Essentials of AI for Life and Society

Computer Vision

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Liberal Arts development studio
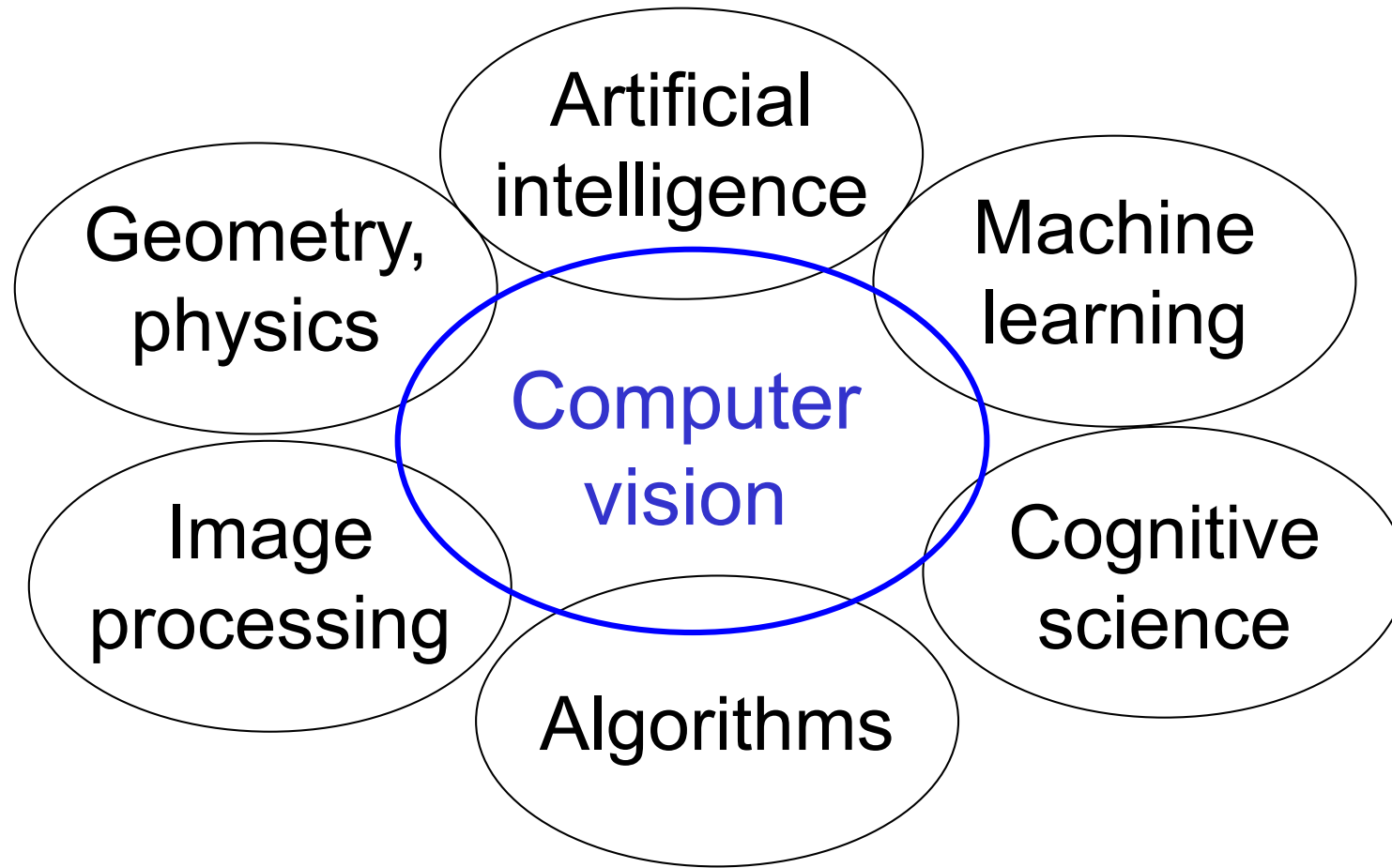
LAITS

TEXAS

What is computer vision?

- Automatic understanding of images and video

- Computing properties of the 3D world from visual data

- Algorithms and representations to allow a machine to recognize objects, people, scenes, and activities.
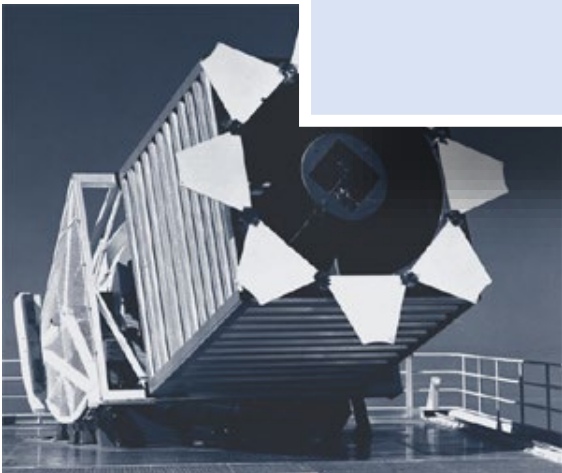
Defining Artificial Intelligence

- A science and a set of computational technologies that are inspired by, but typically operate quite differently from, the ways people use their nervous systems and bodies to <mark>sense, learn, reason, and take action</mark>

- NOT one thing
  - More than just deep learning

  - RL, NLP, <mark>vision</mark>, planning, symbolic reasoning, algorithmic game theory, computational social choice, human computation
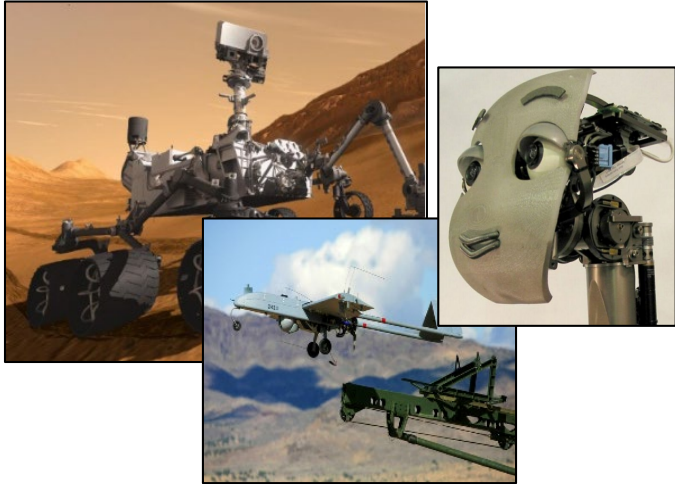
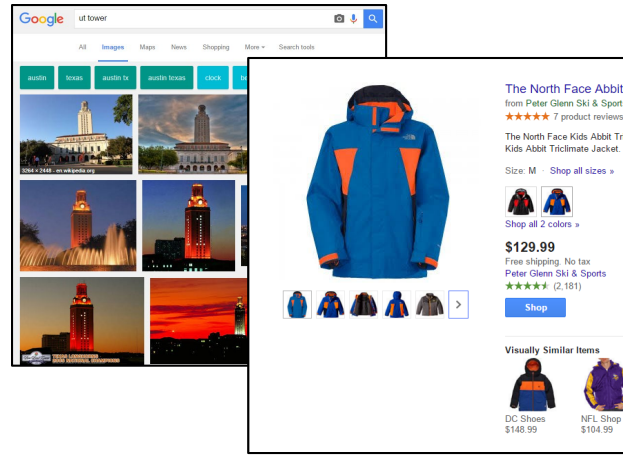# Related disciplines

Explosion of visual data

~**30 Gpix per second** of new visual content worldwide

~**271,000 hours of new video per day** added to YouTube

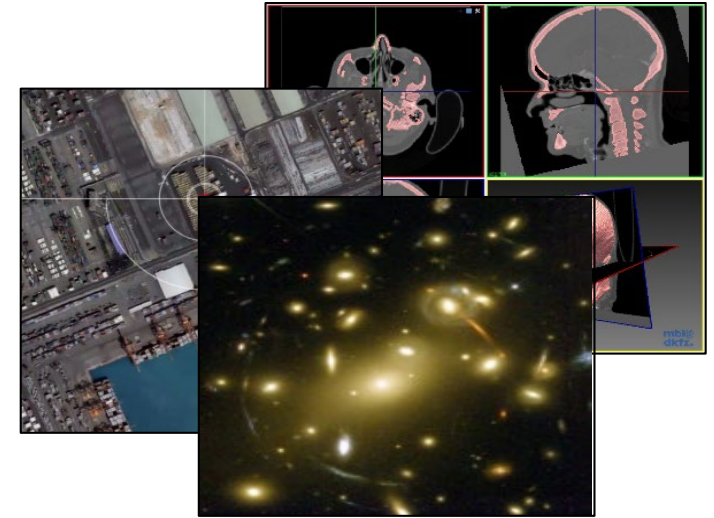**Half the cerebral cortex** devoted to processing visual data!

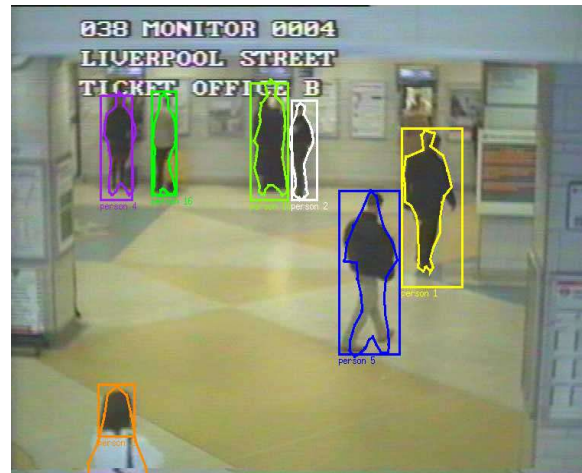# What is possible once computers can see?

Autonomous robotics

Organizing visual content

Science and medicine

Gaming, HCI, Augmented Reality

Surveillance and security

Personal photo/video collections