FACE RECOGNITION

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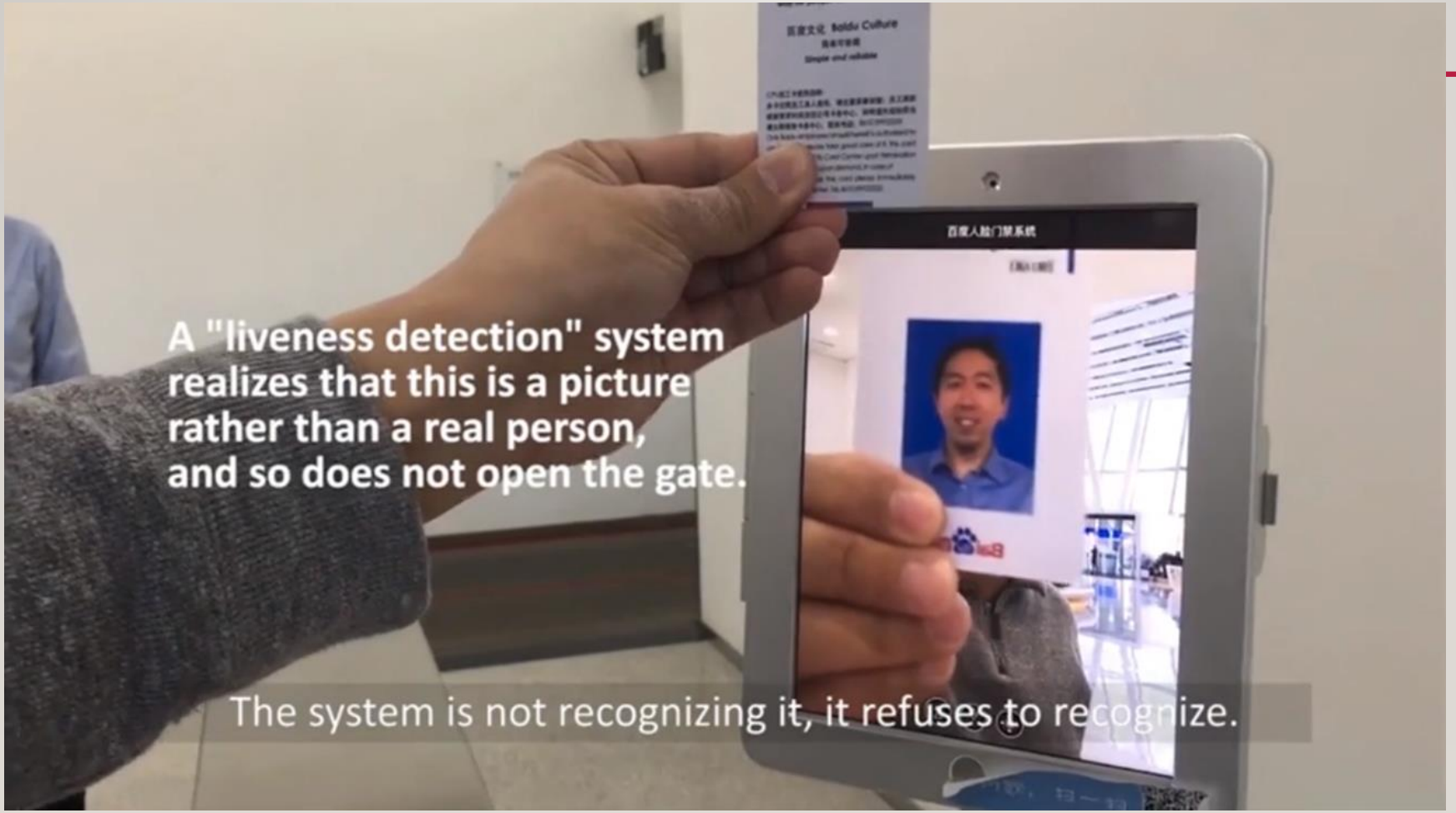
TOPIC ABOUT AI

- The face recognition technology has been applied to our life everywhere.
- How face recognition attendance machine works?
- How to avoid fake faces risk, like photos or videos?

BASIC MODEL

- The input image is shot by camera.
- Detect the face position in the image.
- Convert the face to a vector by neural network.
- Compare the embedding with the face embeddings in database.
- Get the similarity, judge if match by threshold.
- Liveness detection, posture detection to verify the identify.
- Recognition result.

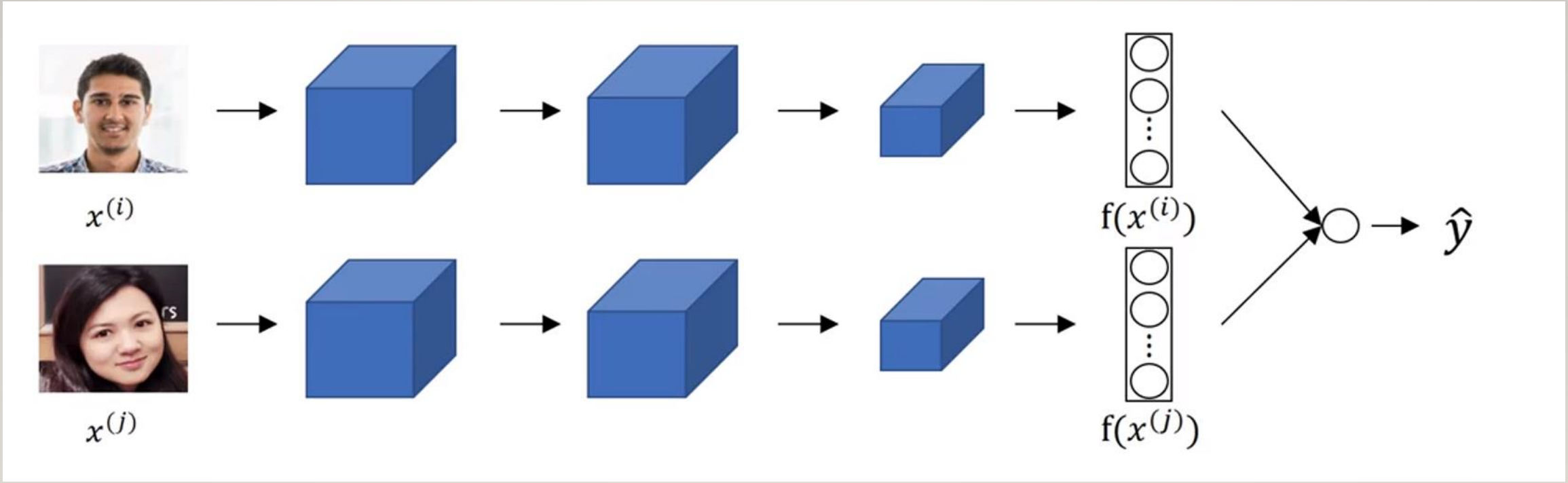
BASIC MODEL


A "liveness detection" system
realizes that this is a picture
rather than a real person,
and so does not open the gate.
The system is not recognizing it, it refuses to recognize.

HOW TO TRAIN IT

- First of all, we got all the employees' photos.
- Choose a image neural network, like inception or others.
- Select a pair of photos and calculate their embedding cosine distance.
- Maximum the distance.

HOW TO TRAIN IT

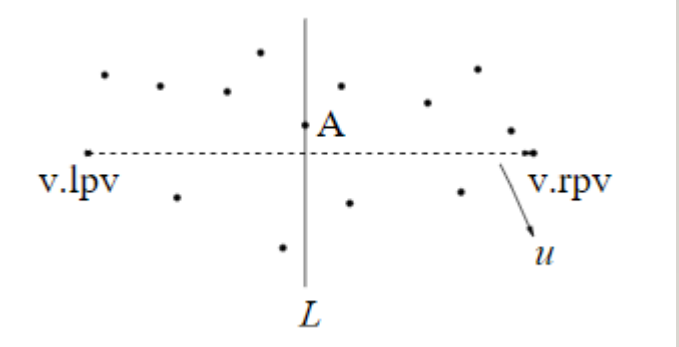


HOW TO DETECT LIVENESS

- Infrared detection.(红外检测)
- Iris Detection.(虹膜检测)
- Fingerprint.
- Ask for specific postures like blink your eyes.
- …

HOW TO FIND THE NEAREST FACE SWIFTLY

- Compare the embedding with kNN, split the dimension.
- Software package, faiss(Facebook AI Similarity Search project).
- An Investigation of Practical Approximate Nearest Neighbor Algorithms [http://www.cs.cmu.edu/~agray/approxnn.pdf]



THE END

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