Bridging the translational gap for artificial intelligence in clinical neuroimaging

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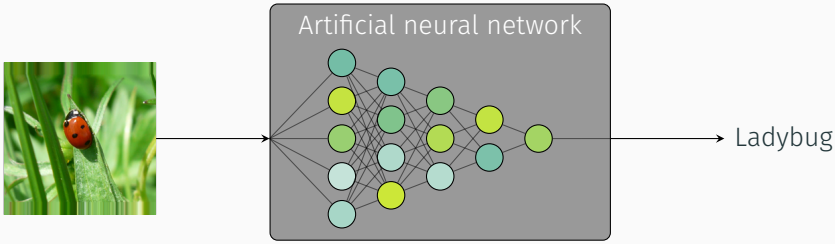
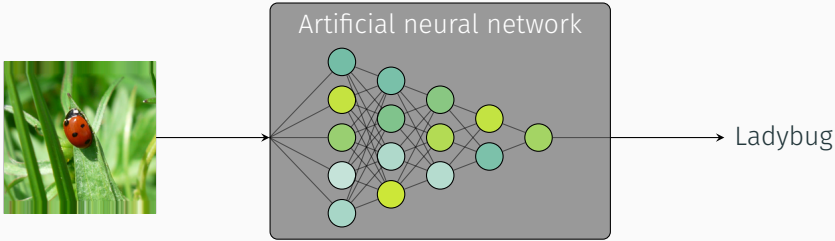
The black-box problem of artificial intelligence

baba vision

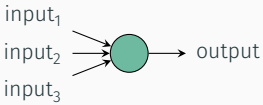
Understanding artificial neural networks



Understanding artificial neural networks



Artificial neuron



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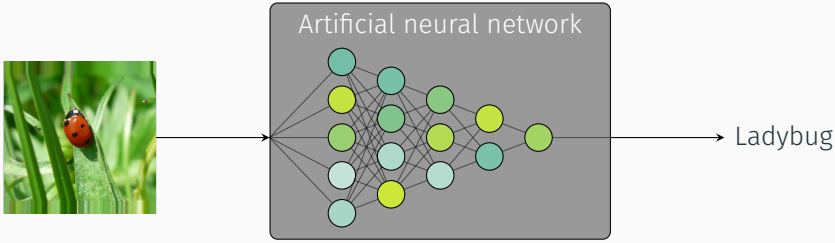
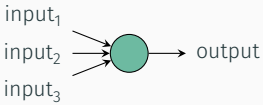


Artificial neuron



$$\text{output} = \max(0, b + w_1 * \text{input}_1 + w_2 * \text{input}_2 + w_3 * \text{input}_3)$$

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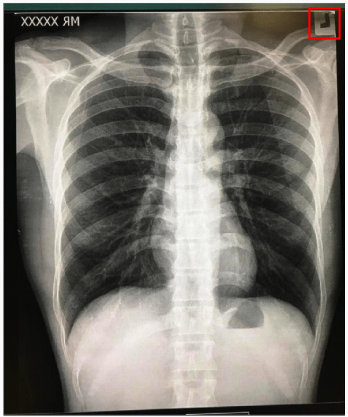

Banerjee, I., Bhattacharjee, K., Burns, J. L., Trivedi, H., Purkayastha, S., Seyyed-Kalantari, L., ... & Gichoya, J. (2023). "Shortcuts" causing bias in radiology artificial intelligence: causes, evaluation, and mitigation. *Journal of the American College of Radiology*, *20*(9), 842-851.

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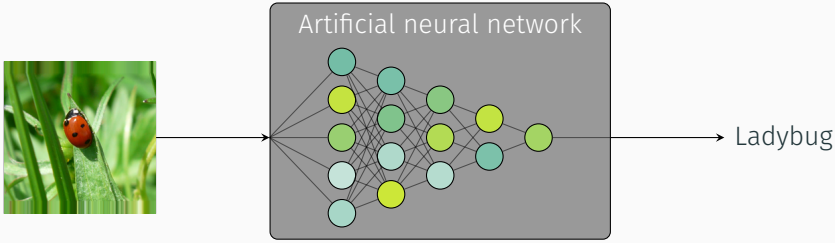
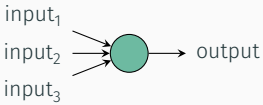


Artificial neuron



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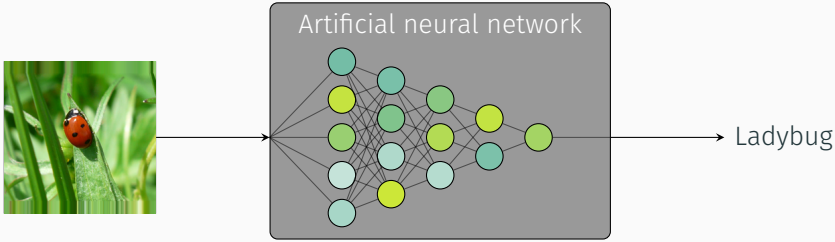
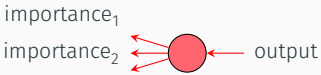
Understanding artificial neural networks

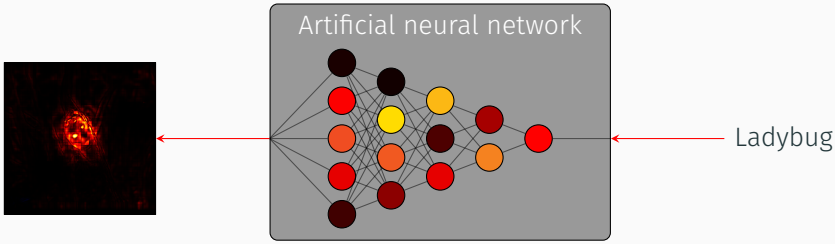


Artificial neuron



$$\text{importance}_i = \frac{\text{input}_i * w_i}{\sum \text{input}_j * w_j} * output$$

Understanding artificial neural networks



Explainable artificial intelligence and dementia

Thank you for your attention!

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