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Literature searching with citing & referencing Y4 Computer Science

LEADERS IN IDEAS AND SOLUTIONS

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First Section

LITERATURE SEARCHING

By the end of this session, you'll know:

- [ ] Literature reviews and RADAR
- [ ] Tips on searching
- [ ] Further Help

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LITERATURE REVIEWS AND RADAR

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Academic Writing

- Informed opinions
  - Based on knowledge of recent or important texts

- Using authoritative information sources
  - **Appropriate scholarly and technical texts**
  - written by recognized academics / professionals

- Support assertions with appropriate evidence
  - citing and referencing the literature

Literature Reviews

- Identification of the key points / topics / themes
  - Organisation by theme / topic

- Summary of the literature & a critical assessment of the topic
  - How the research already published fits together
  - Areas of consensus and disagreement
  - Areas of controversy/ where further research is required
- Recommendations for further research
  - Address an identified gap / repeat the research

- Acknowledgement of your sources

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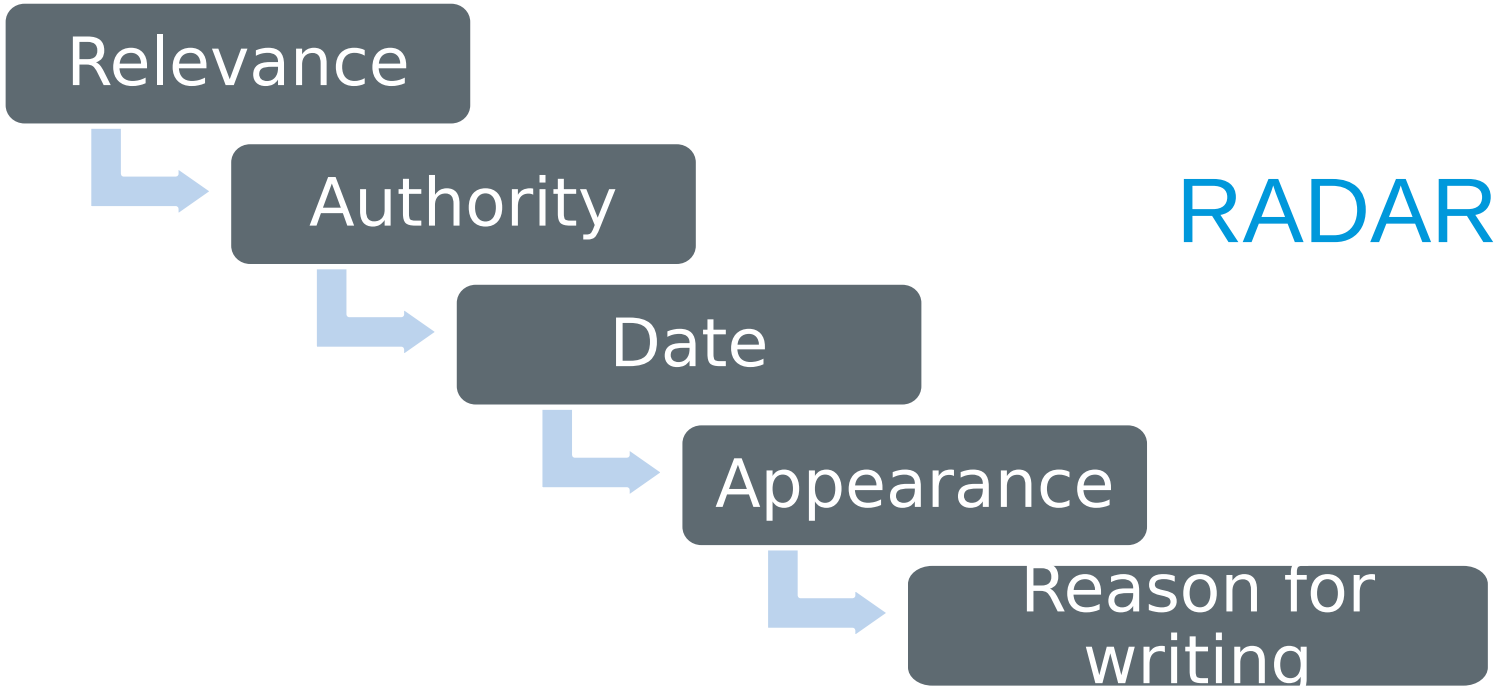
What to use for your work

- When you find something, consider:



RADAR checklist

J. Hopson, “Applying RADAR with new business postgraduates,” *J. Inf. Sci.*, vol. 40, no. 1, pp. 25-27, 2014.

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TIPS FOR SEARCHING

Step 1: Think about keywords

- **Synonyms**
  - Driverless/ autonomous / vehicle.
- **Acronyms / abbreviations**
  - Artificial Intelligence/AI.
- **Alternative/International Spellings**
  - Behaviour OR behavior / organisation OR organization.
- **Alternative endings/plurals**
  - System/ systems, car/cars.

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Building your keywords:
Discuss the *recent* development of driverless cars in motorways

Driverless	Car*	Motorway*
Autonomous “Self-Driving” Unmanned	Vehicle Automobile	Freeway Highway

Remember:

Use “” for phrase searching: it searches for words as a phrase

Use * as truncation: it searches all the alternate endings

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Step 2: Identify Sources – Discovery and Specialist Databases

- Discovery – key starting point. It’s the library search tool.
  - Manage your findings, use filters and limiters
  - Curated collection, authoritative
  - Not free on the internet
- Use Discovery instead of Google
- Specialist databases
- Subject guides: http://isguidess.hw.ac.uk?

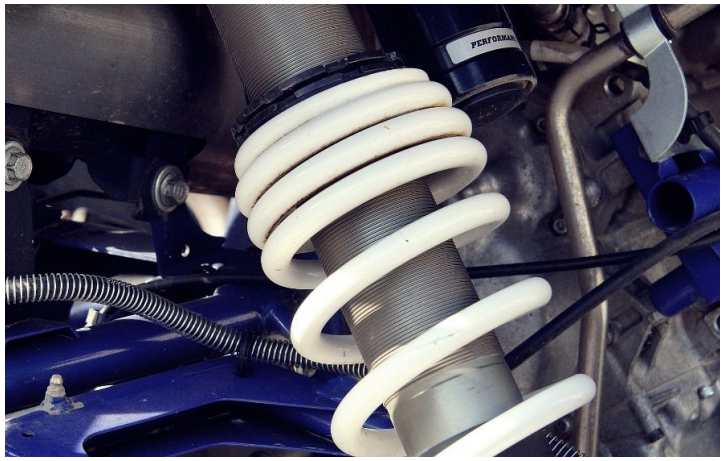
Step 3 – Apply Search techniques

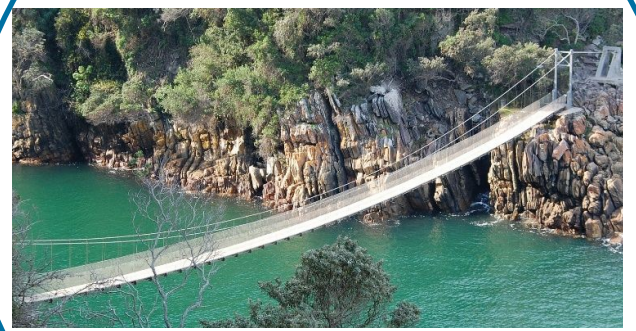
- **AND** Narrows down the search by finding results which mention **ALL** your search terms

- **OR** Broadens a search by finding results which mention ANY of your search terms. (Useful if you have a few different terms covering the same concept)

- **NOT** Narrows the search by EXCLUDING records

OR – all the words

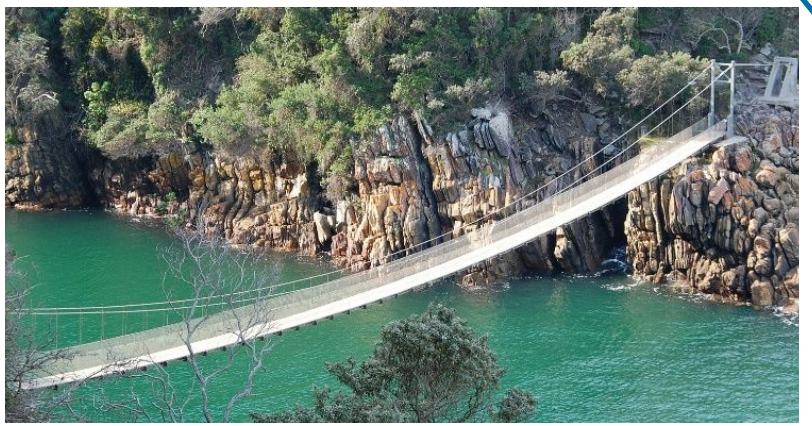




suspension

bridge

AND – combining your search terms



suspension AND bridge

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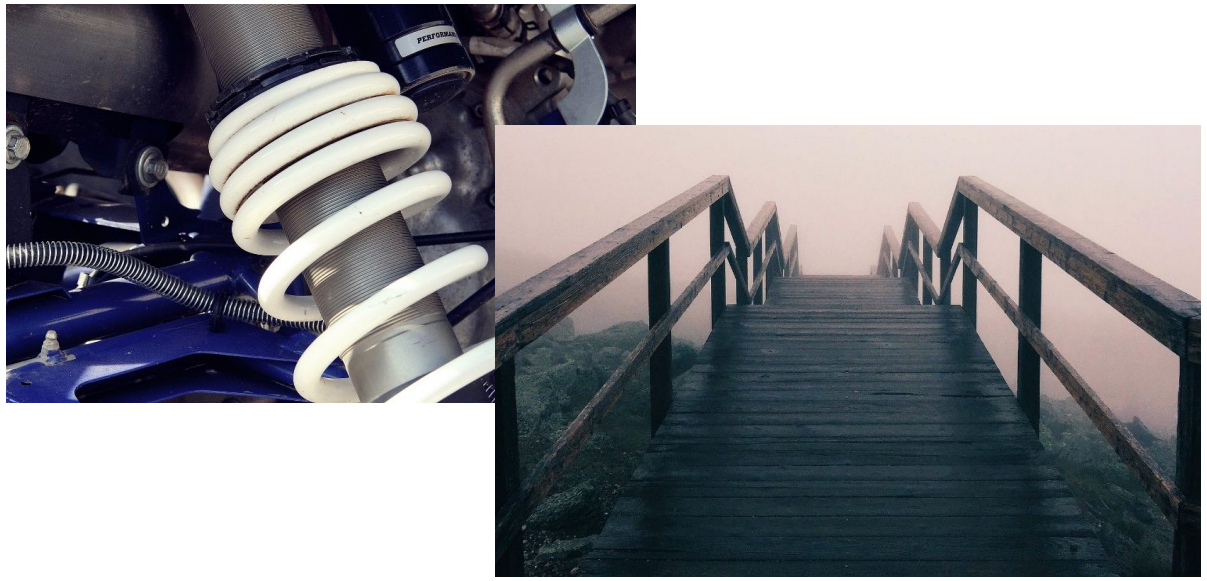
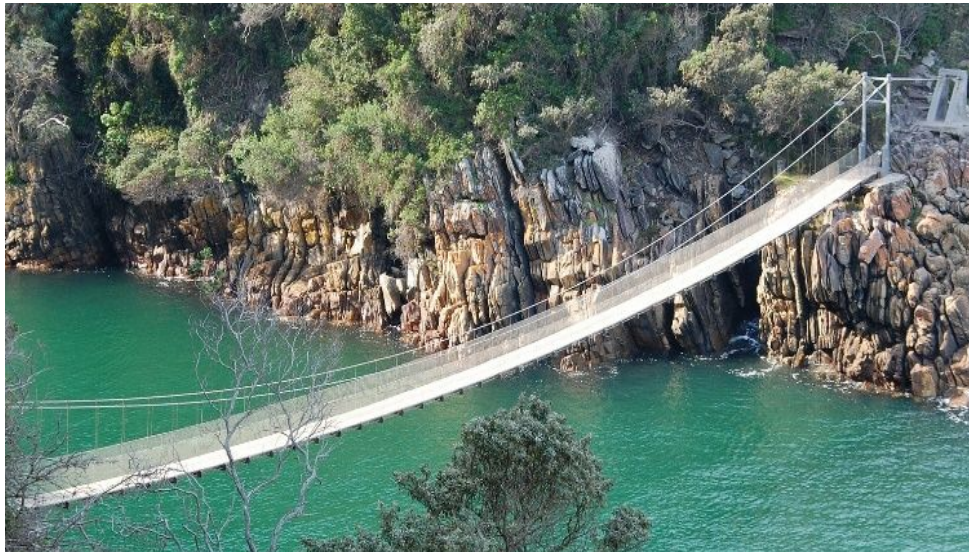
“Phrase searching” - words appear next to each other

suspension bridge



“suspension bridge”



Search techniques (Discovery)

- Truncation - math* = maths, mathematics, mathematical etc.
- Wildcards – organi?ation
- Phrase searching – “ ”
- Nested searching – (www OR “world wide web”) AND (Security OR Encrypt*)

NOTE – Other databases may use different symbols and searches. Use the help section.

Thinking about limits

- Date
  - is it relevant to your search?
- Publication type/ design of study
  - Review articles, original articles, trials, etc.
- Population
  - Adults, children or teenagers
- Geographical setting/ country of publication
  - Is this relevant to your search?

Where to look

Start from your subject guide:
Home - Computer Science - ISGuides at Heriot-Watt University (hw.ac.uk)

- Discovery
- ArXiv
- IEEE Xplore
- Scopus

Getting full text

- Default search in Discovery shows only full text articles.
- Most other databases are indexes.
- Use Heriot-Watt “Check for Full Text” to see if article is availabl 

- Install Libkey Nomad extension.
  - https://thirdiron.com/downloadnomad/

Not available at Heriot-Watt?

- Interlibrary Loan.
  - third year undergraduate or higher.
  - https://www.hw.ac.uk/uk/services/is/library-essentials/ill.htm
- Request a digital copy

Request a digital copy

- **Sign in** to Discovery
- “Search outside Heriot-Watt”

ARTICLE

Machine Learning Methods for Classification of Organic and Inorganic Compounds Raman Spectra

Gylka, R. A. ; Anfimov, D. R. ; Demkin, P. P. ; Kosterova, A. P. ; Fufurin, I. L.

Moscow: Pleiades Publishing

Russian journal of physical chemistry. B, 2025-12, Vol.19 (6), p.1310-1316

❝ *The study presents a comparative analysis of the machine learning methods effectiveness for classifying Raman spectra to enable automated identification of organic and inorganic compounds...*❝

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ACTIONS

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CITATIONS

TAGS

Actions

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You may be able to request it through Interlibrary Loan.

Request a digital copy of a journal article or book chapter

Having problems? Please get in touch.

About Google Scholar

If using, use in conjunction with Library databases or Discovery.

However:

- Not a database
- Doesn’t have a source/reference list
- Doesn’t have searching features
- Ranks by algorithm

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Managing what you find

- Save searches
- Notifications on new searches
- Labels and tags
- EndNote

Summary

You should be searching for:

- High quality, appropriate research and evidence
- From high quality sources
- Use critical thinking to distinguish

You can search effectively by:

- Using HWU supplied resources
- Applying search ‘tips and tricks’

Second Section

CITING AND REFERENCING

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Outline

Why **What** **When** **How**

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WHY do we need to cite & reference?

Why do we need to cite & refence?

- **It is part of academic writing – academic research builds on existing knowledge**
  - Understanding of a topic is developed by reading what others have written
  - Using authoritative sources
  - Good academic practice
- **By acknowledging the work of others you avoid plagiarism**
  - Passing off someone else's work as your own
  - There are strict penalties for this

Why do we need to cite and reference? Continued.

- **Markers expect to see citations and reference lists (remember check School guidelines)**
  - They want to know what you have read/what sources you have used in order to develop your understanding
    - Evidence of background reading and independent effort
    - Evidence that you know what's already known in the topic (i.e. your putting your research in context)
    - Shows that you've read, understood, and can use others observations
    - Number of references = breadth of reading
    - Type of references = depth of reading
- **It allows anyone reading/marking to follow up/verify sources**

What is Plagiarism?

- HWU Student Guide to Avoiding Plagiarism
  Student Guide Avoiding Plagiarism (hw.ac.uk)
- Theft of Intellectual Property
  - Using someone else's words or ideas and passing them off as your own from (from any source)
    - published or unpublished material
    - online or print
    - not just text – images/graphs/tables etc etc
  - Whether intentional or not
    - buying ready-mades from the internet
    - cutting & pasting/paraphrasing/quoting and failing to acknowledge/attribute
  - Detection?
    - vocabulary, style, fluency, Turnitin

Tips for avoiding plagiarism

- Develop good note-taking and time management strategies.
- Read academic articles for writing style tips.
- Follow your chosen citation style as precisely as possible.

Heriot-Watt University's Plagiarism Guide gives more information on how to avoid it.

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WHAT

Citing and referencing explained

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Citation styles

2 main ‘citation styles’:

- **Author-Date**
  - In-text citation given as e.g. (Smith 2012)
  - Reference List ordered alphabetically by author surname.
  - e.g. Harvard.
- **Numbered**
  - In-text citation given as e.g. [1] or (1).
  - Reference List ordered numerically.
  - e.g. IEEE.

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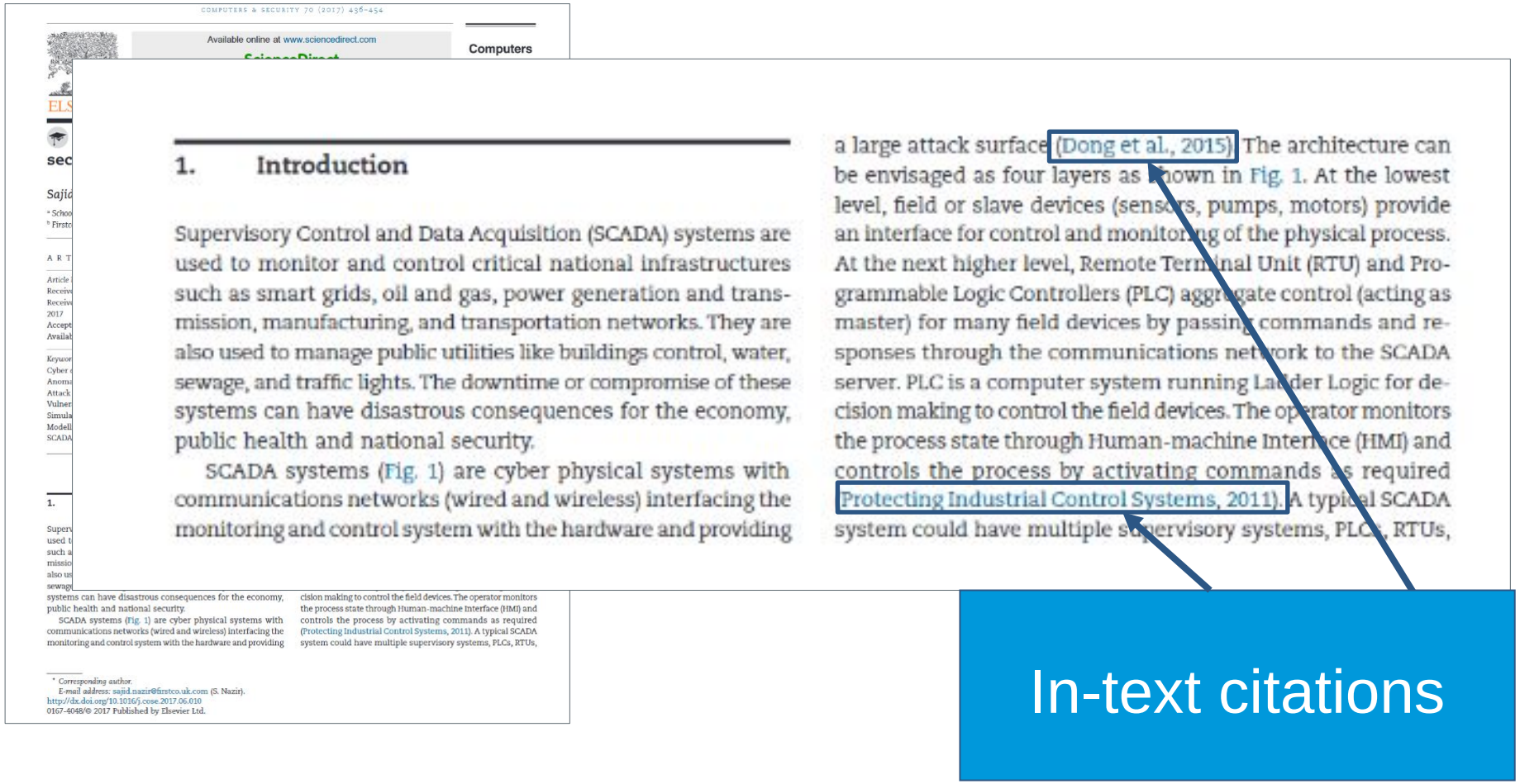
Author-Date Style



1. Introduction

Supervisory Control and Data Acquisition (SCADA) systems are used to monitor and control critical national infrastructures such as smart grids, oil and gas, power generation and transmission, manufacturing, and transportation networks. They are also used to manage public utilities like buildings control, water, sewage, and traffic lights. The downtime or compromise of these systems can have disastrous consequences for the economy, public health and national security.

SCADA systems (Fig. 1) are cyber physical systems with communications networks (wired and wireless) interfacing the monitoring and control system with the hardware and providing a large attack surface (Dong et al., 2015). The architecture can be envisaged as four layers as shown in Fig. 1. At the lowest level, field or slave devices (sensors, pumps, motors) provide an interface for control and monitoring of the physical process. At the next higher level, Remote Terminal Unit (RTU) and Programmable Logic Controllers (PLC) aggregate control (acting as master) for many field devices by passing commands and responses through the communications network to the SCADA server. PLC is a computer system running Ladder Logic for decision making to control the field devices. The operator monitors the process state through Human-machine Interface (HMI) and controls the process by activating commands as required (Protecting Industrial Control Systems, 2011). A typical SCADA system could have multiple supervisory systems, PLCs, RTUs,

In-text citations

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Reference

addresses is both an opportunity and challenge for cyber security.

In future, there will be a need for a lot more collaboration (Slay and Miller, 2008) between researchers, academics, vendors, developers, and government agencies to design foolproof solutions through integrated and cohesive efforts to meet the security challenges.

Acknowledgement

The authors gratefully acknowledge funding support from Innovate UK for sponsoring the KTP project at London South Bank University, in collaboration with Firstco Ltd.

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Numeric Style

Assessing Trust Level of a Driverless Car Using Deep Learning

Gour Karmakar, *Member, IEEE*, Abdullahi Chowdhury, *Graduate Student Member, IEEE*, Rajkumar Das, Joarder Kamruzzaman, *Senior Member, IEEE*, and Syed Islam, *Fellow, IEEE*

***Abstract*— The increasing adoption of driverless cars already providing a shift to move away from traditional transportation systems to automated ones in many industrial and commercial applications. Recent research has justified that driverless vehicles will considerably reduce traffic congestions, accidents, carbon emissions, and enhance the accessibility of driving to wider cross-section of people and lifestyle choices. However, at present, people's main concerns are about its privacy and security. Since traditional protocol layers based security mechanisms are not so effective for a distributed system, trust value-based security**

shown that autonomous vehicles can considerably reduce the congestion, accidents, and environmental pollution [1], and increase comfort and accessibility of car uses. Besides, similar to the huge benefits it can bring to public and private transportation, in parallel, driverless vehicles are also increasing industrial automation and productivity [2], improving logistics services [3], [4] and thus strengthening the national productivity. As with other industrial revolutions prompted by

In-text citations

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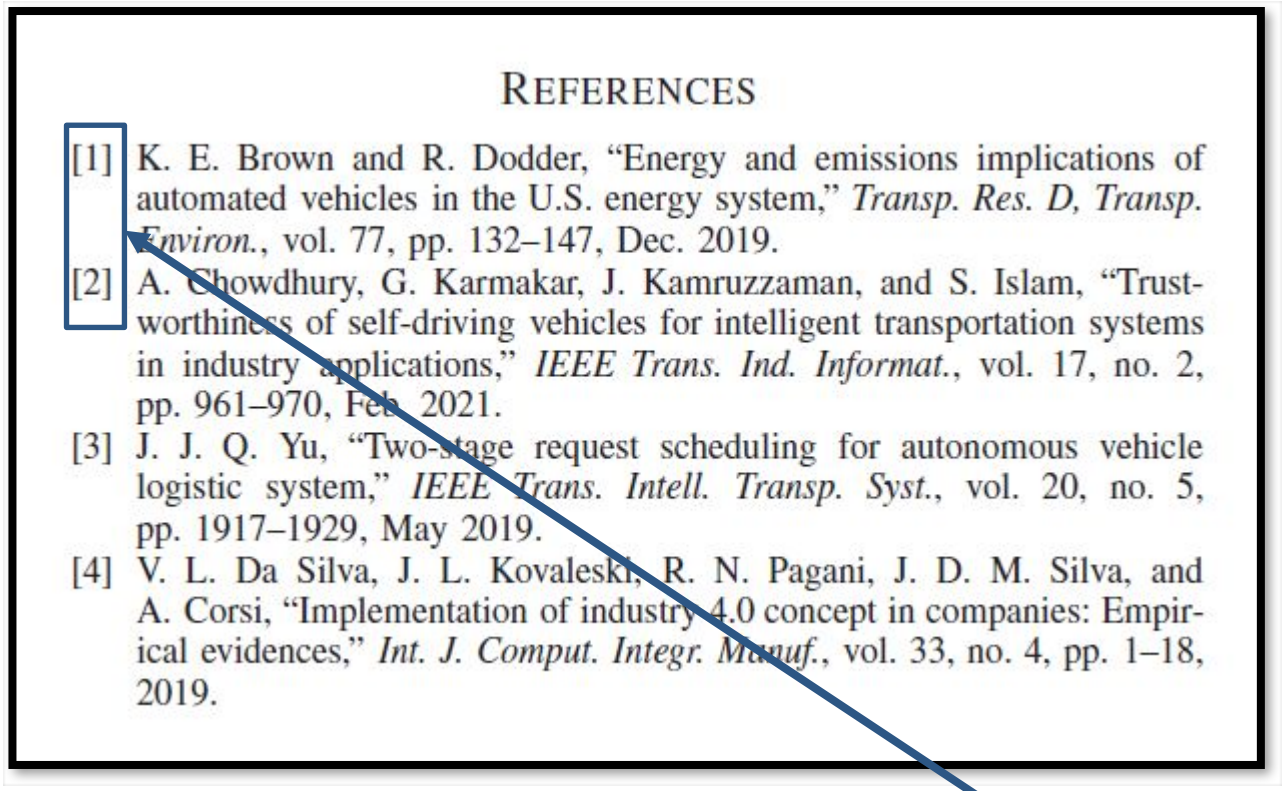

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References

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WHEN

Should you cite and reference?

When to cite & reference

- Using someone else’s work, words or ideas from:
  - published material, e.g., book.
  - unpublished material, e.g., dissertation.
  - web pages
  - etc.
- Includes tables, graphs, diagrams, images (unless you created these yourself).
- Quoting or paraphrasing.

When not to cite & reference

- Common knowledge:
  - e.g. London is the capital of the UK.
- However, each subject will have its own common knowledge:
  - e.g. the boiling point of methane is -164°C

- Never reference something you haven’t read.

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What is paraphrasing?

Paraphrasing is expressing borrowed ideas or information in your own words.

- Paraphrase when:
- a simplification of the original is appropriate for your purposes
- your own explanations need to be added
- the original ideas need to be reorganised to fit with your text
- your emphasis is different to that of the original text

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HOW

To cite and reference

How to cite & reference?

- **Mechanics**
  - Pick a style (Author/Date or Numeric)
  - Make sure you have all of the bibliographic details (Author, date, year, title etc etc etc)
  - Format your citations and references in a CONSISTENT style

Referencing template for a book

You will need:

Author(s)
Year of publication
Name of book
Edition (if not the first)
Place the publisher is based
Name of publisher

In text citation Harvard and IEEE:

De Brun and Pearce-Smith (2014) recommend …

It has been recommended … (De Brun and Pearce-Smith, 2014).

It has been recommended … [1] OR [1] recommends…

Reference Harvard:

De Brun, C. and Pearce-Smith, N. (2014). *Searching Skills Toolkit: Finding the Evidence*. 2nd edn. Chichester: BMJ Books/Wiley Blackwell.

Reference IEEE:

[1] C. De Brun and N. Pearce-Smith. *Searching Skills Toolkit: Finding the Evidence.* 2nd Ed. Chichester: BMJ

Referencing template for a journal article

You will need:

Author(s) of article
Year of publication
Title of article
Title of journal
Volume number
Part or issue number
Page numbers

In text citation Harvard and IEEE:

Carter-Templeton et al. (2018) highlighted …

The opportunity of more robots in nursing is likely to increase (Carter-Templeton et al., 2018).

The opportunity of more robots in nursing is likely to increase [1].

Reference Harvard and IEEE:

Carter-Templeton, H., Frazier, R., Wu, L. and Wyatt, T. (2018) 'Robotics in Nursing: A Bibliometric Analysis', *Journal of Nursing Scholarship*, 50(6), pp. 582-589.

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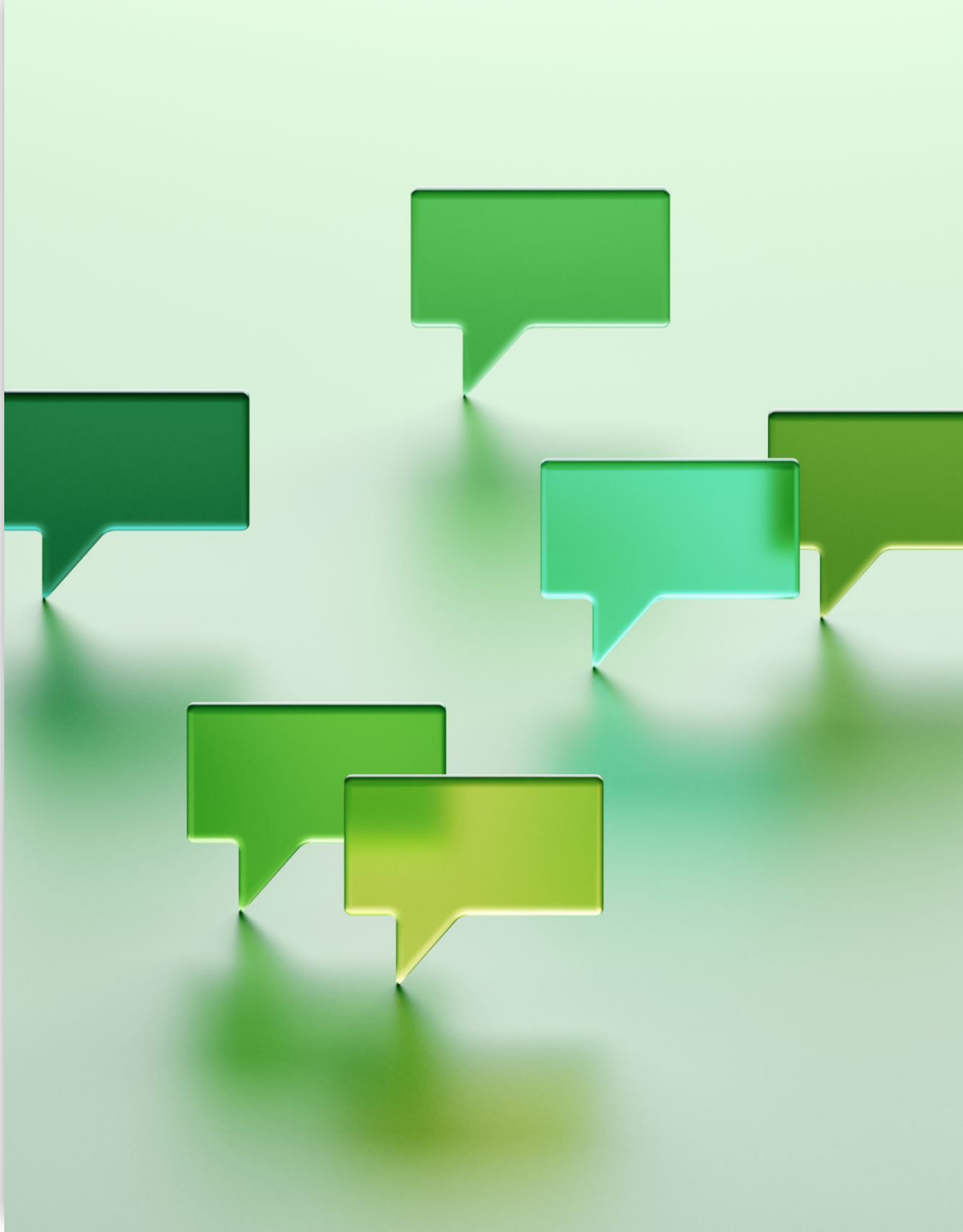
Referencing tips

- Come to a webinar to learn about how to cite and reference.
- Do **NOT** rely on an online reference generator – if the underlying information is in an unexpected format or incomplete, the reference will be wrong.
- Use the Cite Them Right Online tool and the Skills Hub Guide

Citing and referencing (sharepoint.com)



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EndNote

- Helps you keep track of your references
  - i.e.: stores the necessary bibliographic details

- Helps you format your Reference Lists (Microsoft Word)
  - i.e.: makes sure you are consistent

https://isguides.hw.ac.uk/endnote

Common mistakes

- Not having all the required information for your referencing.
- Not referencing information taken from elsewhere – very serious; could be accused of plagiarism.
- Inconsistency – make sure all your references are in the same style.
- Including author’s/publisher’s address – not needed.
- Numbering issues, especially when editing drafts or inserting new citations.

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Further help

Support for your learning

Academic Support Librarian:

- Finding & managing information.
- Citing & referencing.
- EndNote.

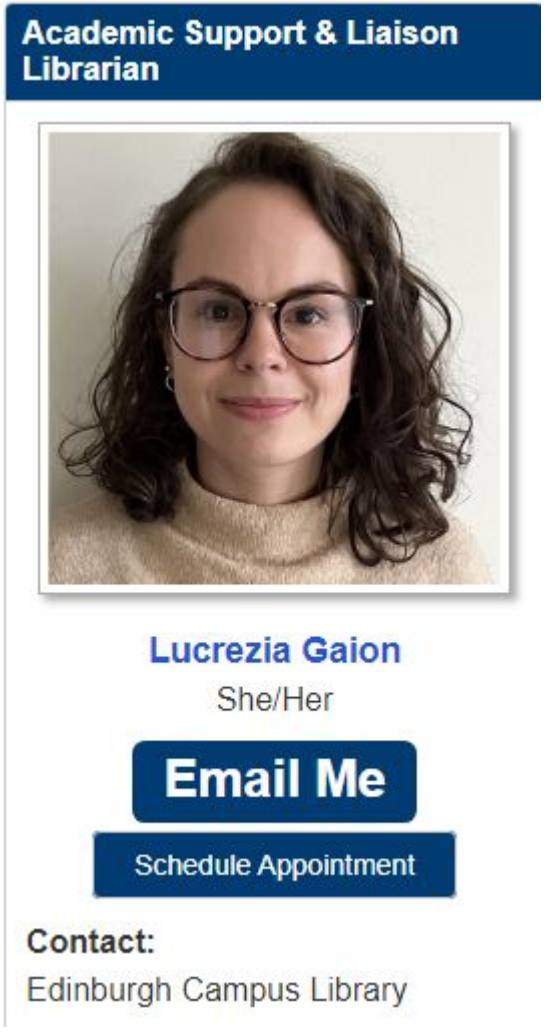
Effective Learning Advisers:

- Study skills.
- Academic writing.

Skills Hub: https://go.hw.ac.uk/SkillsHub

- Bookable appointments.
- Walk-in enquiries at the Library Service Desk.

https://isguides.hw.ac.uk/



More resources

Skills Hub:

List of resources mentioned in today's class and where to find examples.

https://heriotwatt.sharepoint.com/sites/skillshub/SitePages/Library-and-referencing-skills.aspx -

Subject guides

www.hw.ac.uk/services/is/guides/subject.htm