



FCU SoC Lab
100 200 300



掌中智慧－ 新AI人工智慧簡介

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人工智慧



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LCC 2008 F910

- 英語：**artificial intelligence**，縮寫為 **AI**
- 指由人製造出來的機器所表現出來的智慧
 - Strong AI: 希望電腦能夠擁有智慧
 - Weak AI: 希望電腦能夠展現出有智慧的外顯行為

The Laws of Robotics



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- In *Robots and Empire*, by Asimov
 - A robot may not harm *humanity*, or by inaction, allow humanity to come to harm.
 - A robot may not injure a human being or, through inaction, allow a human being to come to harm, except when required to do so in order to prevent greater harm to humanity itself.
 - A robot must obey any orders given to it by human beings, except where such orders would conflict with the First Law or cause greater harm to humanity itself.
 - A robot must protect its own existence as long as such protection does not conflict with the First or Second Law or cause greater harm to humanity itself.

先來看看一些**Demo**



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Let's go!

- <https://www.autodraw.com/>
- <https://how-old.net/>
- <https://www.midomi.com/>
- <https://youtu.be/eKel63VSpto>

AlphaGo



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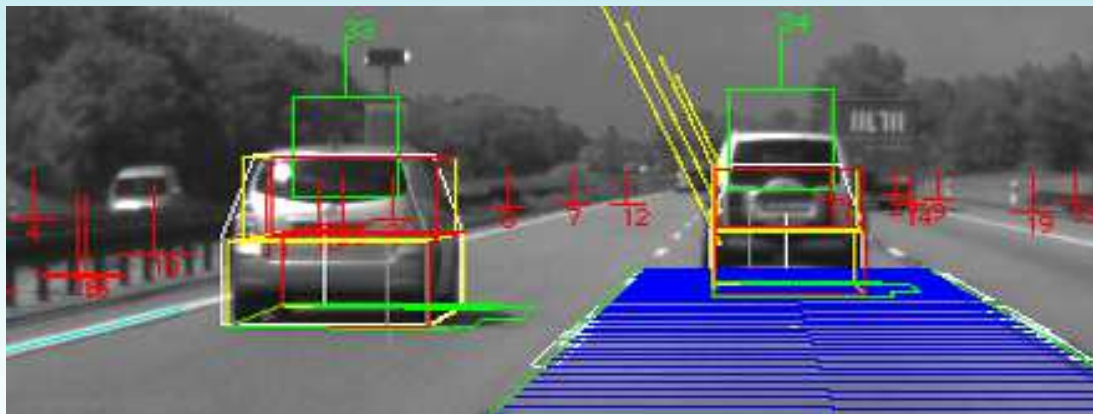
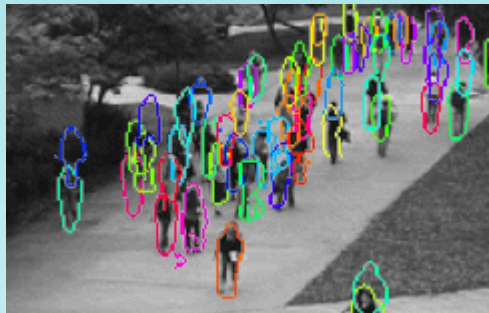
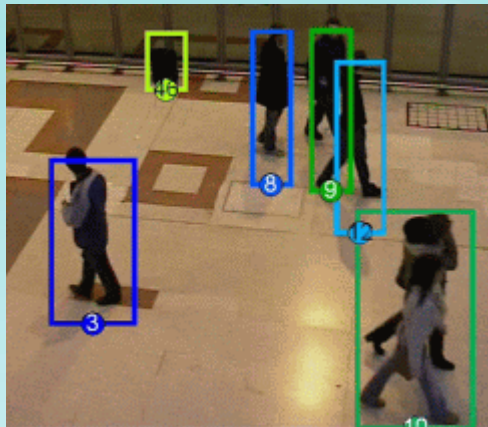
- 2015年10月，AlphaGo擊敗樊麾，成為第一個無需讓子即可在19路棋盤上擊敗圍棋職業棋士的電腦圍棋程式，寫下了歷史，並於2016年1月發表在知名期刊《自然》。
- 2016年3月，透過自我對弈數以萬計盤進行練習強化，AlphaGo在比賽中以4:1擊敗尖端職業棋士李世乭，成為第一個不藉助讓子而擊敗圍棋職業九段棋士的電腦圍棋程式，立下了里程碑。
- 2017年5月23至27日在烏鎮圍棋峰會上，最新的強化版AlphaGo和世界第一棋士柯潔比試、並配合八段棋士協同作戰與對決五位頂尖九段棋士等五場比賽，取得3比零全勝的戰績，團隊戰與組隊戰也全勝。



Computer Vision



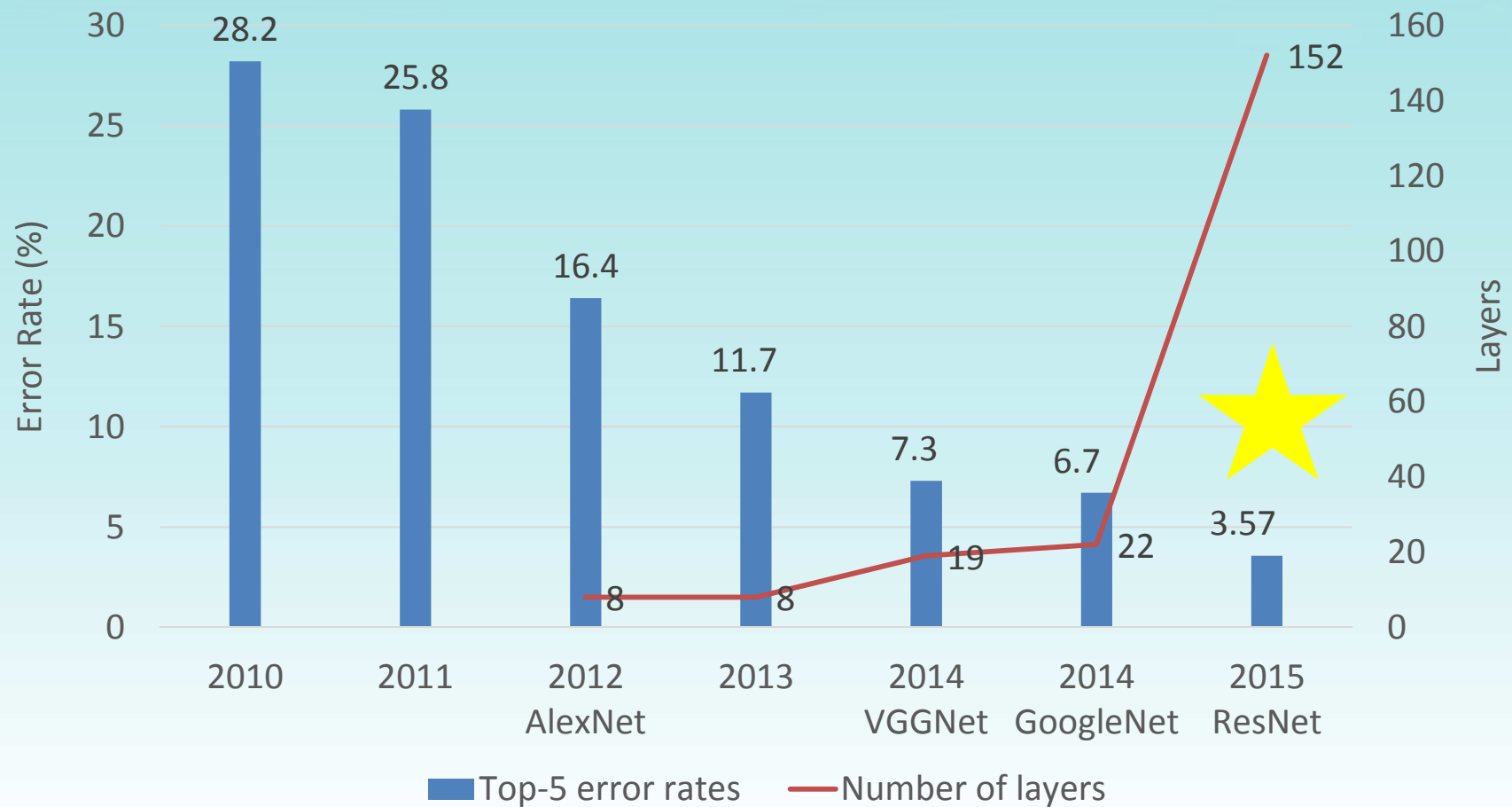
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Top-5 error rates and layers on ILSVRC image classification



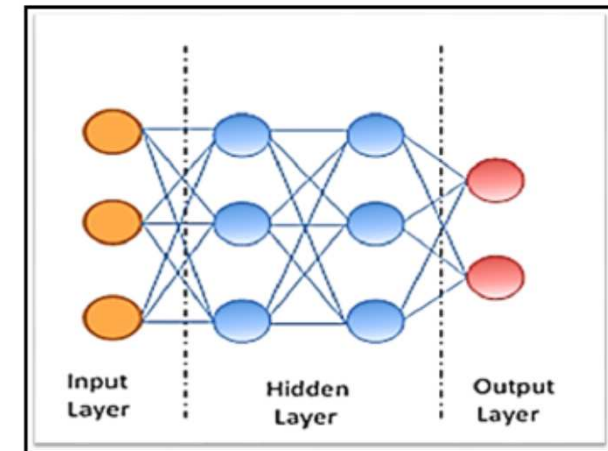
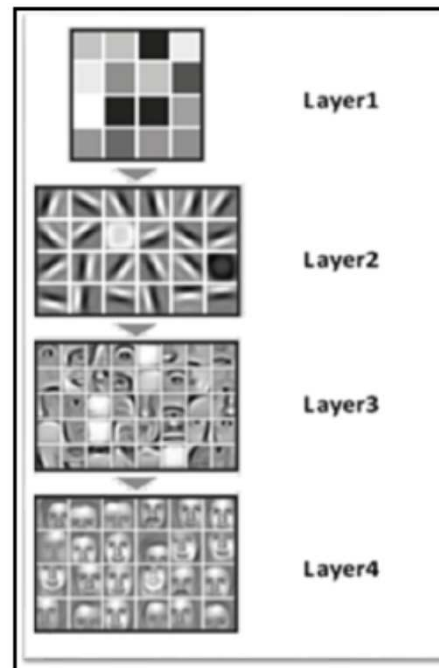
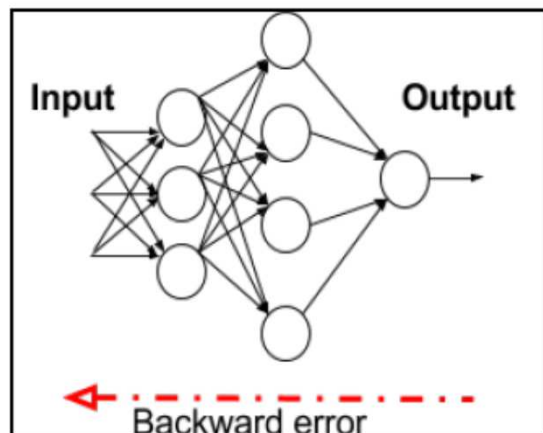
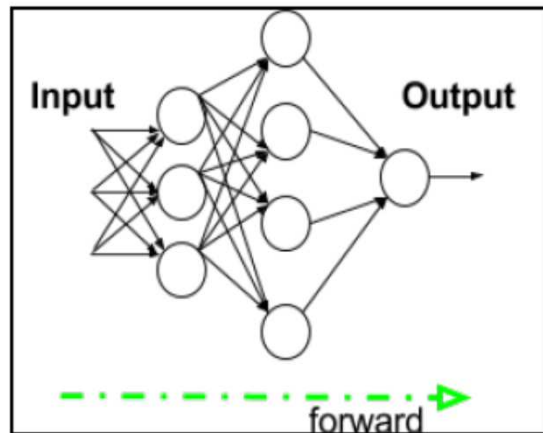
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Neural Newtworks Foundations



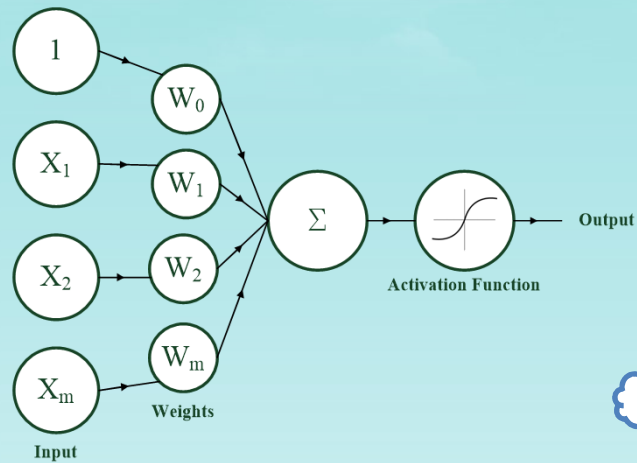
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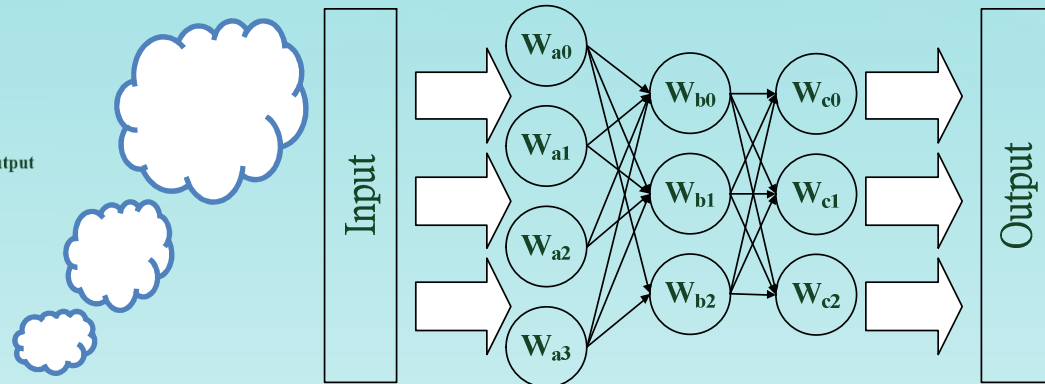
技術原理



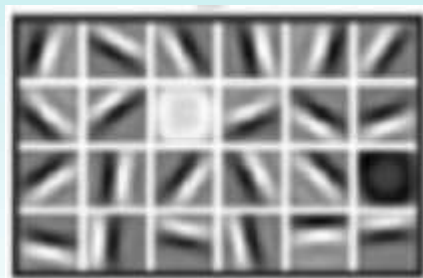
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A single perceptron



A neural network of 3 hidden layers



Layer 1



Layer 2



Layer 3

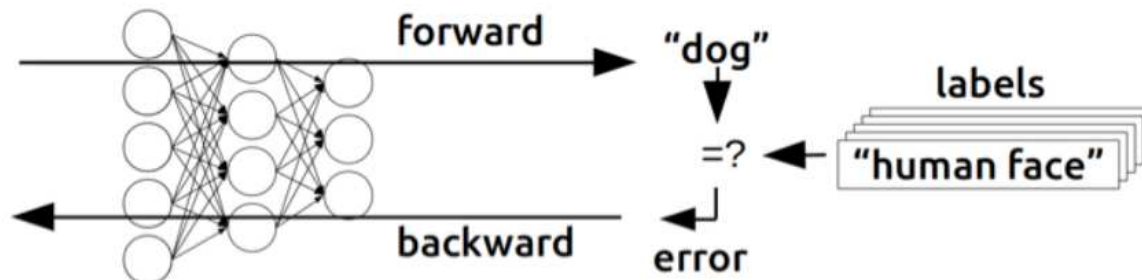
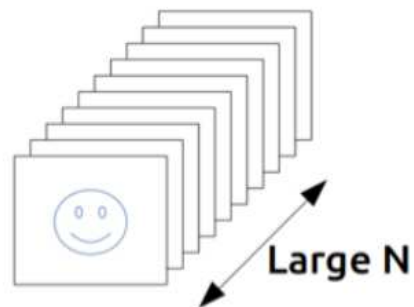
Training and Inference



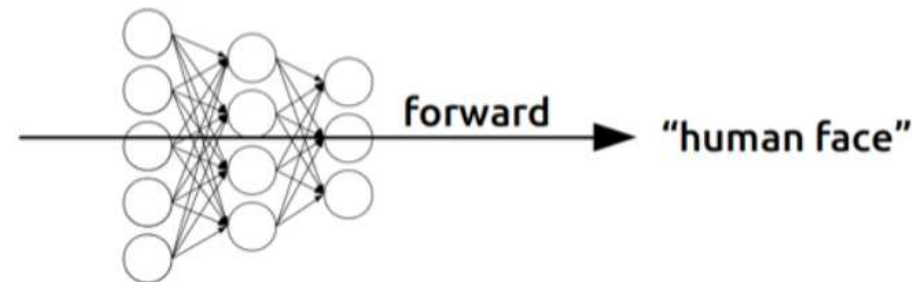
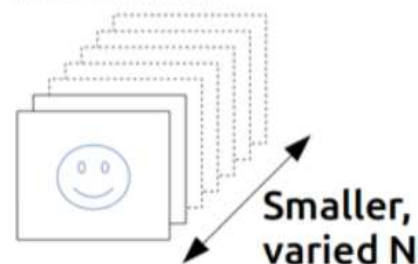
Lab



Training



Inference

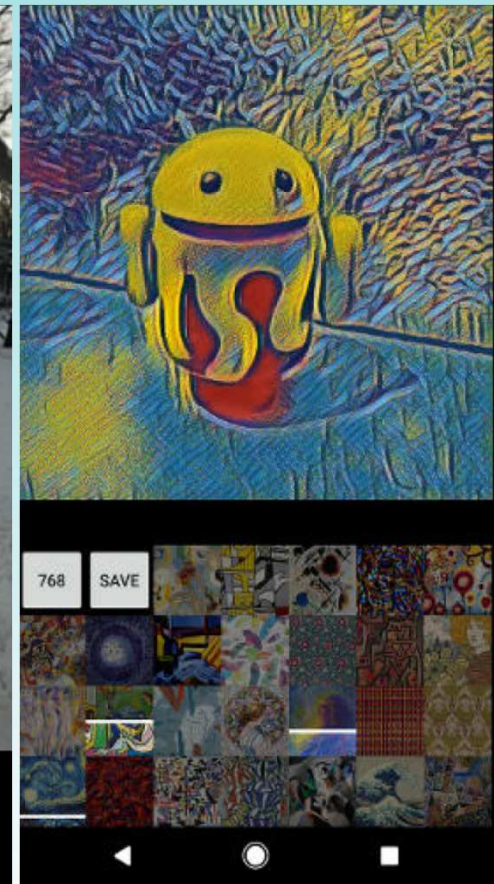
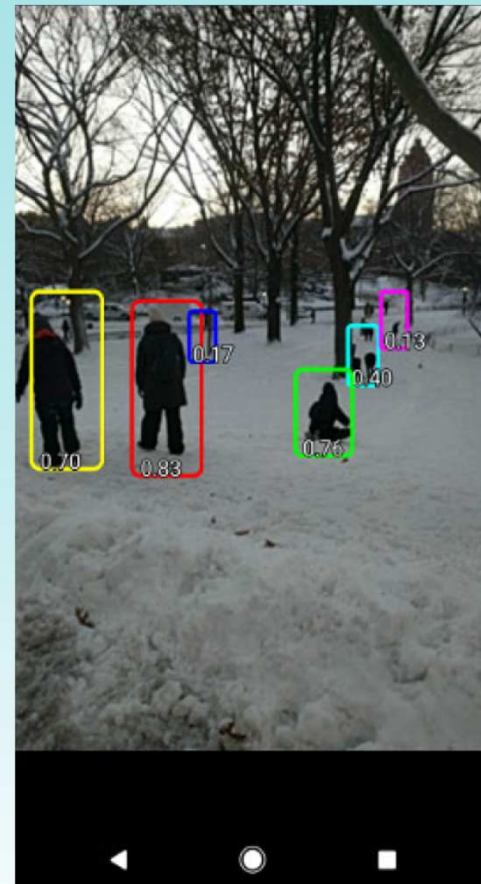


Applications



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- Classification
- Detection
- Art forgery
- Image/video to words
- Words to image/video
- Chat bot
- Emotion recognition



Video Question Answering



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Q: What struggled with its balance?

A: This kitten

Q: Did it fall off?

A: Yes

Q: Does cute kitten jump into man's hands?

A: No



Q: Who suddenly finds herself in a fight for her scarf?

A: The woman

Q: Who starts tug of war with tourists scarf?

A: Baby elephant



Q: Does the guy do his backflip successfully?

A: No

Q: Where does the guy attempts back flips?

A: Beach

Q: Did the man attempt a backflip off the diving board?

A: No

來試試一些**APP**吧



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Let's make things better

- What Objects
- What's this?
- Identifind
- SoundHound
- Shazm



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THANK YOU
for your
ATTENTION!