



Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

200
1822 - 2022

Research Methods & Professional Development

Literature Review

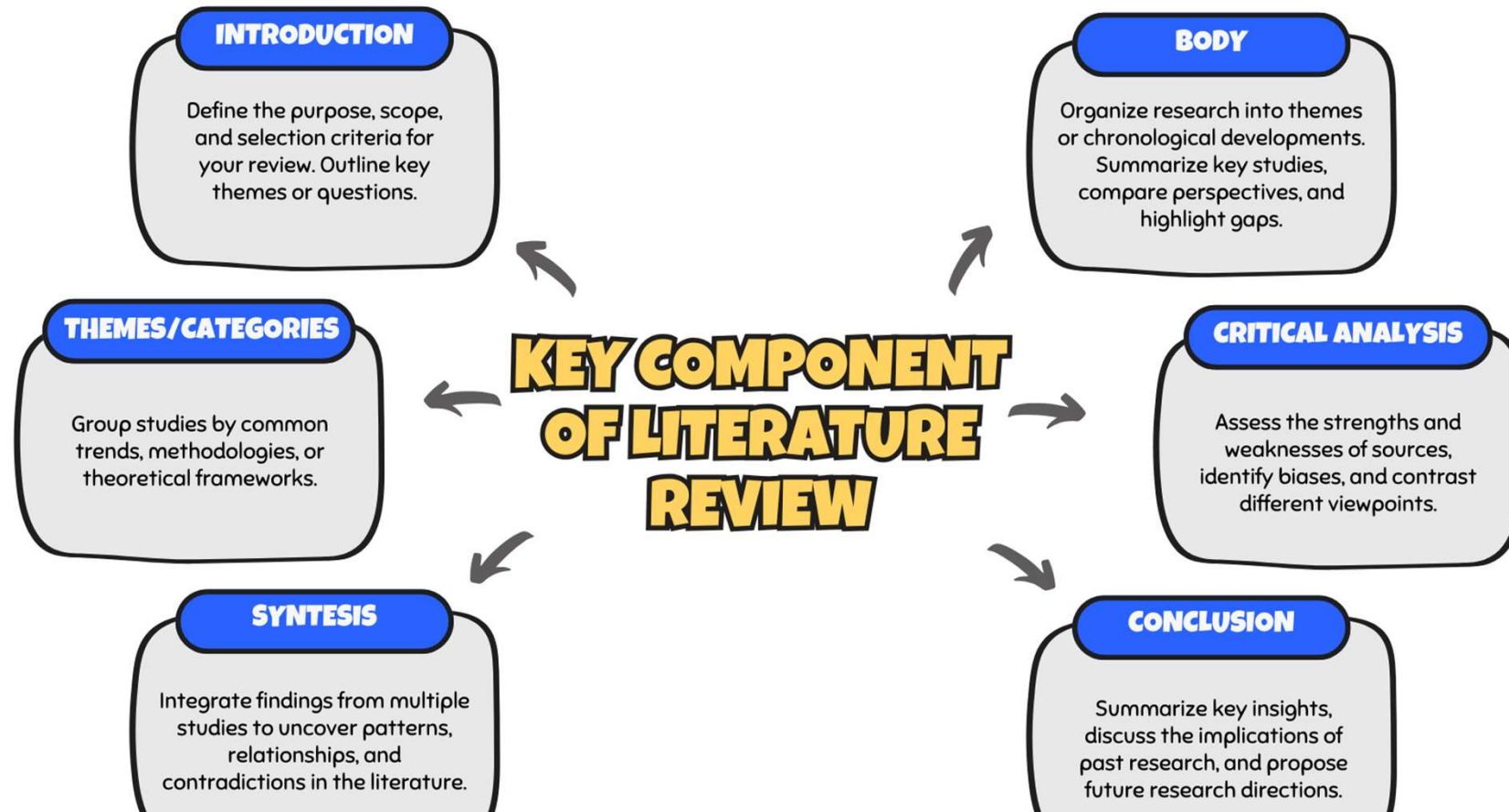
Man Geni Addysg Uwch yng Nghymru
Where Higher Education Began in Wales

www.uwtsd.ac.uk

Literature Review Essentials: Key Concepts & Activities

- **1. What is a Literature Review?**
- **Definition:** Systematic, explicit method to find, assess, and synthesize existing research [1].
- **Purpose:**
 - Builds arguments for your research.
 - Identifies gaps, trends, and contradictions.
 - *Not* a summary or annotated bibliography.

Literature Review Essentials



Literature Review Essentials: Key Concepts & Activities

Brainstorm 3 research questions in your field. For one, list 2 keywords and 1 database you'd use to start your review.

Types of Literature Reviews

Type	Use Case
Narrative	Qualitative synthesis; identifies gaps
Systematic (SLR)	Structured, protocol-driven (e.g., PRISMA)
Scoping	Maps emerging fields (includes grey literature)
Critical	Evaluates methodologies/theories

Narrative - Literature Reviews

summarizes and synthesizes existing research on a particular topic in a **descriptive, non-systematic** way.

does **not follow a strict methodology** like a systematic review, and instead, it presents a general overview based on selected sources.

Sources are chosen based on the author's **judgment, relevance, or importance**, not a rigid inclusion/exclusion criterion.

Useful for **getting an overview** of a field or **building a conceptual background** for a thesis, dissertation, or new research.

Narrative - Literature Reviews

1 Define Your Topic & Scope



Narrow your focus.
Set clear boundaries.

Ask: What specific question
am I answering?

Strong Research Question:

- Be specific
- Ensure relevance
- Make it debatable

2 Search the Literature

Be strategic, not
exhaustive.

Prioritize relevance and
credibility.



Where to Search:

- Academic databases (PubMed, Scopus, Google Scholar)
- Grey literature (reports, theses)
- Citation tracking
- Discovery tools (Litmaps, Research Rabbit)

Refine Your Search:

- Use Boolean operators (AND, OR, NOT)
- Apply filters (date, type, language)
- Document your strategy

3 Select & Analyze Key Studies



Focus on high-impact,
relevant work.

Evaluate Sources:

- Peer-reviewed?
- Solid methodology?
- Consensus or contradictions?

Take Notes:

- Summarize in your own words
- Note strengths, weaknesses, gaps
- Make connections between studies

4 Structure Your Review



A strong structure keeps
your review logical and
engaging.

Standard Outline:

1. **Introduction** – Topic, importance, question
2. **Background** – Context, definitions
3. **Thematic Sections** – Organize by themes, not dates
4. **Discussion** – Insights, contradictions, future directions
5. **Conclusion** – Key takeaways, impact

5 Write with Clarity & Authority

Make your narrative
persuasive and insightful.



Writing Tips:

- Be concise
- Use transitions
- Stay critical, not neutral
- Cite strategically

6 Revise & Acknowledge Limitations



Editing sharpens your
work.

Checklist:

- Clear argument?
- Strong evidence?
- Engaging tone?
- Alternative views addressed?

Limitations to Note:

- Selection bias
- Publication bias
- Interpretation bias

Narrative - Literature Reviews - example

Machine Learning for Intrusion Detection Systems

Intrusion Detection Systems (IDS) are essential for network security, but traditional signature-based methods are often ineffective against emerging threats. Machine Learning (ML) offers adaptive detection by using algorithms such as Support Vector Machines (SVM), Decision Trees, and clustering to identify anomalies [1], [2]. Deep Learning techniques like Convolutional Neural Networks (CNNs) and Recurrent Neural Networks (RNNs) have recently gained traction for capturing complex patterns in network traffic [3]. For instance, RNNs have shown strong results on datasets like NSL-KDD [4]. However, challenges persist, including reliance on outdated datasets like KDD99, high computational costs, and poor model interpretability [5]. Recent research emphasizes developing real-time, lightweight, and explainable ML solutions [6].

Narrative - Literature Reviews - example

References (IEEE Style)

- [1] D. E. Denning, “An intrusion-detection model,” *IEEE Transactions on Software Engineering*, vol. SE-13, no. 2, pp. 222–232, Feb. 1987.
- [2] S. Mukkamala, G. Janoski, and A. Sung, “Intrusion detection using neural networks and support vector machines,” in *Proc. IEEE Int. Joint Conf. Neural Networks (IJCNN)*, 2002, vol. 2, pp. 1702–1707.
- [3] A. H. Lashkari, M. S. Mamun, and A. A. Ghorbani, “Evaluating the performance of deep learning models for network intrusion detection,” in *Proc. Int. Conf. on Cyber Security and Protection of Digital Services (Cyber Security)*, 2019, pp. 1–6.
- [4] Y. Kim, H. Kim, and Y. Kim, “An RNN-based intrusion detection system for cloud networks,” in *Proc. Int. Conf. on Platform Technology and Service (PlatCon)*, 2016, pp. 1–5.
- [5] M. Tavallaee, E. Bagheri, W. Lu, and A. A. Ghorbani, “A detailed analysis of the KDD CUP 99 data set,” in *Proc. IEEE Symp. Computational Intelligence for Security and Defense Applications*, 2009, pp. 1–6.
- [6] A. Shinde, S. Patil, and P. Padiya, “Explainable AI for anomaly detection in cybersecurity,” in *Proc. Int. Conf. on Information Security and Privacy (ICISP)*, 2021, pp. 45–50.

Systematic (SLR)

a **methodical and replicable process** of identifying, evaluating, and synthesizing existing research to answer a specific research question.

1. Introduction

2. Methodology

3. Results

4. Discussion

5. Conclusion

6. References

Systematic (SLR)

a **methodical and replicable process** of identifying, evaluating, and synthesizing existing research to answer a specific research question.

1. Introduction

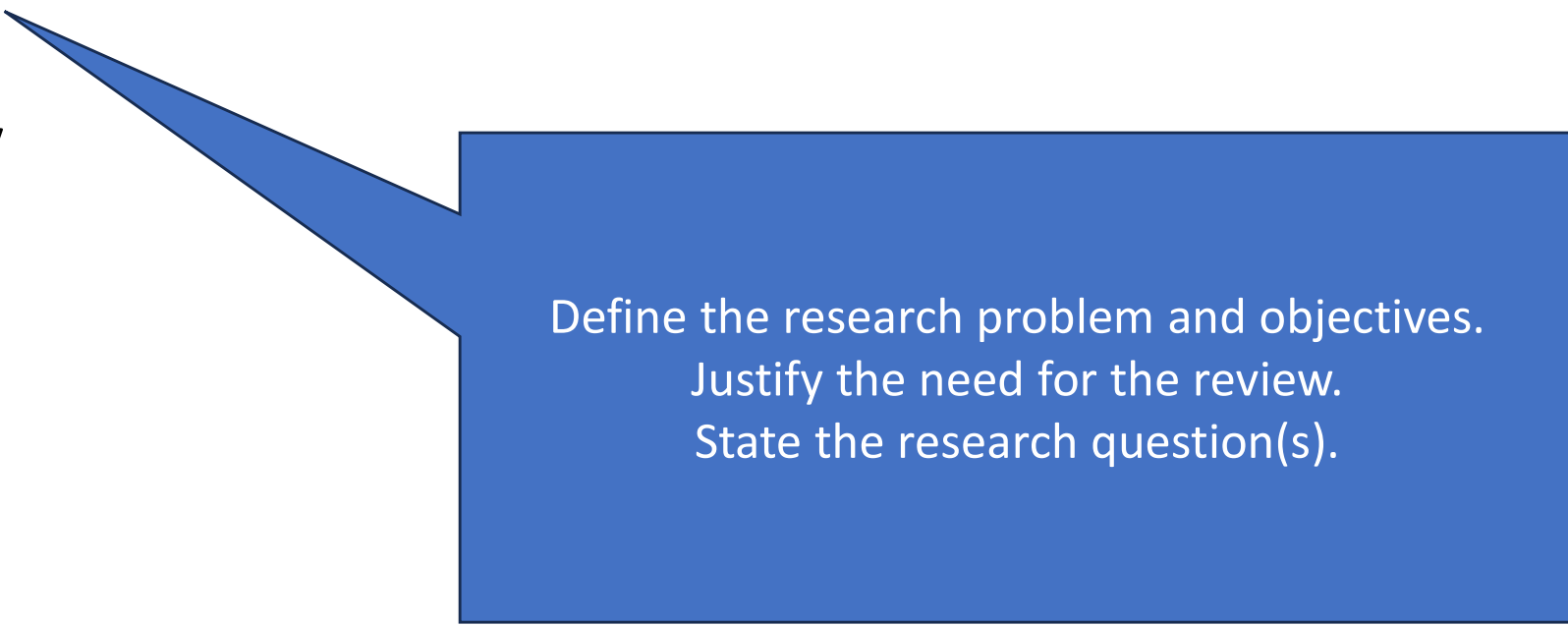
2. Methodology

3. Results

4. Discussion

5. Conclusion

6. References



Define the research problem and objectives.
Justify the need for the review.
State the research question(s).

Systematic (SLR)

a **methodical and replicable process** of identifying, evaluating, and synthesizing existing research to answer a specific research question.

1. Introduction

2. Methodology

3. Results

4. Discussion

5. Conclusion

6. References

Search strategy (databases, keywords, time frame).

Inclusion and exclusion criteria.

Quality assessment process.

Data extraction and synthesis methods.

Systematic (SLR)

a **methodical and replicable process** of identifying, evaluating, and synthesizing existing research to answer a specific research question.

1. Introduction

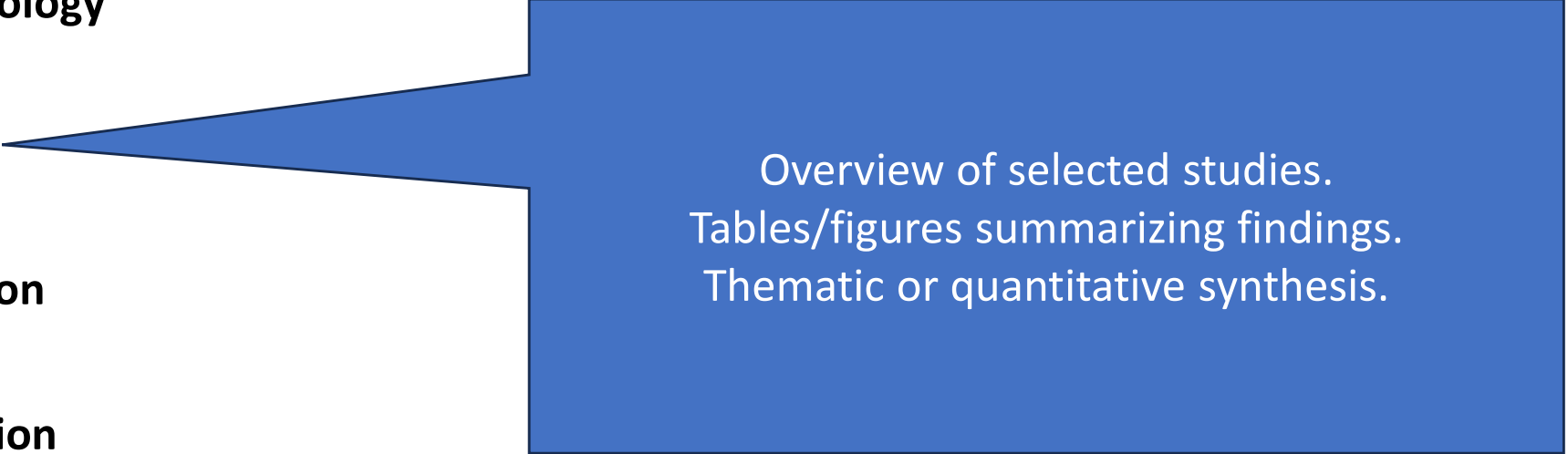
2. Methodology

3. Results

4. Discussion

5. Conclusion

6. References



Overview of selected studies.
Tables/figures summarizing findings.
Thematic or quantitative synthesis.

Systematic (SLR)

a **methodical and replicable process** of identifying, evaluating, and synthesizing existing research to answer a specific research question.

1. Introduction

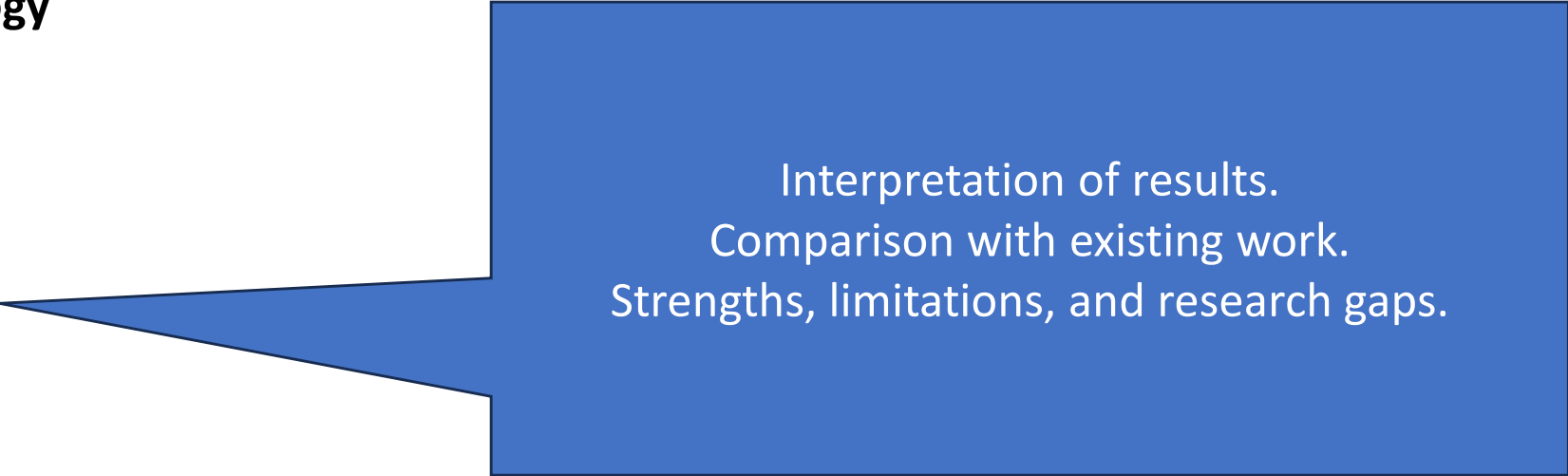
2. Methodology

3. Results

4. Discussion

5. Conclusion

6. References



Interpretation of results.
Comparison with existing work.
Strengths, limitations, and research gaps.

Systematic (SLR)

a **methodical and replicable process** of identifying, evaluating, and synthesizing existing research to answer a specific research question.

1. Introduction

2. Methodology

3. Results

4. Discussion

5. Conclusion

6. References



Summary of key findings.
Implications for research or practice.
Suggestions for future work.

Systematic (SLR)

a **methodical and replicable process** of identifying, evaluating, and synthesizing existing research to answer a specific research question.

1. Introduction

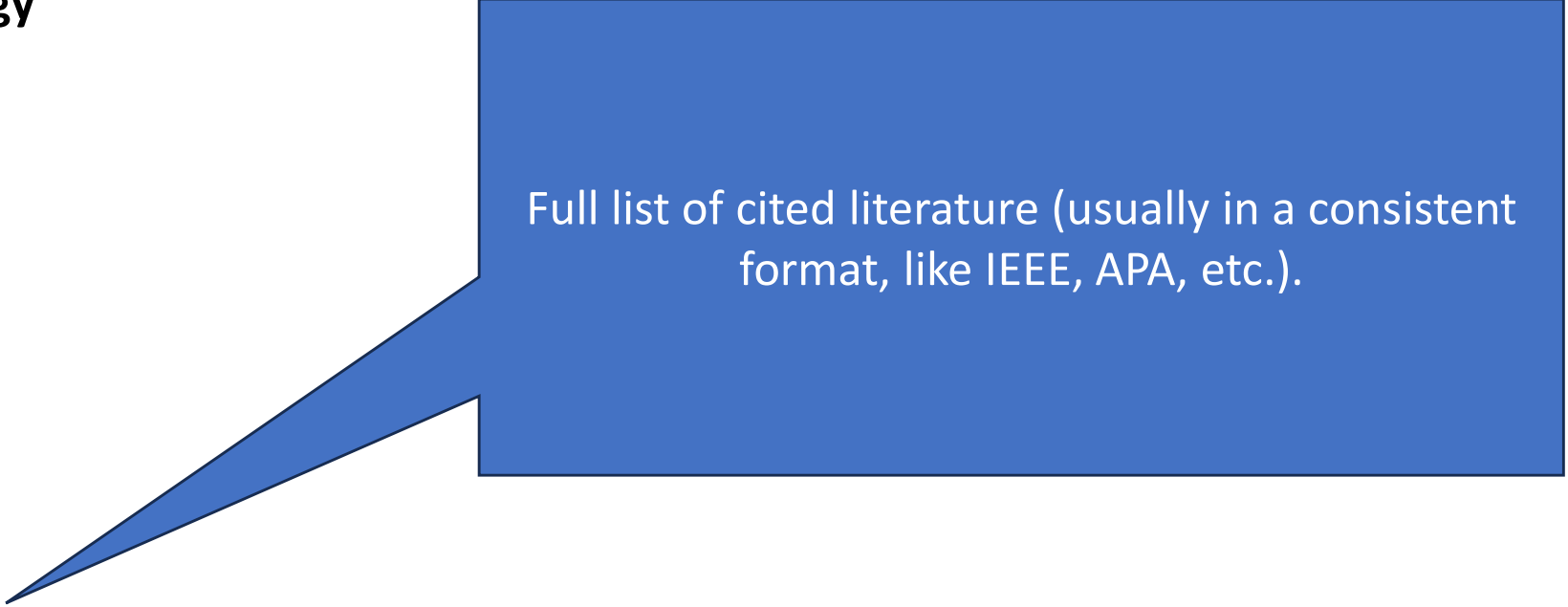
2. Methodology

3. Results

4. Discussion

5. Conclusion

6. References

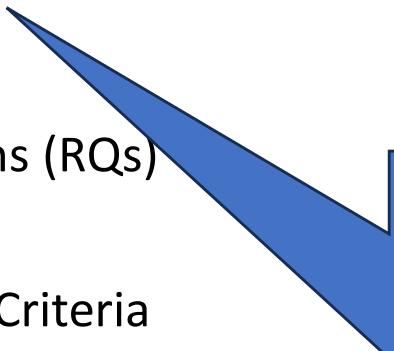


Full list of cited literature (usually in a consistent format, like IEEE, APA, etc.).

Systematic (SLR) - steps

define **inclusion and exclusion criteria** and use tools like **RefWorks** or **Google Scholar** to conduct a **Systematic Literature Review (SLR)**.

1. Define Your Research Topic
2. Set Clear Research Questions (RQs)
3. Set Inclusion and Exclusion Criteria
4. Search Strategy: Using Google Scholar or RefWorks
5. Document Study Selection Process
6. Create Your Review Matrix or Table



Machine Learning Techniques for
Intrusion Detection Systems (IDS)

Systematic (SLR) - steps

define **inclusion and exclusion criteria** and use tools like **RefWorks** or **Google Scholar** to conduct a **Systematic Literature Review (SLR)**.

1. Define Your Research Topic
2. Set Clear Research Questions (RQs)
3. Set Inclusion and Exclusion Criteria
4. Search Strategy: Using Google Scholar or RefWorks
5. Document Study Selection Process
6. Create Your Review Matrix or Table

RQ1: What ML algorithms are most used for IDS?

RQ2: What datasets are commonly used in IDS research?

RQ3: What are the limitations of current ML-based IDS approaches?

Systematic (SLR) - steps

define **inclusion and exclusion criteria** and use tools like **RefWorks** or **Google Scholar** to conduct a **Systematic Literature Review (SLR)**.

1. Define Your Research Topic

2. Set Clear Research Questions (RQs)

3. **Set Inclusion and Exclusion Criteria**

4. Search Strategy: Using Google Scholar or RefWorks

5. Document Study Selection Process

6. Create Your Review Matrix or Table

Inclusion Criteria

Criteria	Description
Time Range	Studies published from 2015 to 2024
Language	Only English-language publications
Study Type	Peer-reviewed journal articles or conference papers
Topic Relevance	Studies must apply ML methods to IDS
Availability	Full text must be accessible

Systematic (SLR) - steps

define **inclusion and exclusion criteria** and use tools like **RefWorks** or **Google Scholar** to conduct a **Systematic Literature Review (SLR)**.

1. Define Your Research Topic

2. Set Clear Research Questions (RQs)

3. Set Inclusion and Exclusion Criteria

4. Search Strategy: Using Google Scholar or RefWorks

5. Document Study Selection Process

6. Create Your Review Matrix or Table

Exclusion Criteria

Criteria	Description
Non-ML Focus	Studies that discuss IDS without ML methods
Non-peer-reviewed	Blogs, magazine articles, posters, preprints (optional)
Duplicate Records	Same study published in multiple places
Irrelevant Domains	ML used in other domains (e.g., healthcare IDS)

Systematic (SLR) - steps

define **inclusion and exclusion criteria** and use tools like **RefWorks** or **Google Scholar** to conduct a **Systematic Literature Review (SLR)**.

1. Define Your Research Topic
2. Set Clear Research Questions (RQs)
3. **Set Inclusion and Exclusion Criteria**
4. **Search Strategy: Using Google Scholar or RefWorks**
5. Document Study Selection Process
6. Create Your Review Matrix or Table

Google Scholar (Free and Simple)
RefWorks (for managing and filtering)

Systematic (SLR) - steps

define **inclusion and exclusion criteria** and use tools like **RefWorks** or **Google Scholar** to conduct a **Systematic Literature Review (SLR)**.

1. Define Your Research Topic
2. Set Clear Research Questions (RQs)
3. **Set Inclusion and Exclusion Criteria**
4. Search Strategy: Using Google Scholar or RefWorks
5. **Document Study Selection Process**
6. Create Your Review Matrix or Table

Use a PRISMA Flow Diagram to show:
Total records identified
Records screened
Records excluded
Studies included in final review

Systematic (SLR) - steps

define **inclusion and exclusion criteria** and use tools like **RefWorks** or **Google Scholar** to conduct a **Systematic Literature Review (SLR)**.

1. Define Your Research Topic
2. Set Clear Research Questions (RQs)
3. Set Inclusion and Exclusion Criteria
4. Search Strategy: Using Google Scholar or RefWorks
5. Document Study Selection Process
6. Create Your Review Matrix or Table

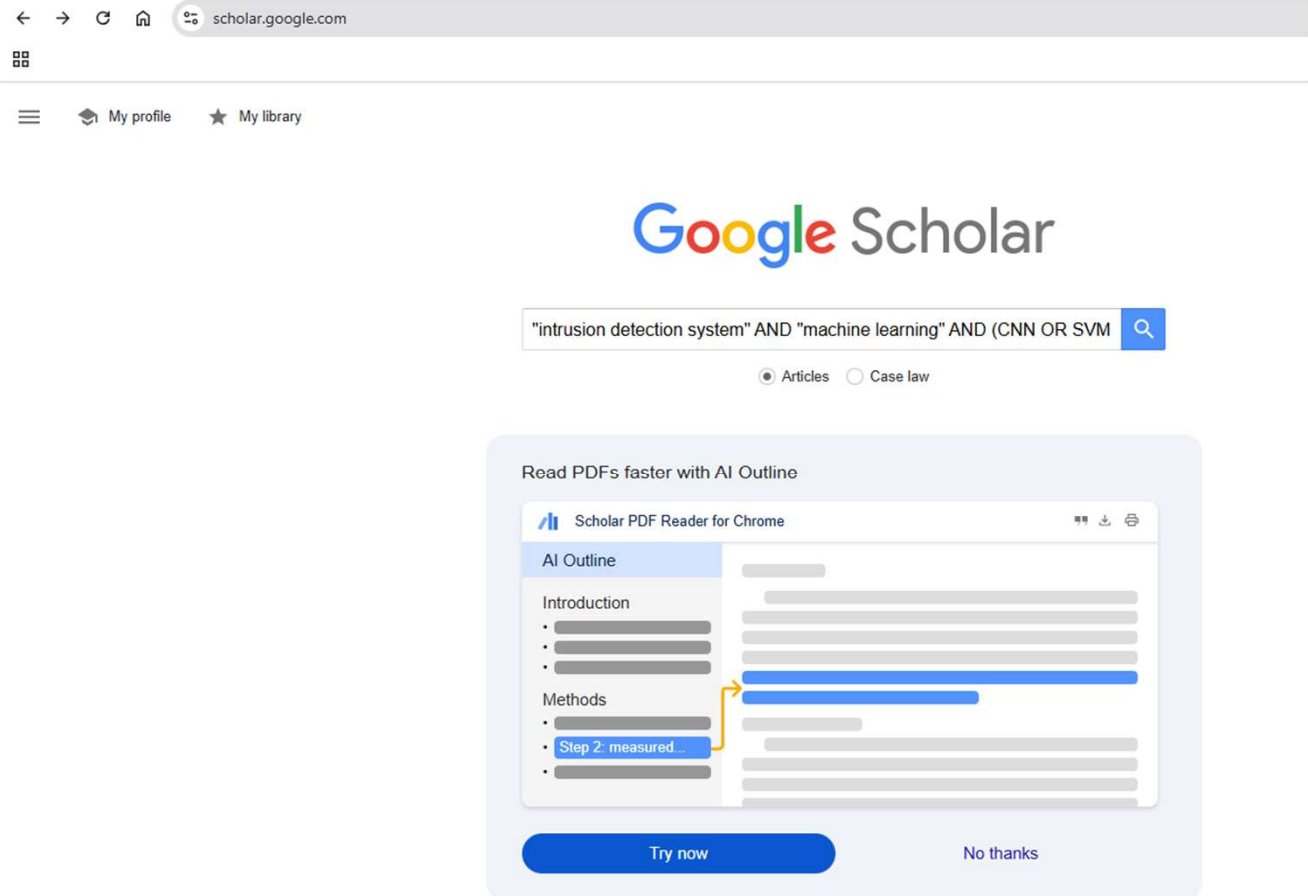
Study	Algorithm	Dataset	Accuracy	Notes
Smith et al. (2018)	SVM	NSL-KDD	92%	Focused on anomaly detection

Systematic (SLR) - steps

4. Search Strategy: Using Google Scholar or RefWorks

- Go to [Google Scholar](https://scholar.google.com)
- Use keywords with operators, e.g.:

"intrusion detection system"
AND "machine learning" AND
(CNN OR SVM OR "deep
learning")



Systematic (SLR) - steps

4. Search Strategy: Using Google Scholar or RefWorks

Use filters on the left to:

- Set time range: "Since 2015"
- Sort by relevance or date

The screenshot shows a Google Scholar search results page. The search bar contains the query: "intrusion detection system" AND "machine learning" AND (CNN OR SVM OR ...). The results are sorted by relevance, and the time range is set to "Any time".

Filters on the left:

- Any time** (selected)
- Since 2025
- Since 2024
- Since 2021
- Custom range...
- Sort by relevance** (selected)
- Sort by date
- Any type**
- Review articles
- ☐ include patents
- ☒ include citations
- ☒ Create alert

Search Results:

- Network intrusion detection system: A systematic study of machine learning and deep learning approaches**
Z Ahmad, A Shahid Khan, C Wai Shiang... - Transactions on ..., 2021 - Wiley Online Library
... an initial keyword "intrusion detection system" and adjusted ... We then redefined our keyword as **intrusion detection system**... the combination of **machine learning** or **deep learning** to obtain ...
☆ Save ⓘ Cite Cited by 1277 Related articles All 12 versions [PDF] wiley.com
- [PDF] Deep learning in intrusion detection system: An overview**
E Aminanto, K Kim - 2016 International Research Conference on ..., 2016 - caislab.kaist.ac.kr
... In summary, **deep learning** is a class of **machine learning** methods, where exploits the cascaded layers of data processing stages in hierarchical structure for unsupervised feature ...
☆ Save ⓘ Cite Cited by 105 Related articles All 2 versions ⓘ
- Deep learning approach for intelligent intrusion detection system**
R Vinayakumar, M Alazab, KP Soman... - IEEE ..., 2019 - ieeexplore.ieee.org
... This section discusses the panorama of largest study to date that explores the field of **machine learning** and **deep learning** approaches applied to enhance NIDS and HIDS. ...
☆ Save ⓘ Cite Cited by 1938 Related articles All 5 versions

Systematic (SLR) - steps

4. Search Strategy: Using Google Scholar or RefWorks

Click and **review abstracts** of top 50–100 papers.

The screenshot shows a Google Scholar search results page. The search query is "intrusion detection system" AND "machine learning" AND (CNN OR SVM OR "deep learning"). The results are sorted by date, showing articles added in the last year. The first article is "AA Comprehensive Review of Intrusion Detection Systems in IoT networks Using ML and DL Techniques: A Comprehensive Review of Intrusion Detection Systems in ...", published in the SAAA Alsaiddi - AlKadhim Journal for Computer Science, 2025. The second article is "Network Packet Transformation Approaches for Intrusion Detection Systems: A survey", published in IEEE, 2025. The third article is "Comprehensive Review of Intrusion Detection Techniques: ML and DL in Different Networks", published in IEEE, 2025. The fourth article is "Enhancing Cybersecurity Through AI: A Machine Learning-Based Framework for Real-Time Threat Detection and Mitigation", published in Annual, 2025. The fifth article is "Automatic dependent surveillance-broadcast (ADS-B) anomalous messages and attack type detection: deep learning-based architecture", published in PeerJ Computer Science, 2025.

← → ↻ 🏠 🔍 scholar.google.com/scholar?scisbd=1&q="intrusion+detection+system"+AND+"machine+learning"+AND+(CNN+OR+SVM+OR+"deep+learning")&hl=en&as_sdt=0

Google Scholar

"intrusion detection system" AND "machine learning" AND (CNN OR SVM OR "deep learning") 🔍

Articles About 96 results (0.03 sec)

Any time
Since 2025
Since 2024
Since 2021
Custom range...

Sort by relevance
Sort by date

Any type
Review articles

🔔 Create alert

Articles added in the last year, sorted by date 🔍 Abstracts 🔍 Everything

AA Comprehensive Review of Intrusion Detection Systems in IoT networks Using ML and DL Techniques: A Comprehensive Review of Intrusion Detection Systems in ...
SAAA Alsaiddi - AlKadhim Journal for Computer Science, 2025 - jkceas.iku.edu.iq
6 days ago - ... of contemporary **Intrusion Detection System** (IDS) ... **machine learning** (ML) and **deep learning** (DL) algorithms for designing an efficient NIDS. Machine and **deep learning** ...
☆ Save 📄 Cite Related articles 🔗 [PDF] iku.edu.iq

Network Packet Transformation Approaches for Intrusion Detection Systems: A survey
S Eltanbouly, J Zakraoui, A Al-Ali, A Belhi... - IEEE ..., 2025 - ieeeexplore.ieee.org
13 days ago - ... While **machine learning** and **deep learning** techniques hold significant promise for enhancing these systems, their performance is highly dependent on how network traffic ...
☆ Save 📄 Cite Related articles

Comprehensive Review of Intrusion Detection Techniques: ML and DL in Different Networks
I Rakine, A Oukaira, K El Guemmat, I Atouf... - IEEE ..., 2025 - ieeeexplore.ieee.org
16 days ago - ... in IDS based on **Machine Learning** (ML) and **Deep Learning** (DL) techniques. ML ... SDN based network **intrusion detection system** using **machine learning** approaches," ...
☆ Save 📄 Cite Related articles [PDF] ieee.org

Enhancing Cybersecurity Through AI: A **Machine Learning**-Based Framework for Real-Time Threat Detection and Mitigation
A Faiz, A Jumanj, A Hafiz, S Shujah... - Annual ..., 2025 - amresearchreview.com
16 days ago - ... The concept of **deep learning** (DL) has transformed the **intrusion detection system** (IDS) since it permits the automatic extraction of hierarchical features of the raw input ...
☆ Save 📄 Cite Related articles All 2 versions 🔗 [PDF] amresearchreview.com

Automatic dependent surveillance-broadcast (ADS-B) anomalous messages and attack type detection: **deep learning**-based architecture
W Ahmed, A Masood, J Manzoor, S Akleyek - PeerJ Computer Science, 2025 - peerj.com
22 days ago - ... **Intrusion Detection System** (IDS) using three advanced ... as **machine learning** [PDF] peerj.com

Systematic (SLR) - steps

4. Search Strategy: Using Google Scholar or RefWorks

Download citations (BibTeX or RIS) or save to **RefWorks** or **Zotero**.

scholar.google.com/scholar?scisbd=1&q="intrusion+detection+system"+AND+"machine+learning"+AND+(CNN+OR+SVM+OR+"deep+learning")&hl=en&as_sdt=

Google Scholar "intrusion detection system" AND "machine learning" AND (CNN OR SVM OR deep learning)

Articles About 96 results (0.03 sec)

Articles added in the last year, sorted by relevance

Any time
Since 2025
Since 2024
Since 2021
Custom range...

Sort by relevance
Sort by date

Any type
Review articles

☒ Create alert

AA Comprehensive Review of Intrusion Detection Systems in IoT networks Using ML and DL Techniques: A Comprehensive Review of Intrusion Detection Systems in IoT Networks Using ML and DL Techniques." *AlKadhim Journal for Computer Science* 3.2 (2025): 84-95.
6 days ago - ... of contemporary Intrusion Detection and deep learning (DL) algorithms for design
☆ Save Cite Related articles

Network Packet Transformation Analysis survey
S Eltanbouly, J Zakraoui, A Al-Ali, A Belhadj...
13 days ago - ... While machine learning algorithms for enhancing these systems, their performance
☆ Save Cite Related articles

Comprehensive Review of Intrusion Detection Systems in IoT networks Using ML and DL Techniques
I Raking, A Oukaira, K El Guemmat, I Atouf...
16 days ago - ... in IDS based on Machine Learning (ML) ... SDN based network intrusion detection
☆ Save Cite Related articles

Enhancing Cybersecurity Through Machine Learning for Real-Time Threat Detection and Response
A Faiz, A Juman, A Hafiz, S Shujah... - Annals
16 days ago - ... The concept of deep learning system (IDS) since it permits the automatic
☆ Save Cite Related articles All 2 versions

Automatic dependent surveillance-broadcast (ADS-B) anomalous messages and attack type detection: **deep learning**-based architecture
W Ahmed, A Masood, J Manzoor, S Akleyek - PeerJ Computer Science, 2025 - peerj.com
22 days ago - ... Intrusion Detection System (IDS) using three advanced ... as machine learning

Cite

MLA Alsaiddi, Saif Ali Abd Alradha. "AA Comprehensive Review of Intrusion Detection Systems in IoT networks Using ML and DL Techniques: A Comprehensive Review of Intrusion Detection Systems in IoT Networks Using ML and DL Techniques." *AlKadhim Journal for Computer Science* 3.2 (2025): 84-95.

APA Alsaiddi, S. A. A. A. (2025). AA Comprehensive Review of Intrusion Detection Systems in IoT networks Using ML and DL Techniques: A Comprehensive Review of Intrusion Detection Systems in IoT Networks Using ML and DL Techniques. *AlKadhim Journal for Computer Science*, 3(2), 84-95.

Chicago Alsaiddi, Saif Ali Abd Alradha. "AA Comprehensive Review of Intrusion Detection Systems in IoT networks Using ML and DL Techniques: A Comprehensive Review of Intrusion Detection Systems in IoT Networks Using ML and DL Techniques." *AlKadhim Journal for Computer Science* 3, no. 2 (2025): 84-95.

Harvard Alsaiddi, S.A.A.A., 2025. AA Comprehensive Review of Intrusion Detection Systems in IoT networks Using ML and DL Techniques: A Comprehensive Review of Intrusion Detection Systems in IoT Networks Using ML and DL Techniques. *AlKadhim Journal for Computer Science*, 3(2), pp.84-95.

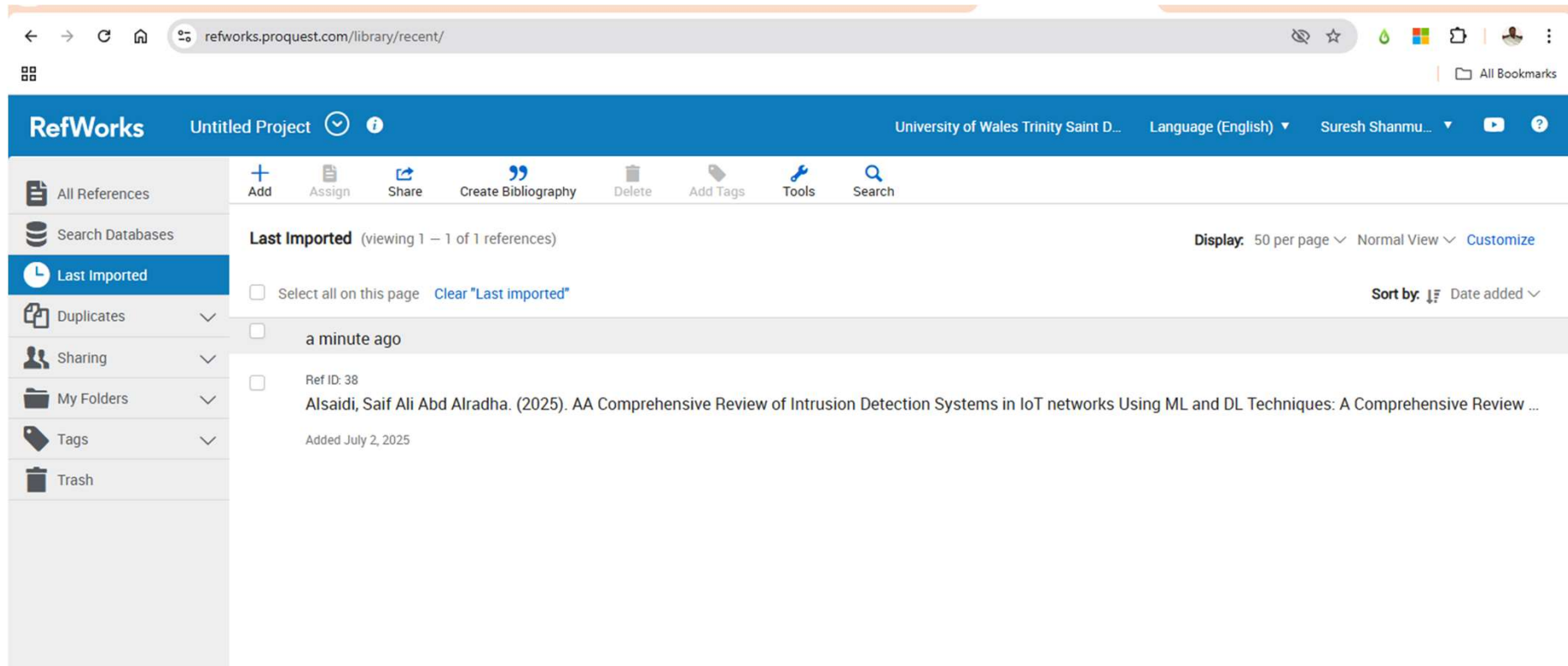
Vancouver Alsaiddi SA. AA Comprehensive Review of Intrusion Detection Systems in IoT networks Using ML and DL Techniques: A Comprehensive Review of Intrusion Detection Systems in IoT Networks Using ML and DL Techniques. *AlKadhim Journal for Computer Science*. 2025 Jun 25;3(2):84-95.

BibTeX EndNote RefMan RefWorks

Systematic (SLR) - steps

4. Search Strategy: Using Google Scholar or RefWorks

Download citations (BibTeX or RIS) or save to **RefWorks** or **Zotero**.



Systematic (SLR) - steps

4. Search Strategy: Using Google Scholar or RefWorks

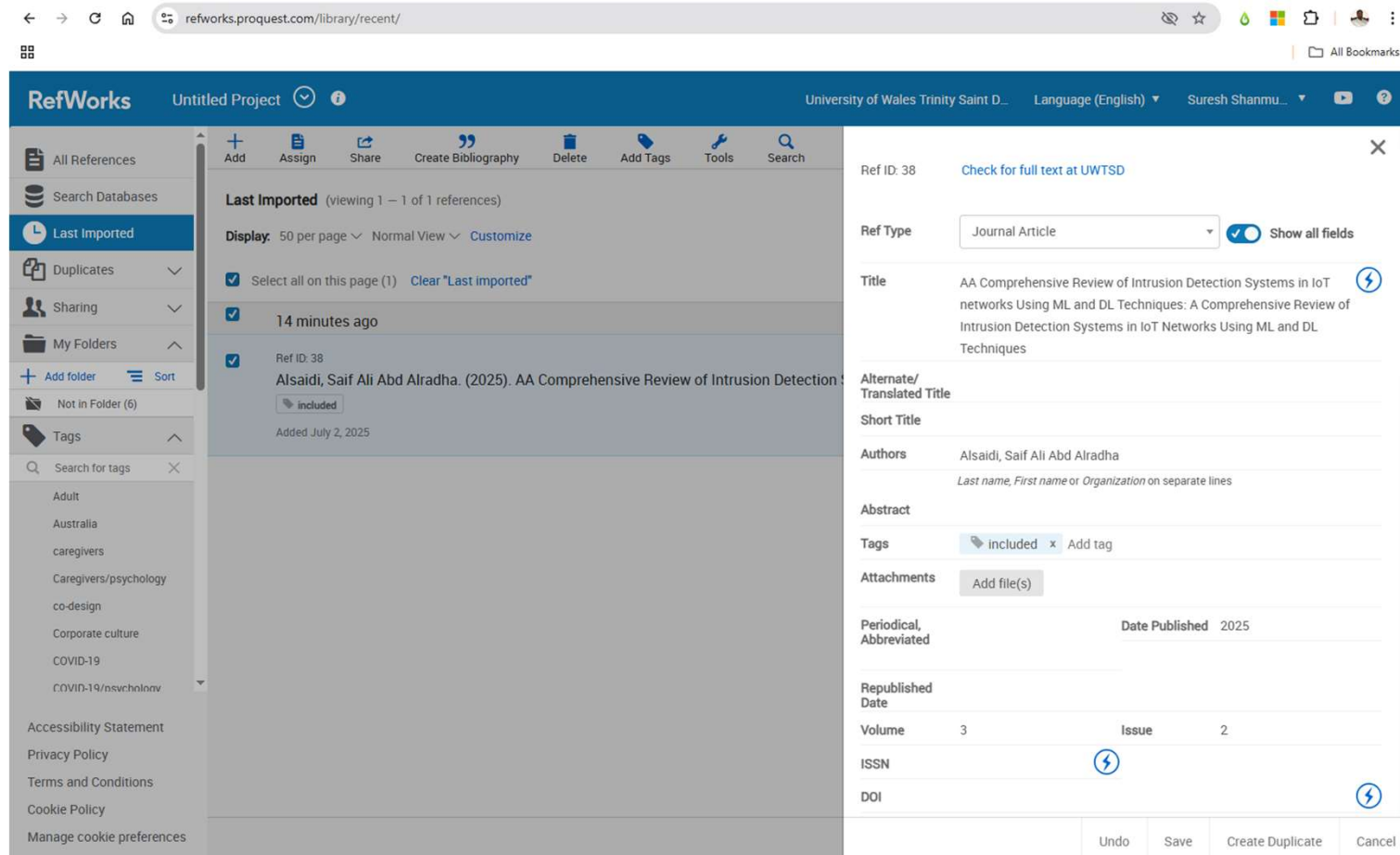
Download citations (BibTeX or RIS) or save to **RefWorks** or **Zotero**.

The screenshot displays the RefWorks web interface in a browser. The address bar shows `refworks.proquest.com/library/recent/`. The interface has a blue header with the RefWorks logo, a project name 'Untitled Project', and user information for 'University of Wales Trinity Saint D...'. A sidebar on the left contains navigation links: All References, Search Databases, Last Imported (selected), Duplicates, Sharing, My Folders, Tags, and Trash. The main content area shows a list of references under the 'Last Imported' tab. One reference is visible: 'Alsaidi, Saif Ali Abd Alradha. (2025). AA Comprehe...'. A dropdown menu is open over the 'Add Tags' button, showing a search bar and a list of tags including 'Adult', 'Australia', 'caregivers', 'Caregivers/psychology', 'co-design', 'Corporate culture', and 'COVID-19'. The 'Save' button is at the bottom of the dropdown.

Systematic (SLR) - steps

4. Search Strategy: Using Google Scholar or RefWorks

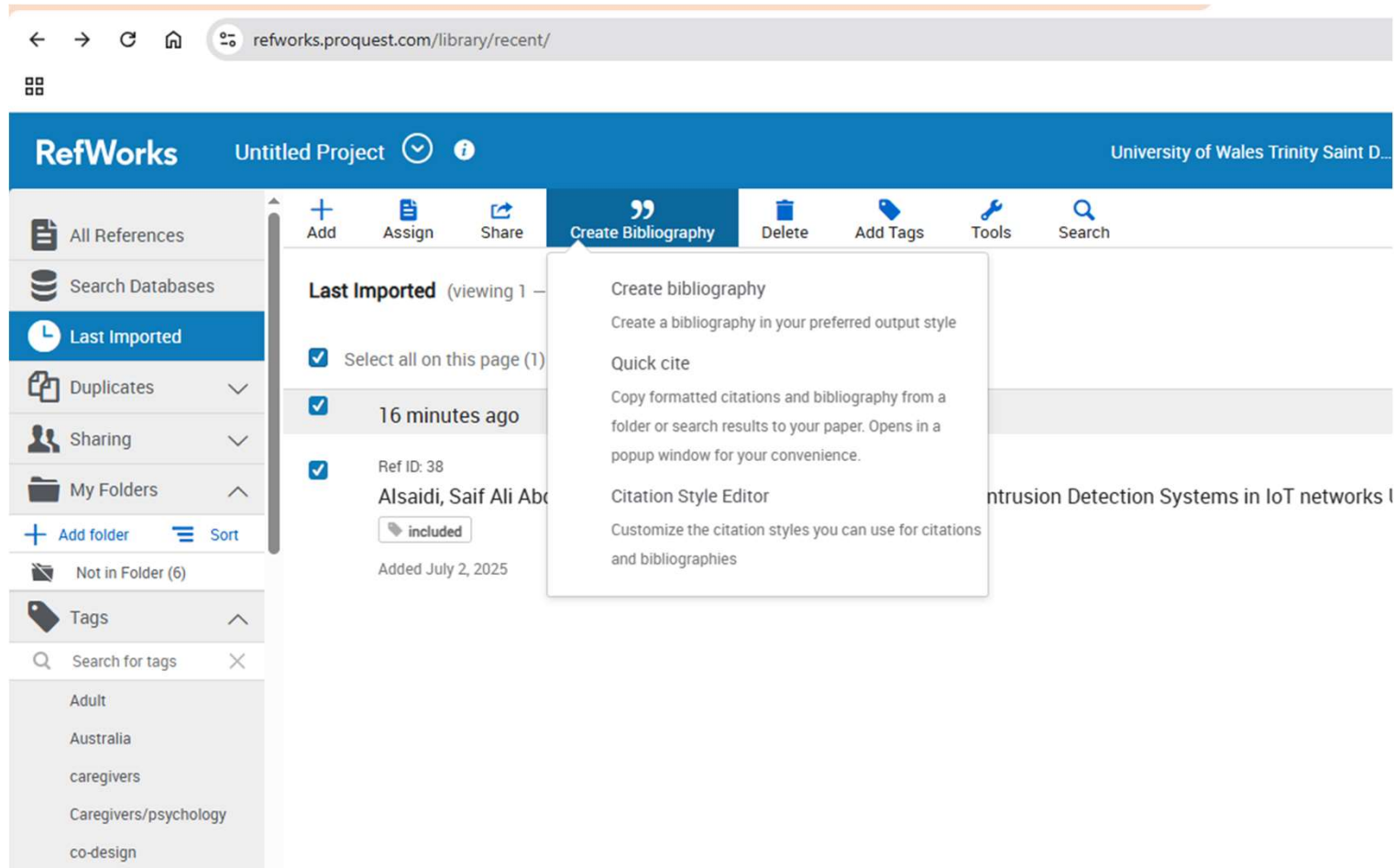
Download citations (BibTeX or RIS) or save to **RefWorks** or **Zotero**.



Systematic (SLR) - steps

4. Search Strategy: Using Google Scholar or RefWorks

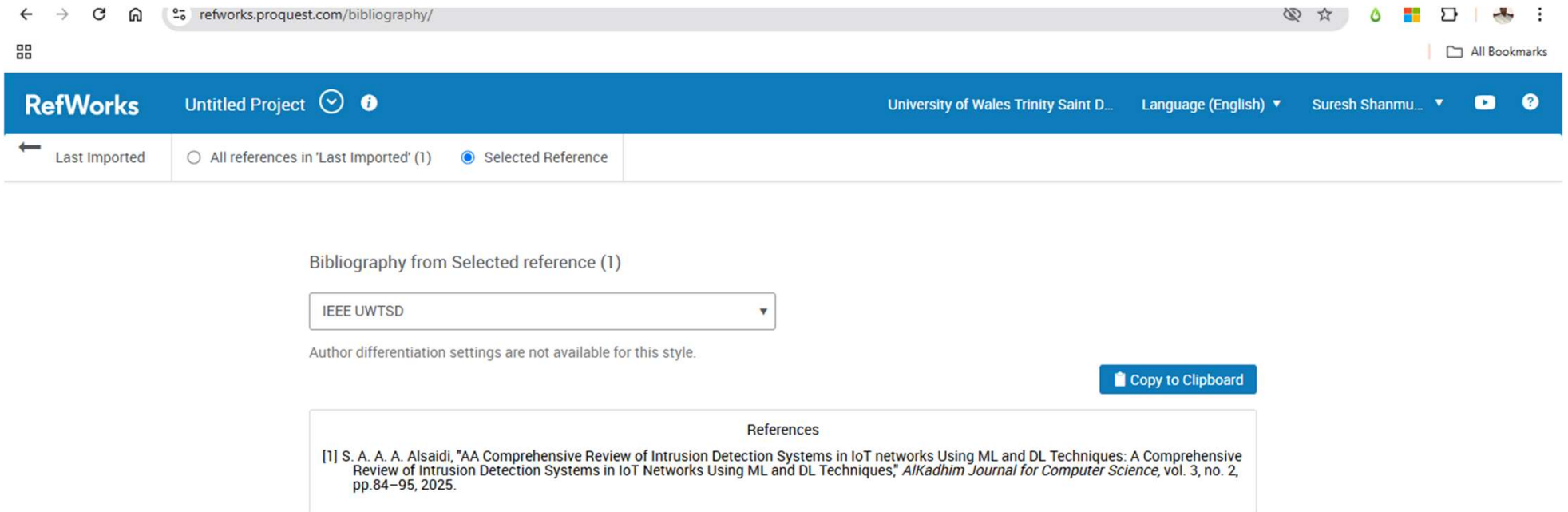
Download citations (BibTeX or RIS) or save to **RefWorks** or **Zotero**.



Systematic (SLR) - steps

4. Search Strategy: Using Google Scholar or RefWorks

Download citations (BibTeX or RIS) or save to **RefWorks** or **Zotero**.



The screenshot shows the RefWorks web interface. The browser address bar displays `refworks.proquest.com/bibliography/`. The RefWorks header includes the logo, "Untitled Project", and user information: "University of Wales Trinity Saint D...", "Language (English)", and "Suresh Shanmu...". Below the header, there are tabs for "Last Imported", "All references in 'Last Imported' (1)", and "Selected Reference" (which is active). The main content area is titled "Bibliography from Selected reference (1)" and features a dropdown menu set to "IEEE UWTSD". A message states "Author differentiation settings are not available for this style." A "Copy to Clipboard" button is present. The "References" section contains a single entry: [1] S. A. A. Alsaiddi, "AA Comprehensive Review of Intrusion Detection Systems in IoT networks Using ML and DL Techniques: A Comprehensive Review of Intrusion Detection Systems in IoT Networks Using ML and DL Techniques," *AlKadhim Journal for Computer Science*, vol. 3, no. 2, pp.84–95, 2025.

Systematic (SLR) - steps

5. Document Study Selection Process

Use a **PRISMA Flow Diagram** to show:

- Total records identified
- Records screened
- Records excluded
- Studies included in final review

Stage	Count
Records identified	300
After duplicates removed	250
After abstract screening	120
After full-text review	45
Final studies included	45

PRISMA framework

Preferred Reporting Items for Systematic Reviews and Meta-Analyses

- Writing or evaluating **systematic reviews**
- Conducting **meta-analyses**
- Supporting **evidence-based healthcare and policy**

You can access the official PRISMA materials
at: <https://www.prisma-statement.org/>

- PRISMA Flow Diagram Generator:**

<https://prisma-statement.org/PRISMAStatement/FlowDiagram>

- Draw.io / Lucidchart / Canva** – Custom diagram drawing.
- Microsoft Word/Excel** PRISMA template (available on the PRISMA website)

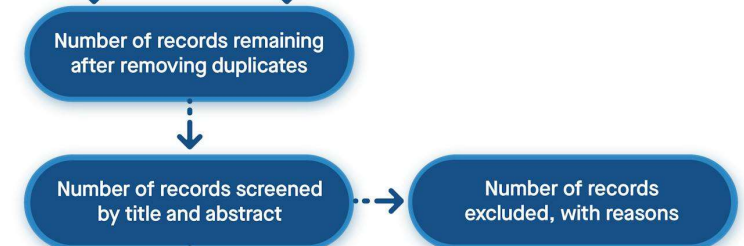
PRISMA framework

Stage	Count
Records identified	300
After duplicates removed	250
After abstract screening	120
After full-text review	45
Final studies included	45

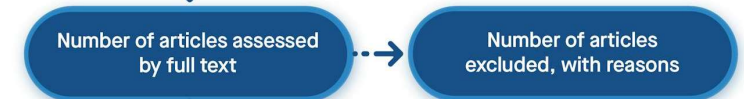
Identification



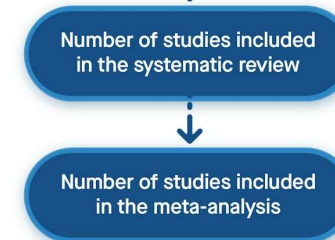
Screening



Eligibility



Inclusion



The Literature Review Process

7 Steps:

1. **Define question** (keywords, Boolean operators).
2. **Search databases** (IEEE, Scopus, etc.).
3. **Evaluate sources** (credibility, relevance).
4. **Organize themes** (tools: Zotero, refworks).
5. **Synthesize findings** (compare/contrast studies).
6. **Structure & write** (intro, body, conclusion).
7. **Revise & reference** (IEEE style).

Systematic Literature review- Activity

View Week 4 in Moodle for instructions

Analyze the PRISMA flow diagram (Page 14 of Part 2). How many studies were excluded due to duplicates?

Top Tips & Tools

Search Strings:

("AI" AND "cybersecurity") OR ("machine learning" AND "threat detection")

AI Tools: SciSpace (PDF analysis), ChatGPT (synthesis).

Record Keeping: Use Excel sheets for metadata (authors, methods, findings).

Referencing & Ethics

Why?: Avoid plagiarism, support arguments, give credit.

IEEE Style: Numerical in-text citations (e.g., [5]).

Tools: Zotero, Mendeley (free managers).

Check this reference: [27] P. Korshunov, S. Marcel, “DeepFakes: A new threat...”, 2018. Is it IEEE-compliant?

✓ **Yes** (Author initials, year, title in quotes, arXiv link).

Systematic Review (SLR)

- PRISMA Framework:

- Identification → Screening → Eligibility → Inclusion.

- Inclusion Criteria:

- Timeframe (e.g., 2015–2025), peer-reviewed, English.

- Exclusion:** Duplicates, non-English, irrelevant abstracts.

Draft inclusion/exclusion criteria for a topic like "AI in Healthcare".

Final Quiz:

1. What % of references should be journals/books in a proposal?

A) 75%

2. True/False: Narrative reviews always follow a strict protocol.

B) False

3. Which tool helps organize citations?

C) Zotero