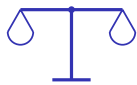


Ethics & Ownership

AS Computer Science ■ Topic 7

A-Level Computer Science



Ethics & Ownership

What we will cover

- 1 Professional ethics
- 2 Copyright & patents
- 3 Software licences
- 4 Artificial intelligence
- 5 Recap



1 Ethics

Ethics & Ownership

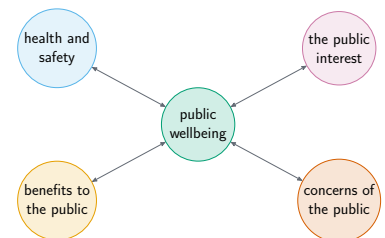
└ Ethics

Why ethics matters

A computing professional's work affects others who cannot judge it, so the profession shares

ethics 伦理:

- **trust** – users rely on professionals
- **impact** – software runs medical, banking, vehicles



Ethics & Ownership

└ Ethics

Principles in practice

- public interest first
- honesty & competence
- **confidentiality** 保密性
- avoid **conflicts of interest** 利益冲突
- respect **intellectual property** 知识产权 & **privacy** 隐私

Biased AI hiring tool

It sorts CVs fast but rejects more older applicants. **Hold it back** until the bias is fixed – fairness before convenience.

Ethics & Ownership

└ Ethics

Your call: ethical or not?

a serious bug is found just before release; the manager says "ship it anyway" – you stay silent

❌ public safety & interest come first

you reuse a well-tested open-source library, keep its licence and credit the authors

✅ intellectual property respected

a client's private data would make a great demo – you show it at a conference

❌ confidentiality broke

Discarded electronics (e-waste) are a growing environmental cost of computing

In an exam answer: **name the principle**, then apply it to the scenario.

2 Ownership

Ethics & Ownership
└ Ownership

Copyright and patents

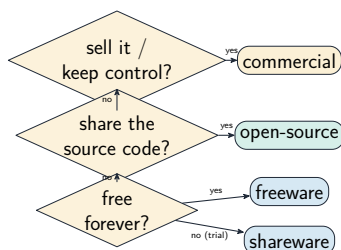
- **copyright** 版权: automatic, ~70 yr – covers code, images, text
- **patent** 专利: must be filed, ~20 yr – covers inventions & algorithms

copyright automatic – no registration
lasts ~70 years after the creator's death (code, images, documents)

patent must be filed ~20 years (inventions, new algorithms)

Ethics & Ownership
└ Ownership

Software licences



Type	Cost	Source	Modifi
commercial 专有	paid	no	no
open-source 开源	free	yes	yes*
freeware 免费软件	free	no	no
shareware 共享软件	trial	no	no

*copyleft 著佐权 (GPL): share modified versions alike.

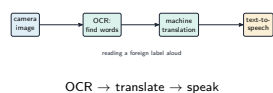
3 Artificial intelligence

Ethics & Ownership
└ Artificial intelligence

Artificial intelligence

AI 人工智能 does tasks once needing human intelligence. Most uses **machine learning** 机器学习 – learning patterns from data.

- understand: **speech** 语音识别, **image recognition** 图像识别
- decide: translation, recommendations, self-driving



Ethics & Ownership
└ Artificial intelligence

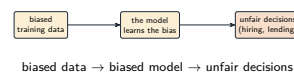
AI: benefits and concerns

Benefits:

- accessibility & productivity
- spots patterns in huge data

Concerns:

- **bias** 偏见, privacy, transparency
- accountability, misuse



4

Recap

Ethics & Ownership
└─Recap

Topic 7 – key takeaways

1 Ethics

public interest first; honesty;
confidentiality

2 Copyright

automatic; patents cover
inventions

3 Licences

commercial, open-source,
freeware, shareware

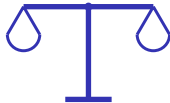
4 AI

learns from data; beware bias &
accountability

Ethics & Ownership
└─Recap

Check yourself

- 1 Does copyright need registration?
- 2 Which licence shares its source code?
- 3 What is “copyleft” (GPL)?
- 4 How does bias get into an AI system?



Answers 1. no (automatic) 2. open-source 3. modified versions stay open 4. from
biased training data