COMP110: Principles of Computing

4: Research Skills

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Research journal

Research journal

- **Read** some seminal papers in computing (listed on Talis / LearningSpace)
- **Choose** one of them
- **Research** how this paper has influenced the field of computing
- **Present** (briefly!) your findings
- **Write up** your findings
  - Maximum 1500 words
  - With reference to appropriate academic sources

Marking rubric

See assignment brief and video on LearningSpace

Timeline

- These dates are for information only — please double-check on MyTimetable
- **Presentations** in week 7 (4th and 5th November)
- **Peer review** in week 8 (12th November)
- **Deadline** shortly after (check MyFalmouth)
- Finding and reading academic papers takes time and effort — don't leave it until the last minute!

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Scholarly literature

Scholarly work

- What is a “scholarly” work?
- How do we know if something is scholarly?

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Pyramid of sources

Appropriateness of sources

It is important to question the **appropriateness** of sources you use in academic work

- **Validity**: Are claims based upon a correct interpretation of the evidence?
- **Rigor**: Was the method of collecting evidence appropriate to ensure comprehensive coverage while also avoiding bias?

Appropriateness of sources

- **Reliability**: has the claim been replicated, or at least reviewed, by other academics?
- **Authoritativeness**: do we know who the author is? Does the author have enough experience in the field to present a fair and balanced argument?
- **Venue**: Is the publisher reputable and free of undue editorial influences?

Appropriateness of sources

There are of course exceptions where sources are presented as **artefacts** and/or **archives**:

- Citing a newspaper as evidence for a claim based on the reception of a new technology
- Citing a manufacturer's technical manual when describing a technical feature of a platform
- Citing a Reddit post by a well-known industry figure as evidence for expert opinion

The **way** in which sources are **used** is therefore important

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Library resources

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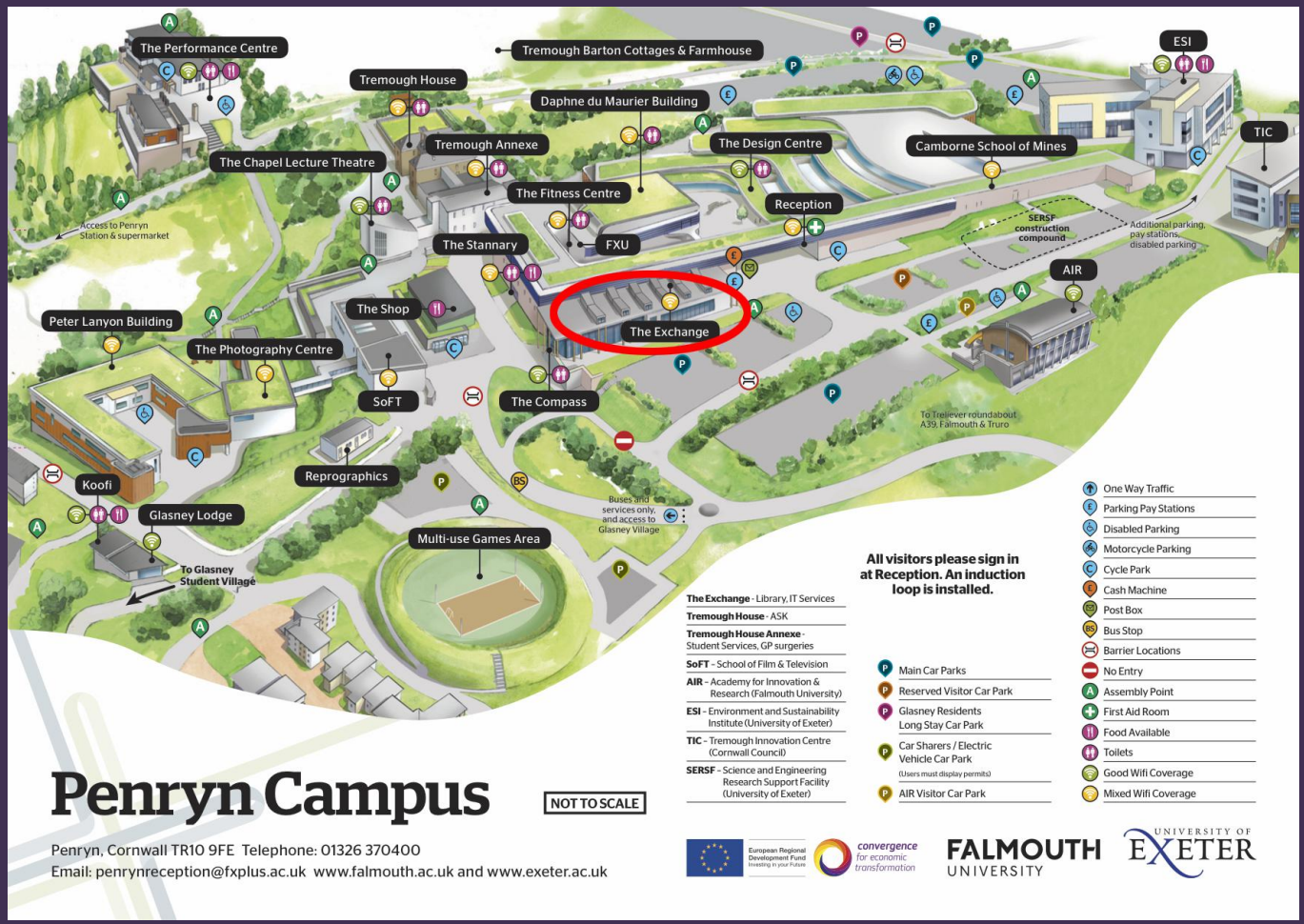
The library



Library catalogue

http://library.fxplus.ac.uk/

Web proxy

- Some online resources are only available through the campus network
- If not physically on campus, you can access them via **VPN**
- `https://webvpn.falmouth.ac.uk/`
- Some resources can also be accessed by **web proxy** through the library website
- `https://library.fxplus.ac.uk/subject-guides/games-computing`

ACM Digital Library

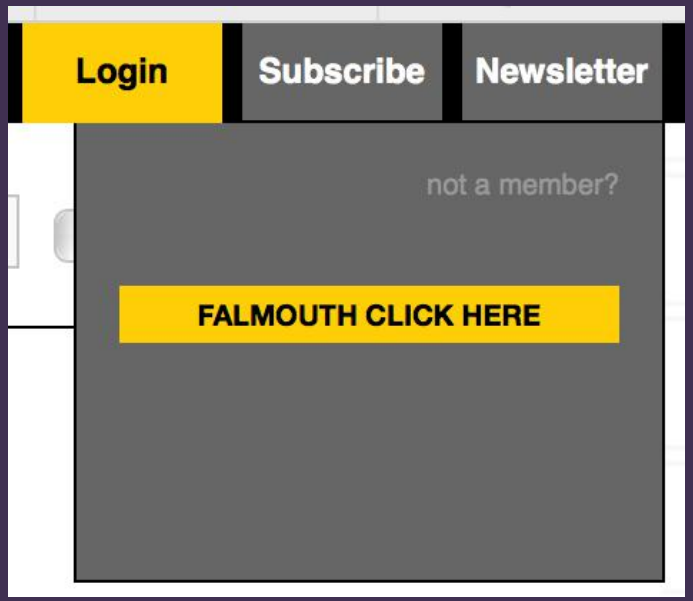
http://dl.acm.org.ezproxy.falmouth.ac.uk/

IEEE Xplore

http://ieeexplore.ieee.org.ezproxy.falmouth.ac.uk/

GDC Vault

http://www.gdcvault.com.ezproxy.falmouth.ac.uk/



There are only a limited number of login slots available — **remember to log out when you have finished!**

How to find papers to read?

- Specialist databases: ACM Digital Library, IEEE Xplore
- Google Scholar
  - Keyword searches
  - Other work by the same author
  - Work which has cited papers you have read
- Wikipedia
  - Not a reliable source itself!
  - However most articles have good bibiliographies
- Bibliographies of papers you have read

Finding papers without paying

- Many papers are **paywalled**
- Little known fact: **none** of the money from paywalls goes to the authors of the paper!
- The university **subscribes** to ACM and IEEE to give free access to staff and students
- Many journals offer free **open access**
- Many authors put papers on their **personal websites**
- Many universities (all UK universities) have **open access repositories**
  - Falmouth: `http://repository.falmouth.ac.uk`
- Sites like **sci-hub** have sprung up, providing illegal downloads of papers

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Referencing

Which referencing style?

- Many different referencing styles exist
- Most Falmouth courses use **Harvard** style
- In Computing we tend to prefer **IEEE** style
- If assignments specify which one to use then use it
- Otherwise choose whichever you prefer — just be **consistent**
- Tools like BibTeX make it easy to switch styles

IEEE referencing style

https://ieeeauthorcenter.ieee.org/wp-content/uploads/IEEE-Reference-Guide.pdf

BibTeX entry types

https://en.wikibooks.org/wiki/LaTeX/Bibliography_Management#BibTeX

Writing BibTeX entries

- Some websites provide pre-written BibTeX entries for papers
- Beware of copying and pasting these as they are often incomplete, incorrectly formatted or just wrong!
- You must **always** check your bibliography in the compiled PDF and fix any errors
- You **will** lose marks on your written assignments otherwise!

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Introducing LaTeX

What is LaTeX?

- A **typesetting** system
- A **markup language** (like HTML or Markdown)
- **Not** a WYSIWYG system

These slides were written in LaTeX

```
\part{Introducing LaTeX}
\frame{\partpage}

\begin{frame}{What is LaTeX?}
    \begin{itemize}
        \pause\item A \textbf{typesetting} system
        \pause\item A \textbf{markup language}
                (like HTML or Markdown)
        \pause\item \textbf{Not} a WYSIWYG system
    \end{itemize}
\end{frame}

\begin{frame}{These slides were written in LaTeX}
    % Display the first few lines of this file
    \lstinputlisting[firstline=3,lastline=18]{latex.tex}
\end{frame}
```

Why LaTeX?

- Plain text format
  - Can use any text editor
  - Can use version control (e.g. Git)
  - Can use online editors (e.g. Overleaf)
- Separates content from formatting
  - Similar to HTML and CSS
  - Unlike most WYSIWYG systems
- Produces professional-looking papers, reports, theses, books, slideshows, ...
- Excellent facilities for typesetting mathematical equations, pseudocode, source code listings etc.
- Automatically handles cross-referencing of sections, figures etc.
- Automatic tools for managing bibliographies (BibTeX)

Getting LaTeX

- LaTeX is **free open source software**
- Consists of:
  - Several **executables** (pdflatex, bibtex, makeindex, ...)
  - A large library of **packages**
  - An **integrated development environment (IDE)** (optional)
- Distributions available for all major OSes
  - Windows: MikTeX
  - MacOS: MacTeX
  - Linux: TeXLive
- Online services e.g. Overleaf (should also work on iPad / Android)

Workshop Activity

- See LearningSpace: work through the LaTeX tutorials
- If you get stuck, post in chat here
- As you're working through them, compare LaTeX to WYSIWYG systems such as Microsoft Word
- Think of **one thing** which is better or easier in LaTeX...
- ... and **one thing** which is better or easier in Word
- Reconvene here at 5:30pm for a wrap-up