EE-559 – Deep learning

1.3. What is really happening?

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https://fleuret.org/ee559/

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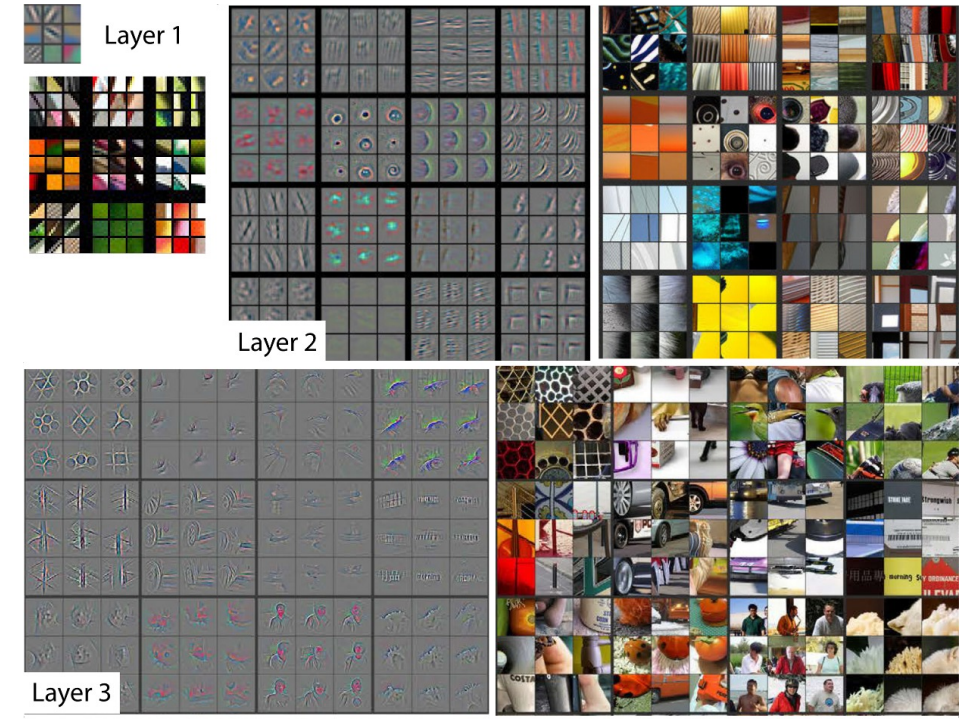
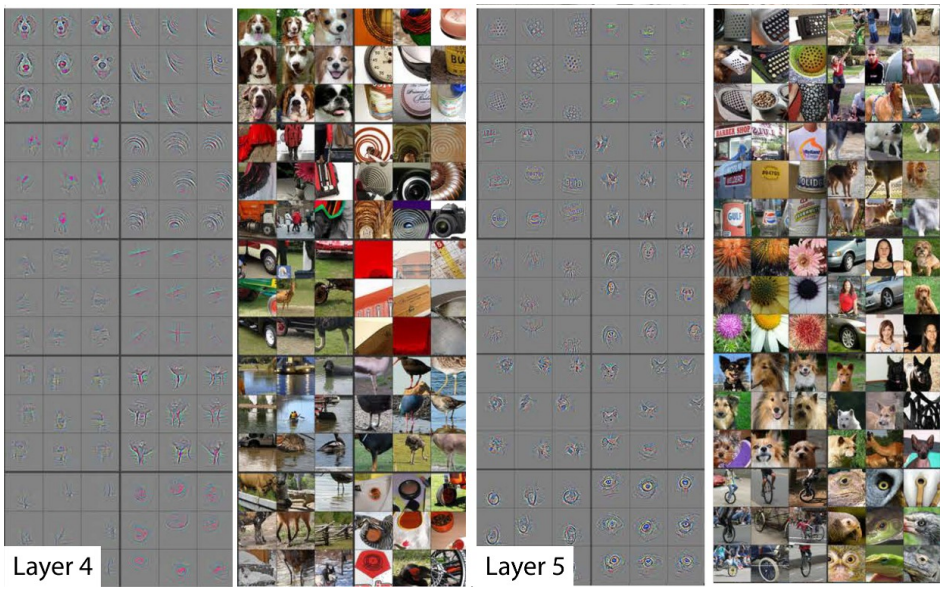
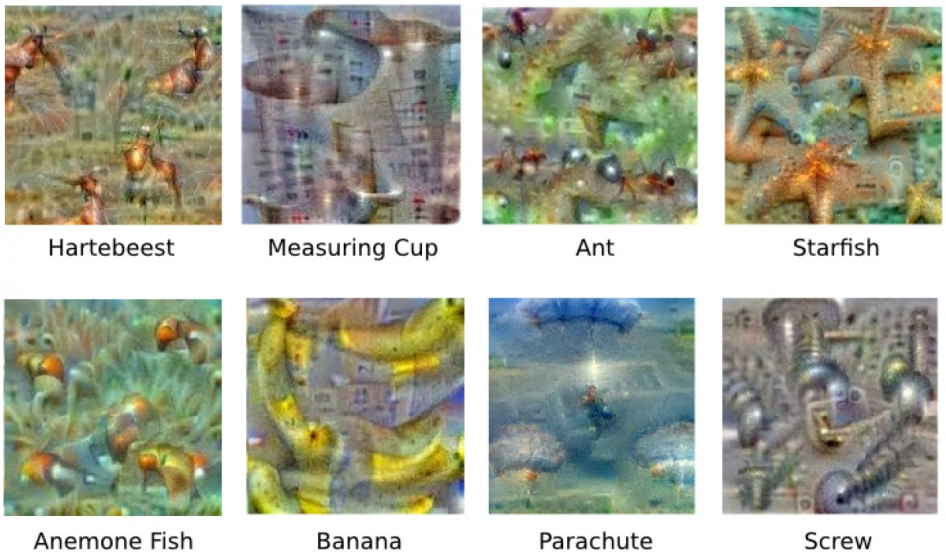


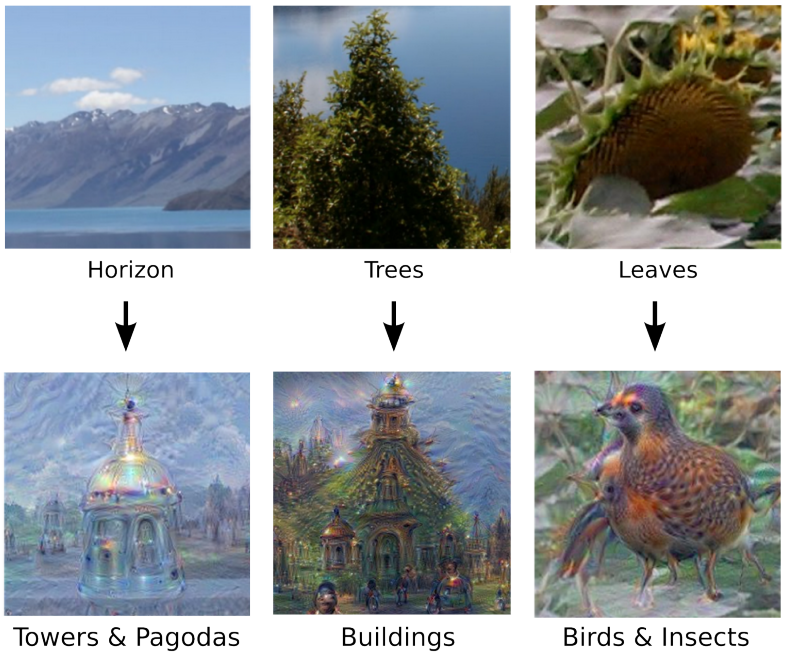
(Zeiler and Fergus, 2014)



(Zeiler and Fergus, 2014)



(Google's Deep Dreams)

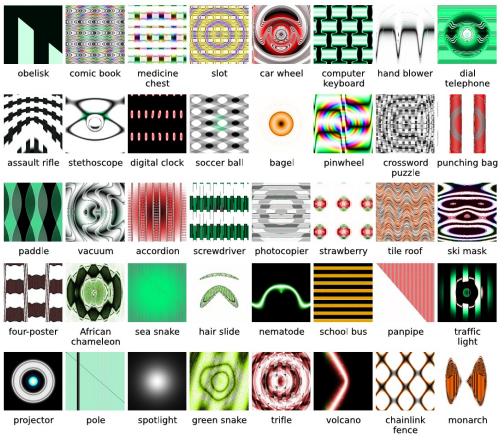


(Google's Deep Dreams)

(Thorne Brandt)

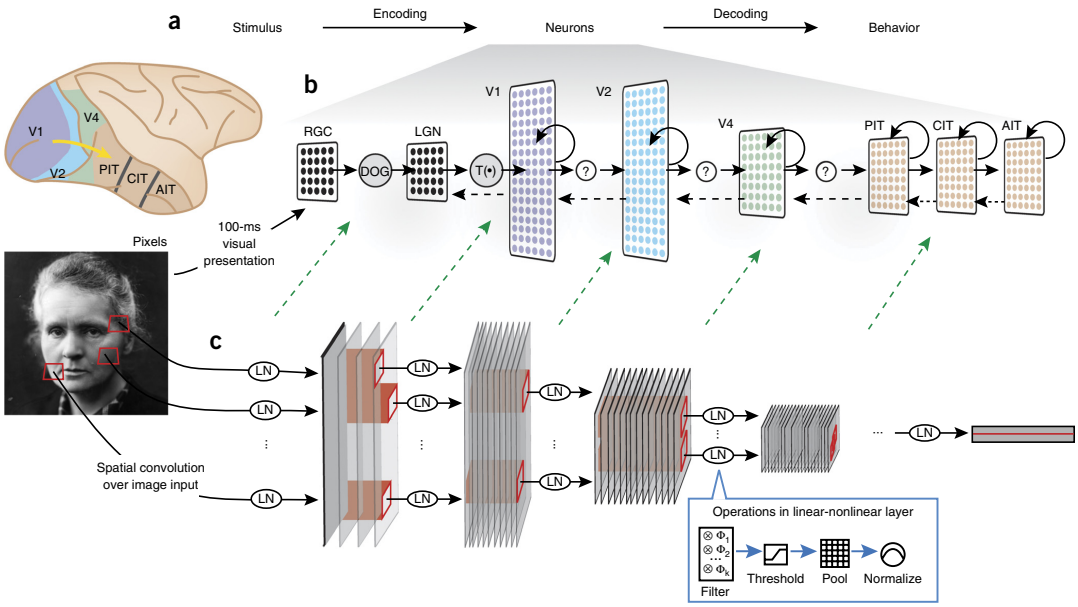
(Duncan Nicoll)

(Szegedy et al., 2014)

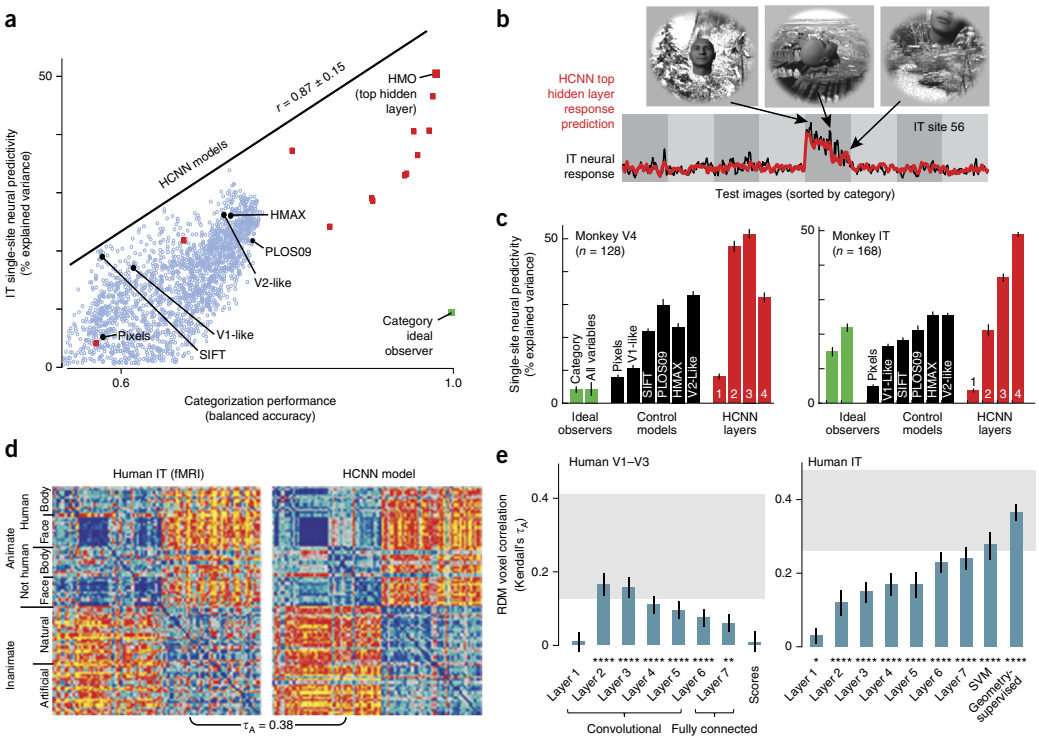


(Nguyen et al., 2015)

Relations with the biology



(Yamins and DiCarlo, 2016)



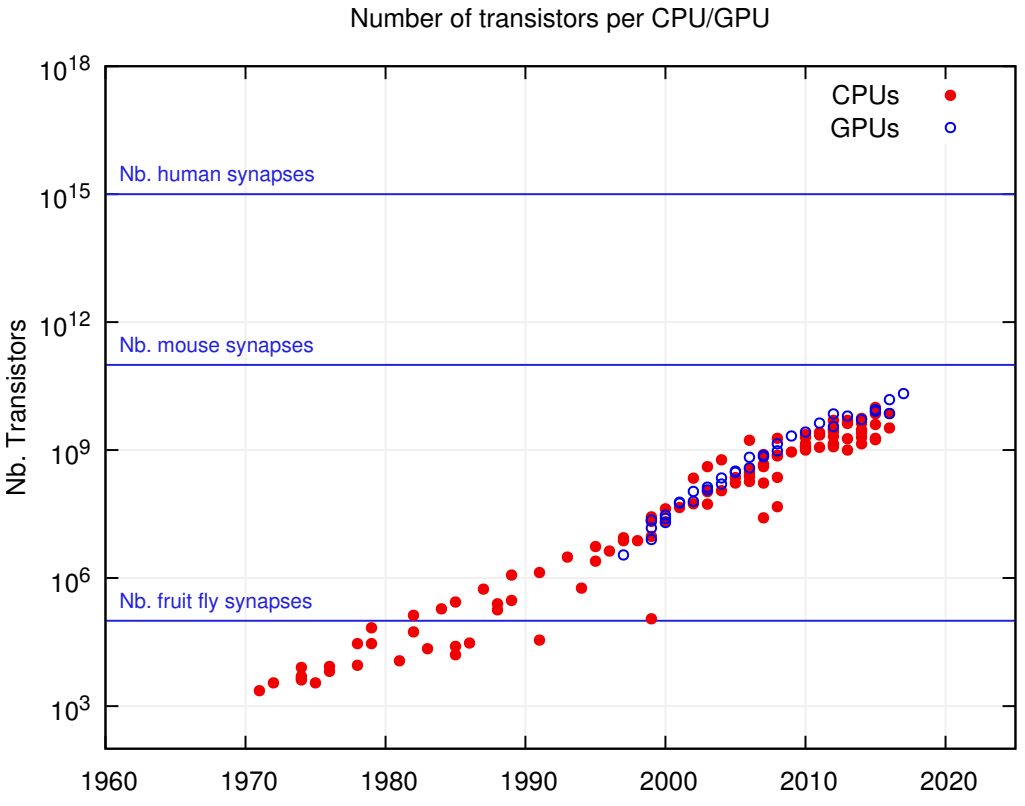
(Yamins and DiCarlo, 2016)

Species	Nb. neurons	Nb. synapses
Roundworm	302	7.5×10^3
Jellyfish	800	
Sea slug	1.8×10^4	
Fruit fly	1.0×10^5	1.0×10^7
Ant	2.5×10^5	
Cockroach	1.0×10^6	
Frog	1.6×10^7	
Mouse	7.1×10^7	1.0×10^{11}
Rat	2.0×10^8	4.5×10^{11}
Octopus	3.0×10^8	
Human	8.6×10^{10}	1.0×10^{15}

(Wikipedia "List of animals by number of neurons")

Device	Nb. transistors
Intel i7 Haswell-E (8 cores)	2.6×10^9
Intel Xeon Broadwell-E5 (22 cores)	7.2×10^9
AMD Epyc (32 cores)	19.2×10^9
Nvidia GeForce GTX 1080	7.2×10^9
AMD Vega 10	12.5×10^9
NVidia GV100	21.1×10^9

(Wikipedia "Transistor count")



(Wikipedia "Transistor count")

References

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