

AI EMPOWERING BUSINESS

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PRESENTATION

- ▶ AI is a multi-dimension tool
- ▶ how a program can be intelligent?
- ▶ reasoning = logic
- ▶ automatic execution of business logic
- ▶ use "past-experience" by learning from data
- ▶ pro and con of AI

OUTLINE

- ▶ **intelligence = human-like decision**
- ▶ **Intelligence = human-like reasoning**

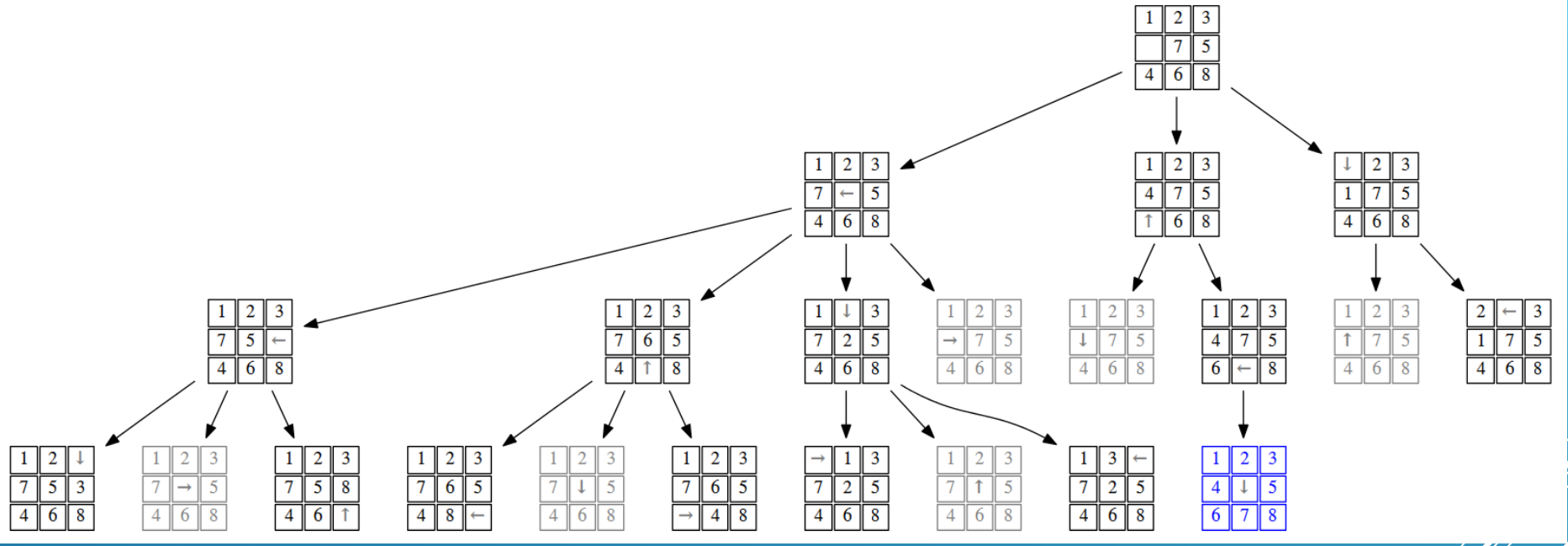
WHAT IS INTELLIGENCE?

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- ▶ reasoning = logic
- ▶ if this then that
- ▶ represent domain of interest in computer
- ▶ search for optimal condition in "state-space"

INTELLIGENCE



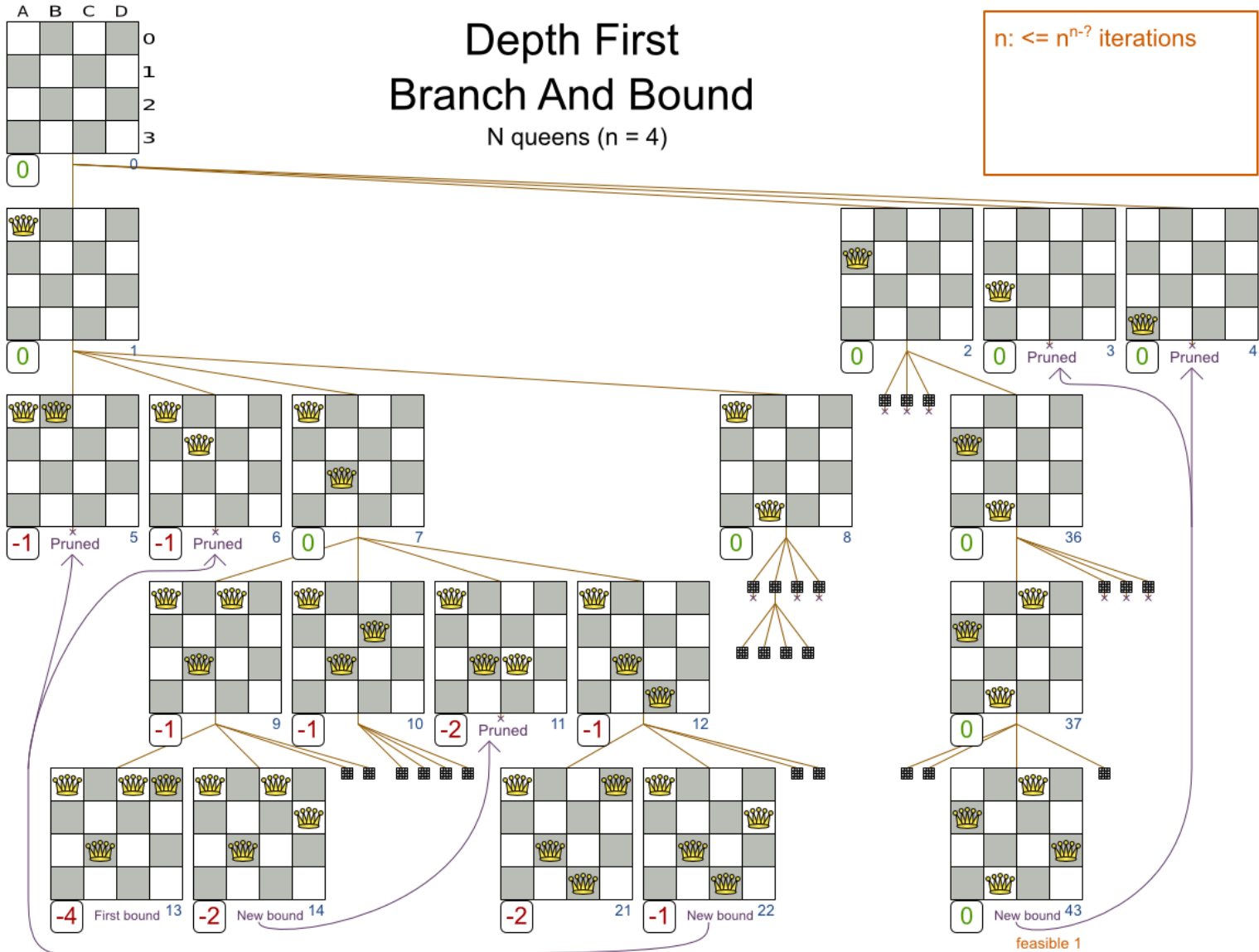


STATE SPACE OF 15-PUZZLE GAME

Depth First Branch And Bound

N queens (n = 4)

n: $\leq n^{n-1}$ iterations

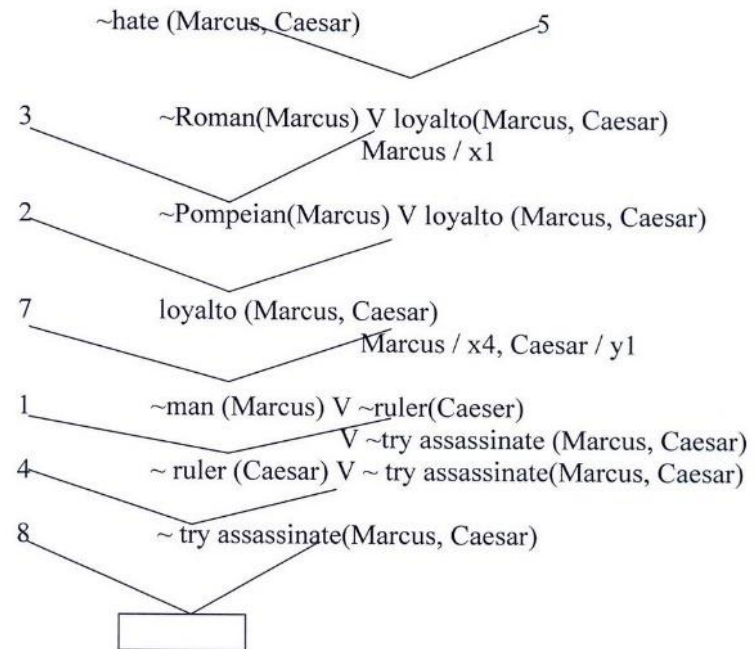


REASONING BY LOGIC

In order to use the above resolution roofs, they must be converted to clause form as given below:

1. man (Marcus)
2. Pompeian(Marcus)
3. \sim Pompeian(x1) \vee roman (x1)
(from Pompeian (x1) \rightarrow Roman (x1))
4. ruler (caesar)
5. \sim Roman (x2) \vee loyalto (x2, Caesar) \vee hate (x2, Caesar)
6. loyalto (x3, fl(x3))
7. \sim man(x4) \vee \sim ruler(y1) \vee \sim try assassinate(x4,y1) \vee loyalto (x4, y1))
8. try assassinate (Marcus, Caesar)

Suppose our goal is to answer the question of the assertion S, ie., hate (Marcus, Caesar) . The resolution procedure has been illustrated below.



The empty clause shows that \sim hate (Marcus, Caesar) produces a contradiction or hate(Marcus, Caesar) will not produce a contradiction with the known statements.

- ▶ **automatic execution of business logic**
- ▶ **Monitoring real-time events**

example

- ▶ **checking sale-promotion conditions**
- ▶ **evaluate loan application**
- ▶ **verify human-user of bank account**

EXAMPLES OF AI

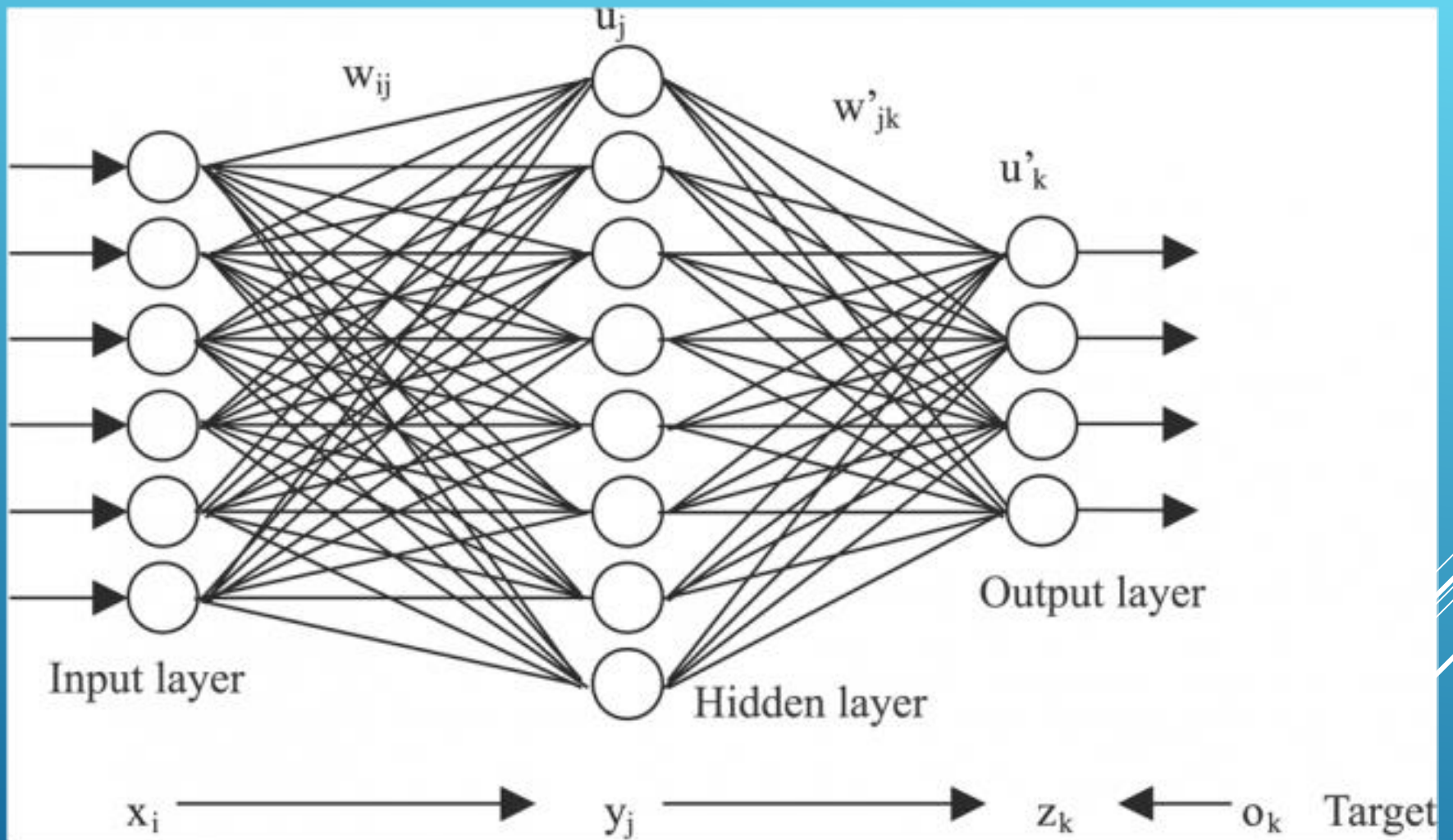


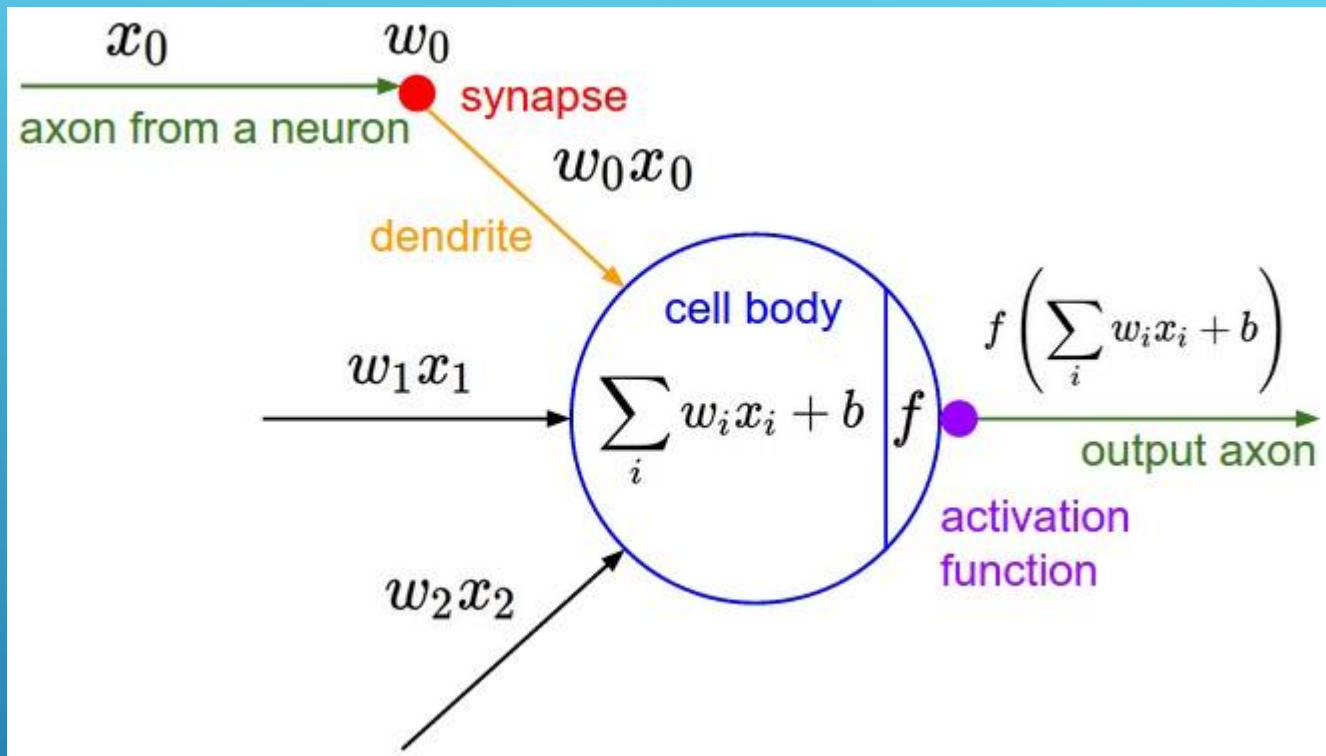
Learning = use past experience

- ▶ **neural network**
- ▶ **deep learning = many layers of NN**

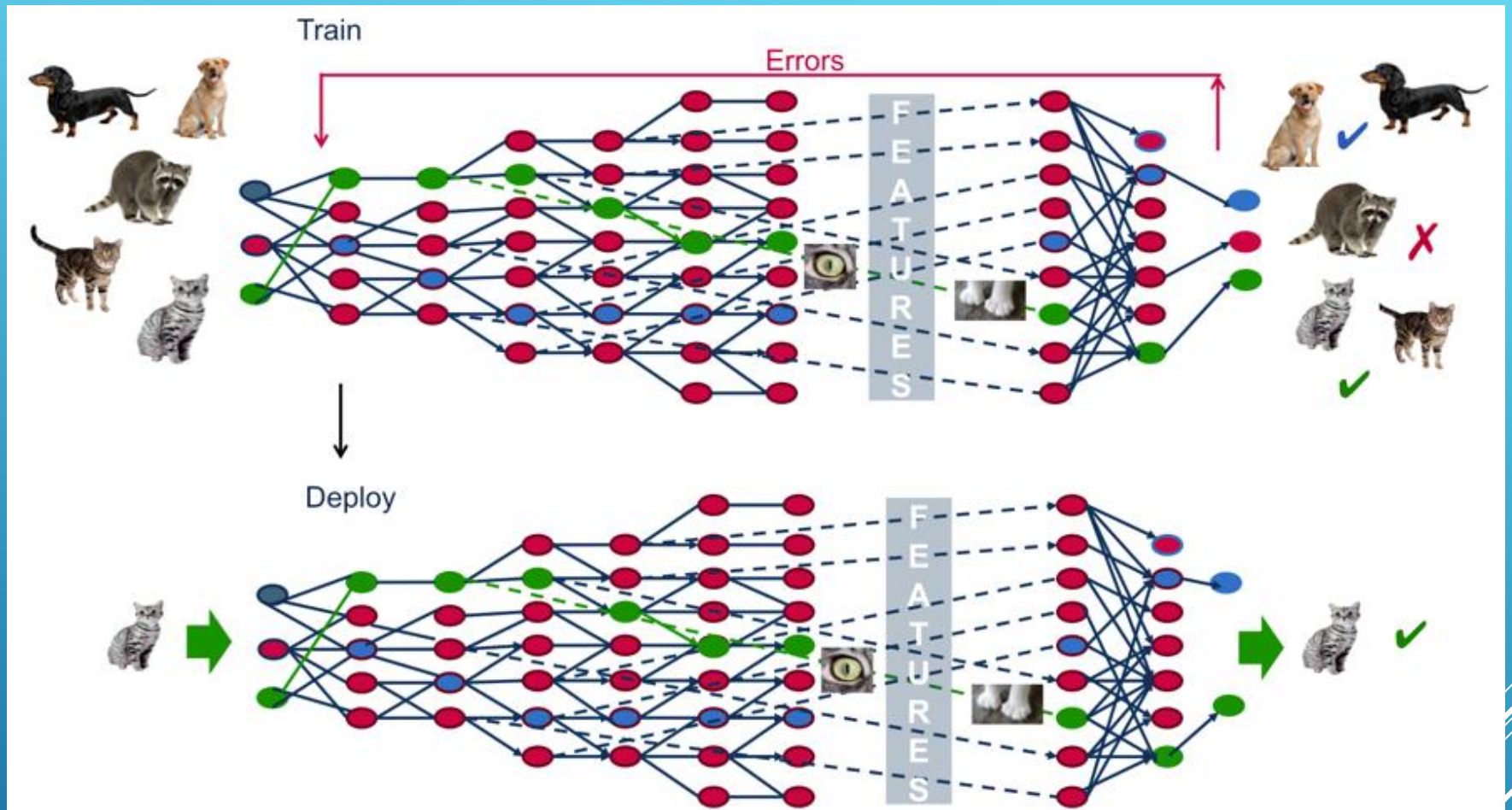
LEARNING

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NEURON MODEL

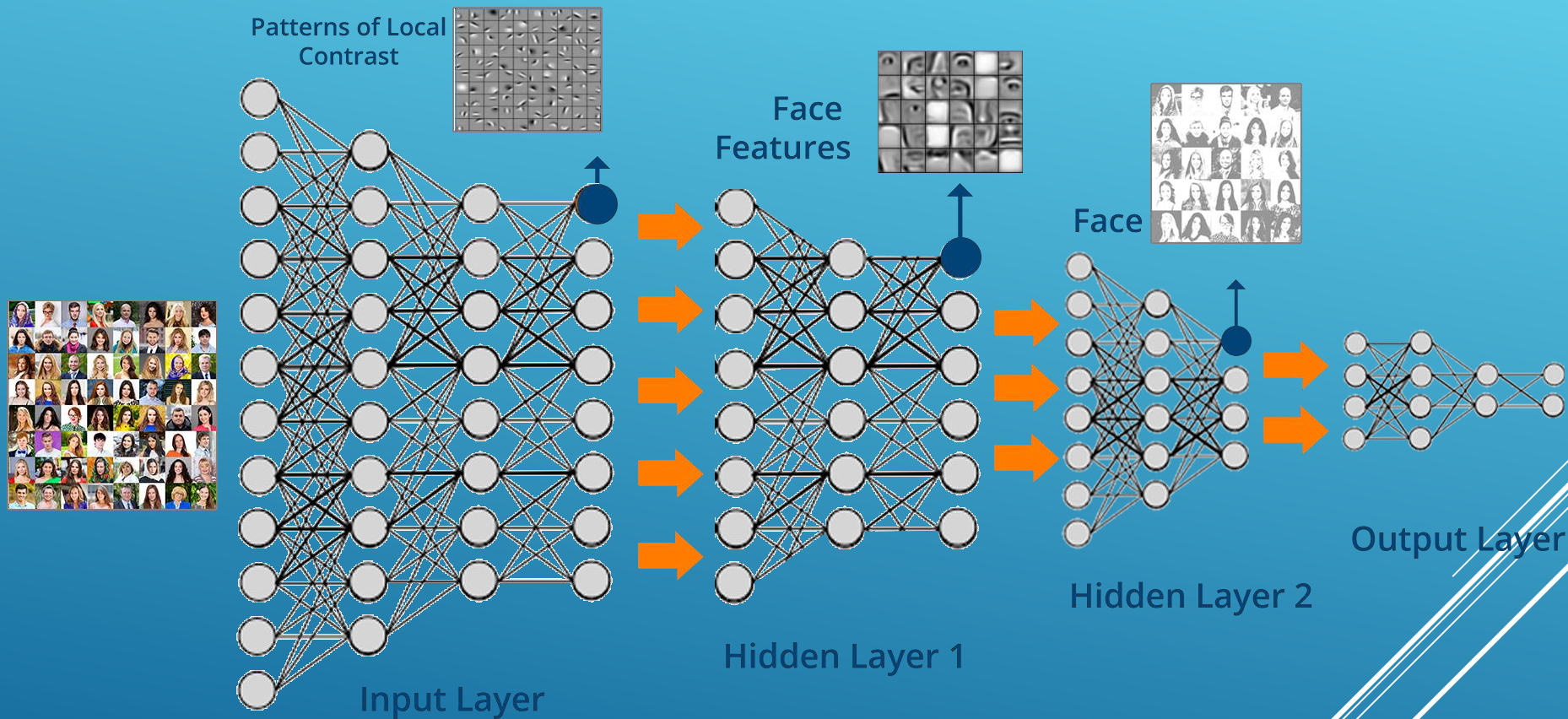


DEEP LEARNING

- ▶ **person identification**
- ▶ **speech recognition**
- ▶ **automatic assistance**

APPLICATIONS OF NN





▶ **pro**

▶ **new service innovation**

▶ **efficient business operation**

▶ **support management decision in real-time**

AI ADVANTAGES



▶ **con**

▶ **data and privacy**

▶ **accountability**

▶ **expensive**

DIFFICULTY IN USING AI

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