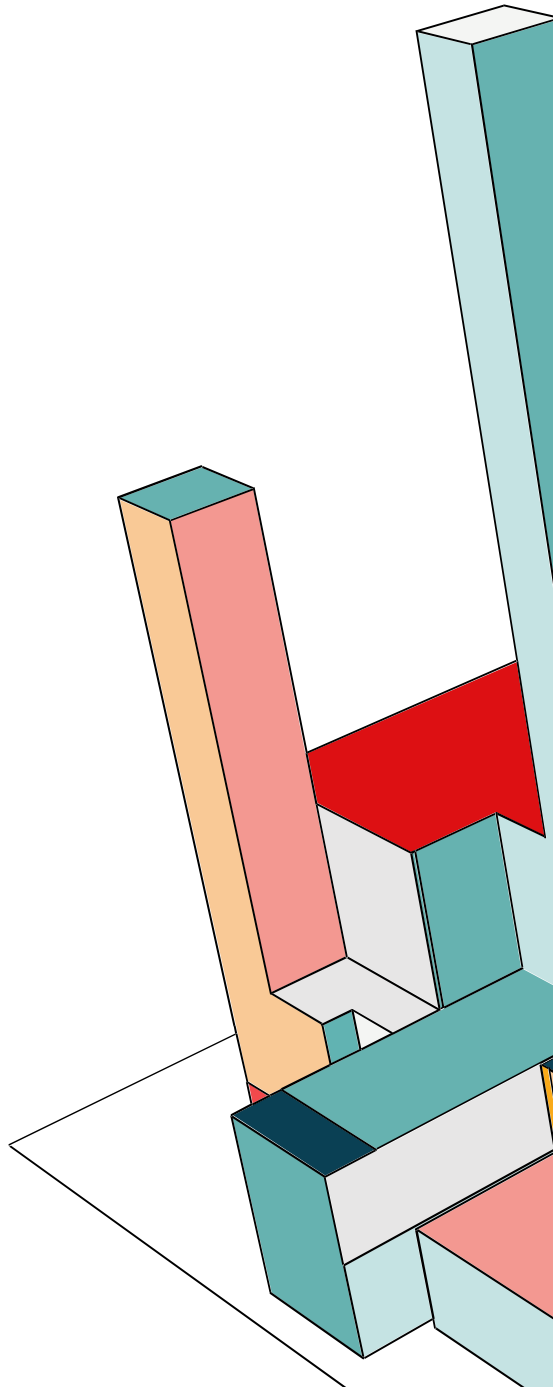
Reinforcement learning: Learns through trial and error and feedback (such as training a robot).

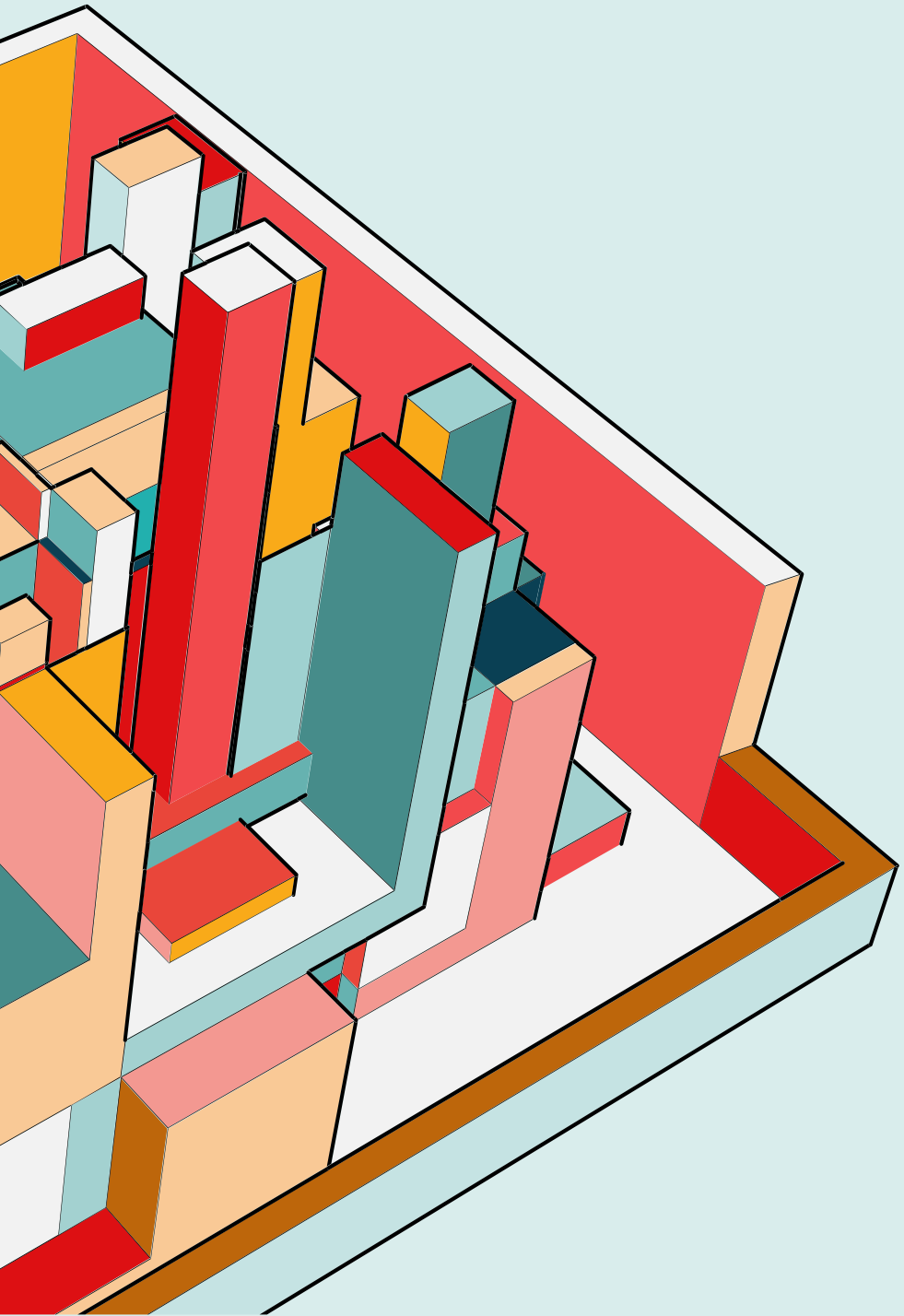
Applications include image recognition, language processing, medicine, and finance, and become more accurate with more data.



WHAT DOES MACHINE LEARNING HAVE?

- Supervised learning
- Unsupervised learning
- Reinforcement learning





DEEP LEARNING

From artificial neural networks

WHAT IS DEEP LEARNING?

Deep learning is a subfield of machine learning that uses artificial neural networks with multiple layers to analyze data and learn complex patterns. Inspired by the structure of the human brain, this method allows systems to automatically extract features from raw data.

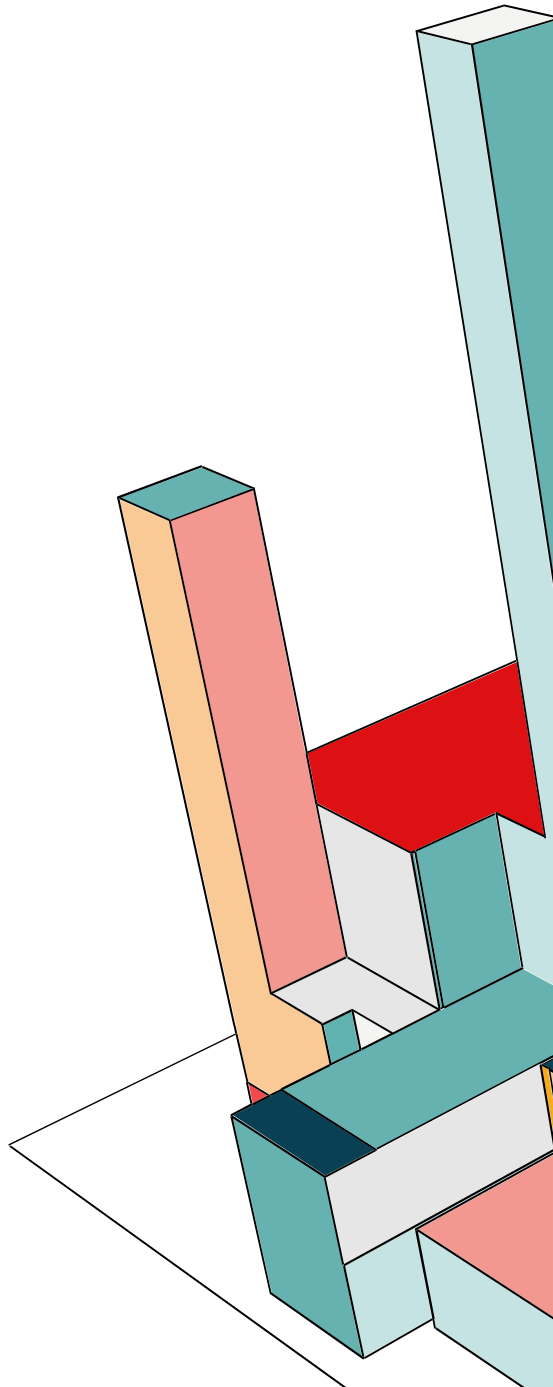
Main types and applications:

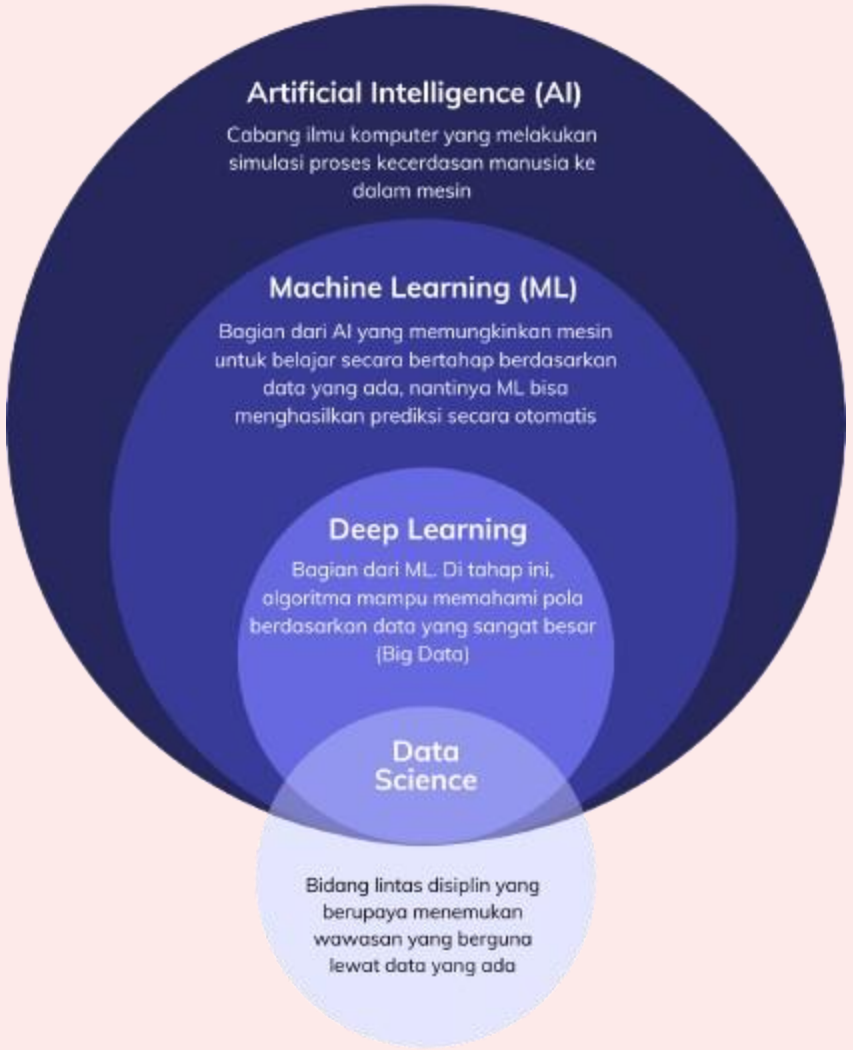
Convolutional networks: For image and video recognition (such as object recognition).

Recurrent networks: For processing sequences such as natural language or prediction.

Applications: Automatic translation, speech recognition, and autonomous driving.

Deep learning performs better with large amounts of data and high computing power (such as GPUs) and has grown significantly in recent years due to advances in hardware and algorithms.





A PICTURE OF ALL AIS

WHAT IS JUPYTER NOTEBOOK

Jupyter Notebook is an interactive environment for programming and data analysis that allows users to combine code (such as Python), text, mathematical equations, and graphs in a single document. It is a popular tool for teaching, researching, and developing data mining and machine learning.

Key features:

- Execution cells: Run code in chunks and display output instantly.

- Multilingual support: Supports languages such as Python, R, and Julia.

- Visualization: Easily create graphs and tables.

- Storage: Projects are saved as shareable files (in .ipynb format).

Uses include testing algorithms, documenting, and presenting results, and are especially popular in data science and artificial intelligence.

JUPYTER NOTEBOOK COMMAND

pip install jupyter

- jupyter notebook
- Shift + Enter: Run and move to next cell
- Ctrl + Enter: Run only
- Esc then D, D: Delete cell
- Ctrl + S: Save
- Kernel > Interrupt: Stop execution
- Kernel > Restart: Restart kernel
- print?: Display documentation
- Ctrl + C: Exit terminal

DEFINITION OF ALL AIS

Artificial Intelligence (AI)	Machine Learning (ML)	Deep Learning	Data Science
Artificial intelligence is a branch of computer science that aims to build systems that can perform tasks that typically require human intelligence, such as learning, reasoning, problem solving, language understanding, or even image recognition. Simply put, AI attempts to enable machines to mimic intelligent human behavior. AI includes various subfields such as machine learning and deep learning.	Machine learning is a subset of artificial intelligence that focuses on developing algorithms that allow machines to learn from data and improve their performance without explicit programming. For example, in ML, a model can learn patterns and make predictions by examining past data (such as predicting house prices or detecting spam in emails). ML methods include supervised, unsupervised, and reinforcement learning.	Deep learning is a subfield of machine learning that uses artificial neural networks with multiple layers (deep layers). This method is very powerful for processing complex data such as images, sound, or text. For example, facial recognition in photos or automatic language translation are applications of deep learning. Deep learning requires a lot of data and high computing power.	Data science is a multidisciplinary field that uses scientific methods, algorithms, and computational tools to extract information and insights from data (structured or unstructured). Data science involves various steps such as data collection, cleaning, analysis, and visualization, and uses statistical techniques, machine learning, and even deep learning. It aims to solve real-world problems such as analyzing customer behavior or predicting trends.

THANKS

Thank you for looking at my research.

THANK YOU

Programming month

https://github.com/Programmingmonth