What is computer vision?

What a person sees

What a computer sees

Why are we able to interpret this image?

The goal of computer vision is
to give computers
human-level visual perception

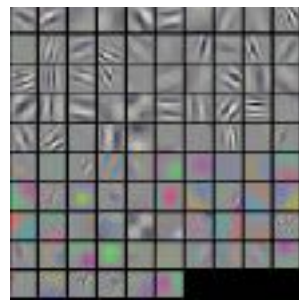and when possible
super-human perception!
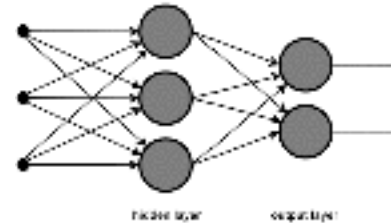
Computer Vision Processing Pipeline

acquisition

How can we capture light?

representation

How can we encode information?

inference

How can we decode information?
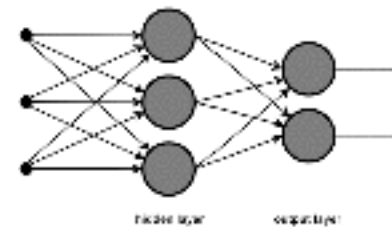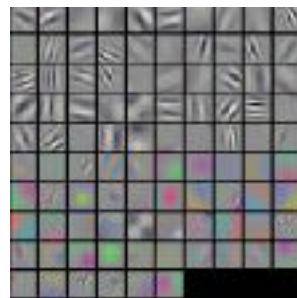
application

How can we use it?

Key Research Questions

- **Acquisition:** How can we capture light?

- **Representation:** How can we encode information?

- **Inference:** How can we decode information?

- **Application:** How can we use it?

**All equally important
but focus can shift over time**

(typical)

Computer Vision Processing Pipeline

acquisition → **representation** → **inference** → **application**

How can we capture light?

How can we encode information?

How can we decode information?

How can we use it?

Non-line of Sight Imaging 2010s

Visual features 2000s

Graphical models 1990s

Autonomous Driving ? 2020s
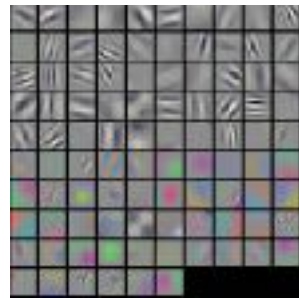
Deep Learning 2010s

(typical)
Computer Vision Processing Pipeline

acquisition

How can we
capture light?

representation

How can we
encode
information?

inference

How can we
decode
information?

application

How can we
use it?

Trending in 2019

(typical)
Computer Vision Processing Pipeline
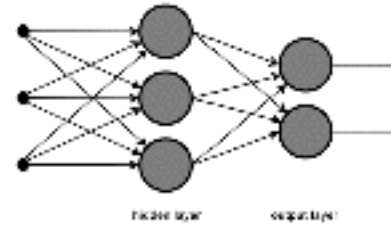

acquisition

How can we
capture light?

representation

How can we
encode
information?
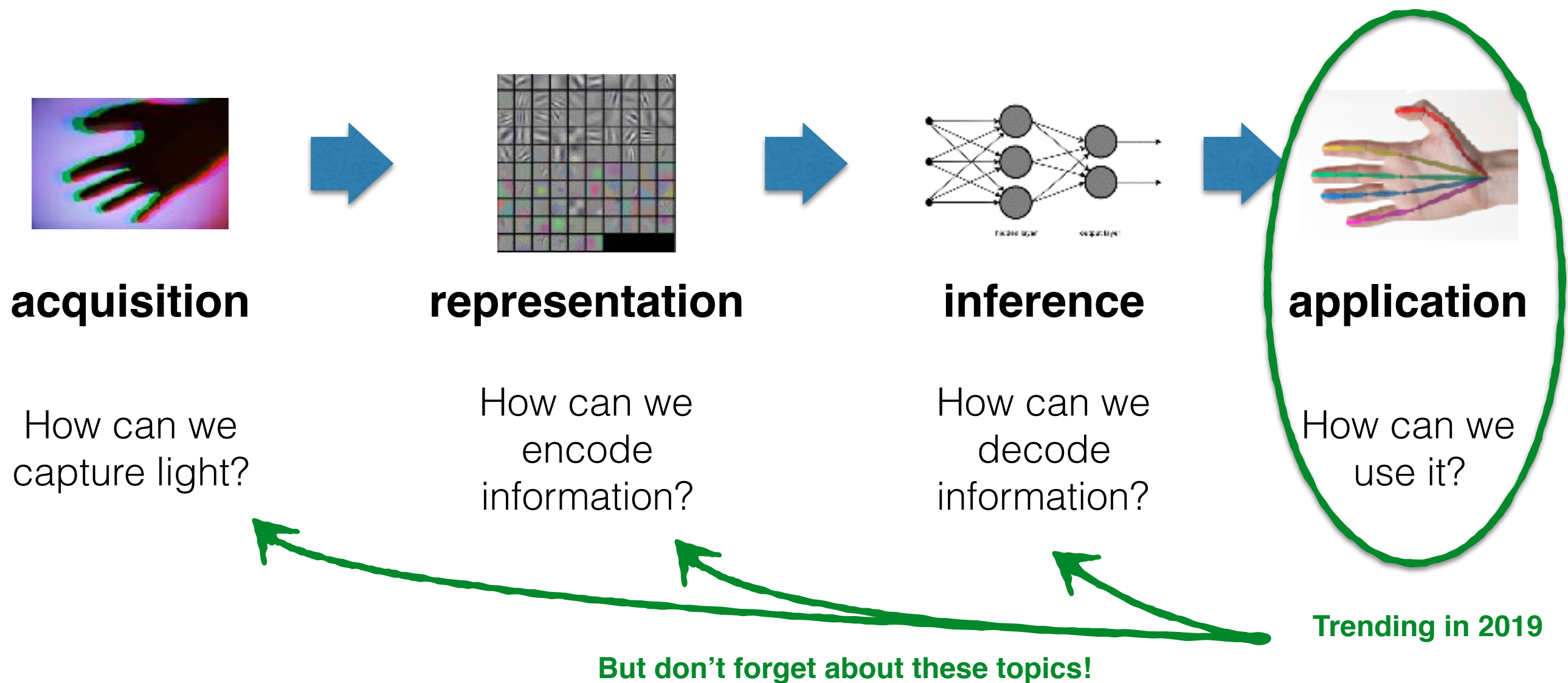
inference

How can we
decode
information?

application

How can we
use it?

Trending in 2019

But don't forget about these topics!

Important note:

Computer Vision does not work

Important note:

Computer Vision does not work

(except in certain situations/conditions)

You'll learn this in class