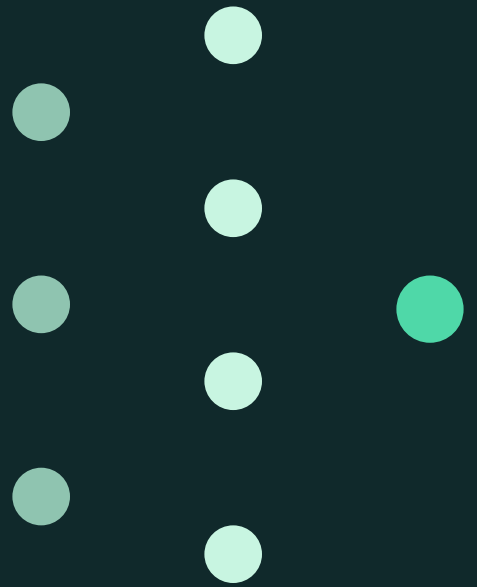
Neural networks made simple

A computer that learns from examples, the same way you learned to pick a ripe avocado.



The big idea

Normal software follows rules a person wrote. A neural network figures out its own rules by studying examples.

Rules written by hand

“If the email says FREE, it is spam.”

Breaks when scammers change wording.

Learning from examples

Show 10,000 spam and 10,000 real emails.

The network finds the patterns itself.

Real-life example: is this avocado ripe?

You check clues, and some clues matter more than others. That “how much it matters” is called a weight.

Squeeze

Gives a little?



Matters most

Color

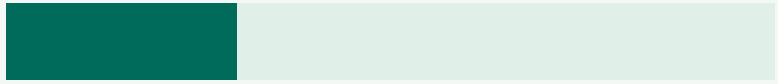
Dark green to purple?



Matters some

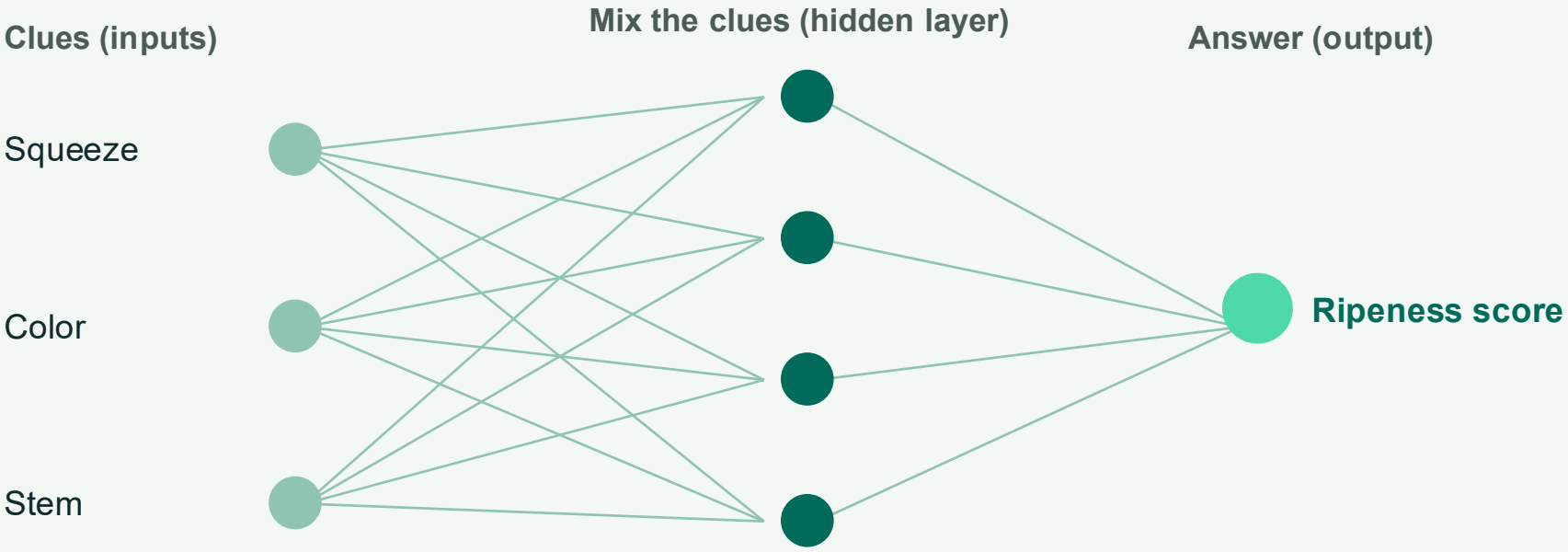
Stem

Comes off easily?



Matters a little

The same idea as a neural network



Every line has a weight. The network adds up the clues and turns them into one score.

How it learns: guess, check, adjust, repeat

1 Guess

“Looks ripe!”

2 Check

Answer key: rock hard. Wrong.

3 Adjust

Trust squeeze more, color less.

4 Repeat

Thousands of avocados.

Final exam: test it on avocados it has never seen. That shows whether it truly learned.

Where you already use it

Spam filter

Learned from millions of emails marked spam or not spam.

Face unlock

Learned what your face looks like from many images.

Movie suggestions

Learned from what people watched and liked.

Limit: it only knows what its examples showed it. A real invoice that looks suspicious can land in junk, and a brand-new scam can slip through.

Remember three things

01 A neural network learns patterns from examples instead of following hand-written rules.

02 Weights say how much each clue matters, like trusting the squeeze over the color.

03 It learns by guessing, checking, adjusting, and repeating many times.

Discussion: what everyday decision do you make by “feel” that a network could learn from examples?

AI tool disclosure: first draft by OpenAI ChatGPT (Codex); simplified, re-themed around a real-life example, and regenerated with Claude (Anthropic).