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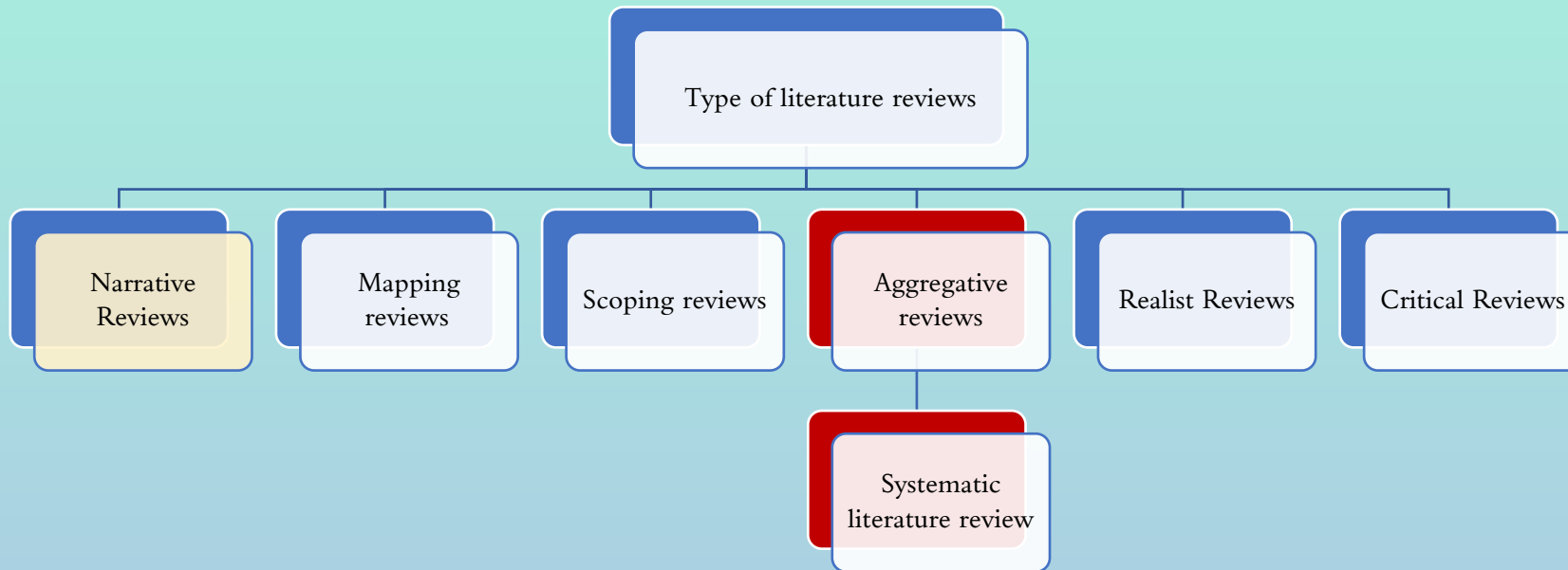
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Research Methods and Professional Development ACFA7004

Literature Review

Dr. Seena Joseph

Types of literature reviews



(Paré, 2017 [1])

Narrative literature review

- Traditional way of reviewing the extant of literature.
- Qualitative interpretation of prior knowledge.
- Summarize or synthesize what has been written on a particular topic
- Reviewers may selectively ignore or limit the attention paid to certain studies (subjective)
- Very useful to gather information about a specific subject area and synthesize it.
- Helps to identify research gap.
- Best practice is to use a generic framework or structured approach to conduct the review.

Mapping/Descriptive review

- To determine any interpretable patterns or trends in a particular research topic
- Employ a systematic and transparent process that involves finding, assessing, and classifying studies.

Example: A researcher studying **machine learning** in **cybersecurity** might create a research map showing how different algorithms (e.g., SVM, Neural Networks, Random Forest) have been used over time.

Scoping review

- Scoping reviews make an effort to offer a preliminary assessment of the possible scope and structure of the body of existing literature on an emerging topic.
- The whole point of scoping the field is to be as comprehensive as possible, including grey literature.
 - Grey literature includes a range of documents not controlled by commercial publishing organisations.
- Example: If you want to explore how AI is used in healthcare, a scoping review will map out existing studies, categorize themes (e.g., AI in diagnostics, AI in treatment), and highlight gaps without deeply evaluating each study.

Realist Reviews

- A realist review examines how and why complex interventions work (or don't) in specific contexts. It focuses on understanding the mechanisms, contexts, and outcomes of interventions.
- Examples
 1. If you review the impact of online learning on student performance, a realist review will analyse why it works well for some students (self-motivated learners) but not for others (students needing face-to-face guidance).
 2. A realist review on AI-driven cybersecurity interventions might examine how and why certain AI techniques are effective in specific contexts. For instance, it could investigate how AI-based intrusion detection systems work in different organizational environments and under what conditions they are most successful

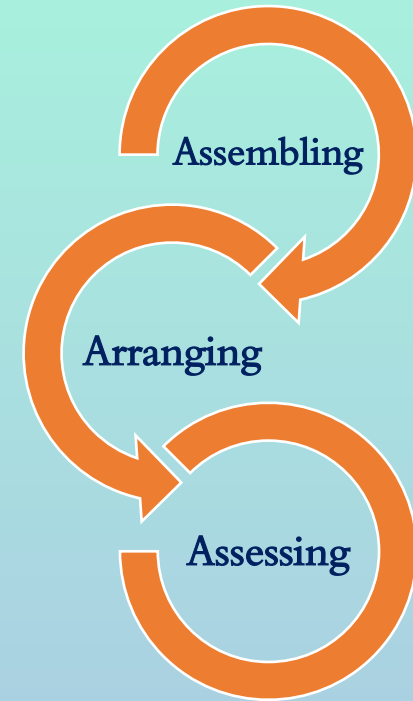
Critical Reviews

Critical reviews seek to offer an interpretive analysis and critical evaluation of the body of literature already written on a given subject of interest in order to highlight important issues pertaining to theories, hypotheses, research methodologies, and/or results, as well as any weaknesses, contradictions, controversies, and/or other significant issues.

E.g. critical review that assessed the methodological quality of prior systematic review of online fake news detection studies.

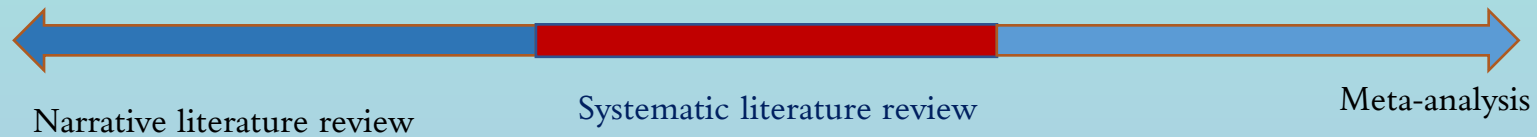
Systematic literature review

- A Systematic Literature Review (SLR) is a structured and methodical approach to identifying, evaluating, and synthesizing existing research on a specific topic. It follows a predefined protocol to ensure transparency, reproducibility, and minimal bias.
- Systematic literature review encompasses the process of “Assembling”, “arranging” and “assessing” existing literature in a review domain (Paul *et al.* 2021).



Systematic literature review Vs Narrative

- The narrative review is the "conventional" method of examining the body of literature, and it leans heavily toward a qualitative interpretation of existing knowledge.
- Meta-analysis refers to the use of statistical techniques to synthesize results across multiple primary studies



Systematic literature review Vs Narrative

	Systematic	Narrative	
	Focused question	Broad in scope	
	Multiple data sources, comprehensive sources	Relevant literature may be missed. Subjective.	
	Specific guideline for search criteria (inclusion and exclusion criteria)	Search criteria are not usually specified	
	Critical appraisal	May not consider the quality of included studies	
	Synthesis based on all evidence	Synthesis based on sample	

Phases of systematic literature review



Guideline for systematic review

Meta-analysis Of Observational Studies in Epidemiology (MOOSE) [3]

Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) [4]

Meta-Analysis Reporting Standards (MARS) [5].

Scientific Procedures And Rationales for Systematic Literature Reviews (SPAR-4-SLR) [6]

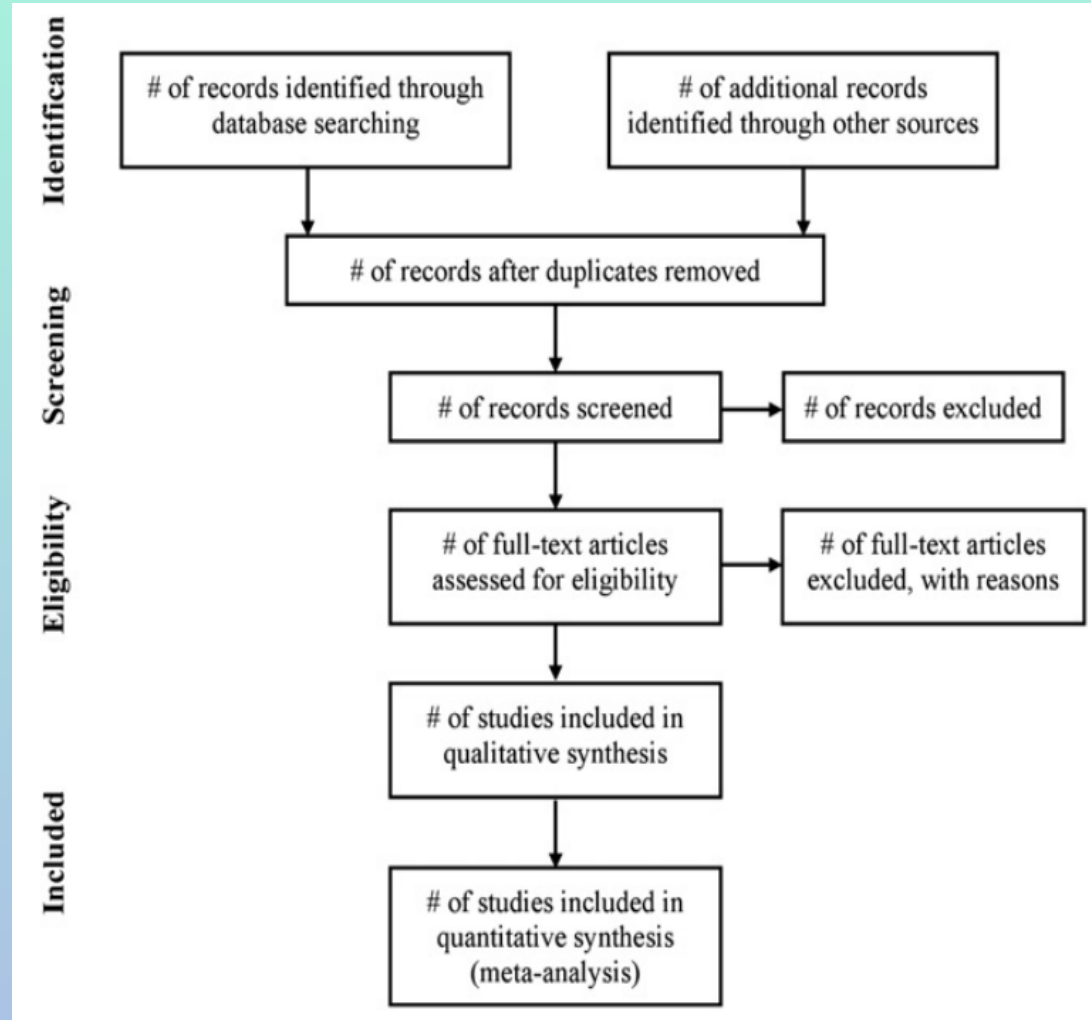
Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

PRISMA statement consists of a 27-item check list and a four-phase flow diagram

The Title
The objective
The search string
Eligibility criteria • Years considered • Language • Publication type (journal conference paper)
Information sources • Databases
Study selection process • Screening • Downloading full text • Inclusion of studies based on eligibility criteria
Data collection process • Plotted forms • Role of independent researchers
Data items • List and define variables
Final data collection process
Synthesis methods
Results
Discussion
Other Information

Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

- Four phase flow diagram (Moher *et al.* 2009)



Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

Phase 1 : Identification

- **Example 1 for search string (database: Web of science)**
 - *(((color image segment*) AND (cluster* OR salien*)) OR (salien* detect*) or (salien* segment*)) and 2022 or 2021 or 2020 or 2019 or 2018 or 2017 or 2016 or 2015 or 2014 or 2013 or 2012 (Publication Years) and Articles (Document Types) and English (Languages).*
- *Example 2- (database: IEEE)*

Showing 1-100 of 732 results for ("All Metadata":Artificial intelligence and cyber security)×

▼ **Filters Applied:** Journals × Internet Of Things × Convolutional Neural Network × Deep Learning × Intrusion Detection System × Machine Learning × Denial Of Service ×
Intrusion Detection × Internet Of Things Devices × Deep Neural Network × Types Of Attacks × 2022 - 2025 ×

Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

- Identification

The screenshot shows the IEEE Xplore search results page. At the top, there's a navigation bar with 'IEEE Xplore', 'Browse', 'My Settings', 'Help', and a user profile for 'Prifysgol Cymru'. Below this is a search bar with 'All' selected. The main content area shows 'Showing 1-25 of 732 results for ("All Metadata": Artificial intelligence and cyber security)'. A list of filters is applied: Journals, Internet Of Things, Convolutional Neural Network, Deep Learning, Intrusion Detection System, Machine Learning, Denial Of Service, Intrusion Detection, Internet Of Things Devices, Deep Neural Network, Types Of Attacks, and 2022 - 2025. There are checkboxes for 'Conferences (1,672)' and 'Magazines (38)'. On the left, there's a 'Search' sidebar with 'Documents' and 'Images (Beta)' tabs, and a 'Show' section with 'All Results' selected. Below this are filters for 'Year' (Range: 2022 to 2025), 'Author', 'Affiliation', 'Publication Title', 'Publisher', 'Supplemental Items', and 'Publication Topics'. The main list of results includes three items: 'Explainable Artificial Intelligence Applications in Cyber Security: State-of-the-Art in Research', 'NG-ICPS: Next Generation Industrial-CPS, Security Threats in the Era of Artificial Intelligence, and Open Challenges With Future Research Directions', and 'The Security and Privacy of Mobile-Edge Computing: An Artificial Intelligence Perspective'. Each item has a 'Download PDFs' button, an 'Items Per Page' dropdown, an 'Export' button, a 'Set Search Alerts' button, and a 'Search History' button. An orange arrow points from the 'Export' button to the text 'Download the selected papers to Excel using Export option' at the bottom of the slide.

Download the selected papers to Excel using Export option

Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

- Identification – (Excel file with details of the selected papers)

Document Title	Authors	Author Affi	Publicatio	Date Added	Publicatio	Volume	Issue	Start Page	End Page	Abstract	ISSN	ISBNs	DOI	Funding In PDF Link	Author Key IEEE Terms Mesh_Terr	Article Cita	Patent Cita	Reference	License	Online Dat	Issue Date	Meeting De	Publisher	Document Identifi	
Explainable Artificial Intelli	Z. Zhang; F	Center for I	IEEE Acces	13-Sep-22	2022	10		93104	93139	This surve	2169-3536		10.1109/ACCESS.2022.https://iee	Artificial ir Computer crime;Cybe		102		270	CCBY	05-Sep-22			IEEE	IEEE Journals	
NG-ICPS: Next Generation I	M. Adil; A.	Departmer	IEEE Intern	10-Jan-25	2025	12	2	1343	1367	The compl	2327-4662		10.1109/JIK	Guangdon https://iee	Artificial ir Security;Artificial inte		1		135	IEEE	25-Oct-24			IEEE	IEEE Journals
The Security and Privacy of	C. Wang; Z	Hubei Engi	IEEE Intern	11-Dec-23	2023	10	24	22008	22032	Mobile-ed	2327-4662		10.1109/JIK	National N https://iee	Artificial ir Security;Privacy;Artifi		15		165	IEEE	11-Aug-23			IEEE	IEEE Journals
A Comprehensive Review of	A. Al Siam; Departmer	IEEE Acces		24-Jan-25	2025	13		14029	14050	The use of	2169-3536		10.1109/AC	Qatar Nati https://iee	Artificial ir Artificial intelligence;Computer security;Sec			137	CCBY	10-Jan-25			IEEE	IEEE Journals	
Empowering Security Oper	M. Khayat; College of	IEEE Acces		29-Jan-25	2025	13		19162	19197	Organizati	2169-3536		10.1109/ACCESS.2025.https://iee	Artificial ir Artificial intelligence;Computer security;Thr			140	CCBY	23-Jan-25			IEEE	IEEE Journals		
A Survey on Explainable Art	G. Rjoub; J	King Huss	IEEE Trans	12-Dec-23	2023	20	4	5115	5140	The ææbl	1932-4537		10.1109/TN	Natural Sc https://iee	Explainabl Artificial intelligence;		15		107	IEEE	05-Jun-23			IEEE	IEEE Journals
Explainable Artificial Intelli	N. Capuan	School of I	IEEE Acces	13-Sep-22	2022	10		93575	93600	Nowadays	2169-3536		10.1109/ACCESS.2022.https://iee	Artificial ir Artificial intelligence;		80		244	CCBY	05-Sep-22			IEEE	IEEE Journals	
AI Cyber-Chain: Combining	Z. Ullah; A.	Departmer	IEEE Acces	07-Oct-24	2024	12		142194	142214	Artificial ir	2169-3536		10.1109/AC	Universida https://iee	Artificial ir Artificial intelligence;Blockchains;Compute			57	CCBY	19-Sep-24			IEEE	IEEE Journals	
Explainable AI for Cyber-Ph	A. Hoenig; Departmer	IEEE Acces	#####	2024	2024	12		73113	73140	Artificial ir	2169-3536		10.1109/AC	Office of N https://iee	Cyber-phy; Artificial intelligence;		5		77	CCBYNCNC	#####			IEEE	IEEE Journals
Artificial Intelligence in Sm	Y. Liu; X.	TæJD Logistic	IEEE Trans	26-Jun-23	2023	1		1	20	Logistics c	2832-7004		10.1109/TICPS.2023.3;https://iee	Artificial ir Logistics;Artificial int		25		162	CCBY	06-Jun-23			IEEE	IEEE Journals	
A Survey on Blockchain and	O. Fadi; Z.	TIC Labora	IEEE Acces	13-Sep-22	2022	10		93168	93186	Smart envi	2169-3536		10.1109/ACCESS.2022.https://iee	Blockchain Blockchains;Artificial		17		115	CCBYNCNC	01-Sep-22			IEEE	IEEE Journals	
Explainable Intrusion Dete	N. Moust	University	IEEE Comm	22-Aug-23	2023	25	3	1775	1807	The field o	1553-877X		10.1109/CC	Australian https://iee	Cyber defe Internet of Things;Cor		54		215	IEEE	#####			IEEE	IEEE Journals
Autonomous Vehicles Secu	G. Bendia	Departmer	IEEE Trans	29-Mar-23	2023	24	4	3614	3637	The arrival	1558-0016		10.1109/TI	European I https://iee	Autonomo Sensors;Security;Artif		53		232	IEEE	20-Jan-23			IEEE	IEEE Journals
Forecasts on Future Evoluti	P. Radanli	Departmer	IEEE Acces	#####	2022	10		45280	45288	The field o	2169-3536		10.1109/AC	Engineerin https://iee	Artificial ir Artificial intelligence;		20		22	CCBY	22-Apr-22			IEEE	IEEE Journals
When Industrial Radio Sec	W. Li; G.	CæSchool of	IEEE Trans	07-Oct-24	2024	20	10	11854	11865	The rapid æ	1941-0050		10.1109/TI	National N https://iee	Artificial ir Security;Wireless communication;Commun			67	IEEE	24-Jun-24			IEEE	IEEE Journals	
A Cloud-Based Computing	J. Roberts	US Army R	IEEE Trans	03-Nov-22	2022	69	6	3913	3922	The DoDaæ	1558-0040		10.1109/TEM.2021.30Ehttps://iee	Artificial ir Cloud computing;Coll		14		42	USGov	27-Jul-21			IEEE	IEEE Journals	
Optimizing Secure AI Lefcy	A. Omran /	Departmer	IEEE Acces	24-Jan-25	2025	13		12889	12920	Generative	2169-3536		10.1109/AC	Departmer https://iee	Generative Artificial intelligence;		1		70	CCBYNCNC	04-Nov-24			IEEE	IEEE Journals
How Do Organizations Seel	N. Sun; C.	æSchool of I	IEEE Acces	13-Jul-22	2022	10		71749	71763	Cyber assæ	2169-3536		10.1109/AC	Cyber Secu https://iee	Common c Security;Organization		9		71	CCBY	29-Jun-22			IEEE	IEEE Journals
Defining Security Requirem	N. Sun; C.	æSchool of I	IEEE Acces	#####	2022	10		44756	44777	Advances æ	2169-3536		10.1109/AC	Cyber Secu https://iee	Common c Security;Computer cri		16		150	CCBY	21-Apr-22			IEEE	IEEE Journals
Generative AI for Cyber Sec	S. Sai; U.	Y Departmer	IEEE Acces	18-Apr-24	2024	12		53497	53516	This resea	2169-3536		10.1109/ACCESS.2024.https://iee	Security;Ar Security;Passwords;M		14		138	CCBYNCNC	04-Apr-24			IEEE	IEEE Journals	
ADEROS: Artificial Intellig	M. Kiacc; P.	Departmer	IEEE Syster	12-Dec-23	2023	17	4	5073	5084	The deploy	1937-9234		10.1109/JS	Technolog https://iee	Intelligent Rail transportation;Di		3		45	IEEE	08-Jun-23			IEEE	IEEE Journals
Application of Large Langu	I. Hasanov	Departmer	IEEE Acces	03-Dec-24	2024	12		176751	176778	The emergæ	2169-3536		10.1109/ACCESS.2024.https://iee	Cybersecu Computer security;Artificial intelligence;Cor			210	CCBY	25-Nov-24			IEEE	IEEE Journals		
AI Enabled Threat Detector	K. Dhanus	School of I	IEEE Acces	25-Nov-24	2024	12		173127	173136	This compæ	2169-3536		10.1109/ACCESS.2024.https://iee	Zero-day æ Artificial intelligence;Computer security;Dat			48	CCBYNCNC	08-Nov-24			IEEE	IEEE Journals		
Recent Advances in Trustw	A. Rawal; J	Departmer	IEEE Trans	23-Nov-22	2022	3	6	852	866	Artificial ir	2691-4581		10.1109/TA	DoD Cente https://iee	Artificial ir Artificial intelligence;		93		143	IEEE	10-Dec-21			IEEE	IEEE Journals
The Influence of Artificial Ir	S. A. A. Boæ	Center of S	IEEE Acces	14-Jul-23	2023	11		69783	69797	Artificial ir	2169-3536		10.1109/AC	Ministry of https://iee	Artificial ir Artificial intelligence;		22		81	CCBYNCNC	10-Jul-23			IEEE	IEEE Journals
Rendering Secure and Trus	C. Qiu; G.	æCollege of	IEEE Trans	09-Nov-22	2023	19	1	900	909	Industrial æ	1941-0050		10.1109/TI	National N https://iee	Blockchain Industrial Internet of æ		16		24	IEEE	06-Jun-22			IEEE	IEEE Journals
A Survey on Cyber Security	I. Ashraf; Y	Departmer	IEEE Trans	08-Feb-23	2023	24	2	2677	2690	Impressive	1558-0016		10.1109/TI	Basic Scie https://iee	Maritime æ Marine vehicles;Compæ		49		116	IEEE	15-Apr-22			IEEE	IEEE Journals
Survey on Foundation Mod	R. Liu; Q.	Z Departmer	IEEE Trans	23-Jul-24	2024	2		264	280	Industrial æ	2832-7004		10.1109/TI	National S https://iee	Industrial æ Prognostics and healæ		1		126	IEEE	10-Jul-24			IEEE	IEEE Journals
A Comprehensive Survey: E	M. Ozkan-æ	Departmer	IEEE Acces	25-Jan-24	2024	12		12229	12256	Given the æ	2169-3536		10.1109/ACCESS.2024.https://iee	Cyberattacæ Computer security;Deæ		23		180	CCBYNCNC	18-Jan-24			IEEE	IEEE Journals	
Recent Technological Progi	K. Haricha	Laboratory	IEEE Acces	14-Aug-23	2023	11		77929	77951	With growæ	2169-3536		10.1109/ACCESS.2023.https://iee	Smart maræ Artificial intelligence;		21		156	CCBYNCNC	15-Feb-23			IEEE	IEEE Journals	
Developing a Transparent æ	M. Sajid Fæ	Departmer	IEEE Acces	02-Jan-25	2025	13		1307	1318	The worldæ	2169-3536		10.1109/ACCESS.2024.https://iee	Anaemia æ Anemia;Predictive models;Artificial intelligæ			42	CCBY	25-Dec-24			IEEE	IEEE Journals		
Applications of LLMs for Ge	M. Mudassæ	Departmer	IEEE Acces	08-Oct-24	2024	12		143806	143822	This study æ	2169-3536		10.1109/AC	Norwegiar https://iee	Cyber secuæ Training;Computer seæ		2		55	CCBY	26-Sep-24			IEEE	IEEE Journals
Recent Advances in Artifici	B. A. Salau	Departmer	IEEE Intern	25-Jul-22	2022	9	15	12916	12930	Advances æ	2327-4662		10.1109/JIK	DoD Cente https://iee	Artificial ir Wireless communicaæ		35		125	IEEE	26-Apr-22			IEEE	IEEE Journals
Confluence of Blockchain æ	S. Sai; V.	Cæ Departmer	IEEE Intern	23-Mar-23	2023	10	7	5873	5897	Blockchainæ	2327-4662		10.1109/JIK	FCT/MCTEæ https://iee	Blockchainæ Artificial intelligence;		11		191	IEEE	29-Dec-22			IEEE	IEEE Journals
Attack Detection Using Artif	N. YalI&Aææ	æDepartmer	IEEE Intern	09-Dec-24	2024	11	24	39550	39559	Technologæ	2327-4662		10.1109/IIOT.2024.344https://iee	Artificial ir SCADA systems;Cyberattack;Artificial intelliæ			66	CCBY	22-Aug-24			IEEE	IEEE Journals		

- Phase 2 Screening

[illegible]

- Phase 2 Screening

- Phase 2 Screening

J	Publicator	Authors	Author Full Names	YEAR	Article Title	Abstract	Times Cit	Times Cit	Considered	Approach	Method	Technique	Preproc	Dataset	Image no	Precision	Specificity	Sensitivity	Accuracy	F Score		
2	J	Gion, D. Takimoto, H. Kishih	Gion, Daiki, Takamoto, Hironori,	2015	Interactive Segmentation of Color Images via Efficient r		0	0	1	unsupervised	saliency	Graph based		0 Caltech and Grabcut		10	0.942		0.719		0.815	YES
3	J	Yang, WZ, Li, DL; Wang, SL; Wang, Wenzhu; Li, Daoliang; Li,		2013	Saliency-based color image segmentation in It is difficu		8	10	0													No quantitative results
4	J	Nguyen, TD, Lee, G.	Nguyen, Dinh Nguyen, Lee, Guees	2012	Color image segmentation using tensor votin A novel c		12	12	0													No quantitative results
5	J	Sikha, OK, Kumar, SS, Som, Sikha, O. K., Kumar, S. Sachin,		2018	Salient region detection and object segment	Estimation	13	13	0	unsupervised	Saliency	Static		0 MSRA-B	5000						0.827	No quantitative results not based on selected metrics
6	J	Sikha, OK, Kumar, SS, Som, Sikha, O. K., Kumar, S. Sachin,		2018	Salient region detection and object segment	Estimation	13	13	0	unsupervised	Saliency	Static		0 SED	100						0.825	No quantitative results not based on selected metrics
7	J	Sikha, OK, Kumar, SS, Som, Sikha, O. K., Kumar, S. Sachin,		2018	Salient region detection and object segment	Estimation	13	13	0	unsupervised	Saliency	Static		0 ASD	1000						0.991	No quantitative results not based on selected metrics
8	J	Feng, L. Li, HB, Gao, YK, Zhu, Feng, Lei, Li, Haibin, Gao, Yaku,		2020	A Color Image Segmentation Method Based This pape		7	7	0	unsupervised	Clustering an	FCM		0 Berkeley Segment	10					0.8203		No quantitative results not based on selected metrics
9	J	Lee, JE, Park, RH	Lee, Ji-Eun; Park, Rae-Hong	2015	Segmentation with saliency map using colour This stud		10	11	0													No quantitative results
10	J	Ramella, G	Ramella, Giuliana	2021	Saliency-based segmentation of dermoscopic Skin lesio		0	0	0	unsupervised	saliency			1 PH2	200	0.921	0.953	0.952	0.954	0.921		
11	J	Ramella, G	Ramella, Giuliana	2021	Saliency-based segmentation of dermoscopic Skin lesio		0	0	0	unsupervised	saliency			1 ISIC2016 TRAIN	900	0.961	0.958	0.932	0.91	0.91		
12	J	Ramella, G	Ramella, Giuliana	2021	Saliency-based segmentation of dermoscopic Skin lesio		0	0	1	unsupervised	saliency			1 ISIC2016 TEST	397	0.921	0.973	0.899	0.962	0.877		YES
13	J	Khanmor, MV	Khanmor, M. V.	2015	Pixel clustering for color image segmentation Image seg		5	6	0													No quantitative results
14	J	Lee, CY, Leou, JJ, Hsiao, HH, Lee, Chi-Yu, Leou, Jin-Jiang, Hs		2012	Saliency-directed color image segmentation Color ima		38	39	0													No quantitative results not based on selected metrics
15	J	Baya, AE, Larese, MG, Nami Baya, Anel E., Larese, Monica (		2017	Clustering stability for automated color image Clustering		7	8	0													No quantitative results
16	J	Tan, KS, Isa, NAM, Lim, WH, Tan, Khang Sianq, Isa, Nor Ash		2013	Color image segmentation using adaptive uni This pape		28	30	0													No quantitative results not based on selected metrics
17	J	Anbarasan, K, Chitrakala, S, Anbarasan, Kalaivani, Chitrakala		2018	Clustering-Based Color Image Segmentation Color ima		3	3	0													Only Abstract
18	J	Bruno, A, Gugliuzza, F, Ardiz Bruno, Alessandro, Gugliuzza, F		2019	Image Content Enhancement Through Salien Color visio		2	2	0													No quantitative results
19	J	Khan, Z, Yang, J, Zheng, YJ, Khan, Zubair, Yang, Jie, Zheng,		2019	Efficient clustering approach for adaptive uns This stud		3	3	0													No quantitative results
20	J	Wang, ZZ	Wang, Zhenzhou	2020	Robust segmentation of the colour image by Segments		4	4	0	unsupervised	clustering	slope difference		0 MSRA-B	5000						0.898	No quantitative results not based on selected metrics
21	J	Liu, HQ, Zhang, Q, Zhao, F	Liu, Han Qiang, Zhang, Qing, Zh	2018	Interval fuzzy spectral clustering ensemble in a recent t		2	2	0													Only Abstract
22	J	Kim, JY	Kim, Jeong-Yeop	2014	Segmentation of Lip Region in Color Images Extraction		1	1	0													No quantitative results not based on selected metrics
23	J	Liu, LX, Tan, GZ, Soliman, M, Liu Ling-xing, Tan Guan-zheng,		2012	Color image segmentation using mean shift To impro		6	6	0													No quantitative results not based on selected metrics
24	J	Zhang, LX, Li, KS, Zhang, Y, Zhang, Lixia, Li, Kangshun, Zha		2017	Adaptive image segmentation based on color Person re		12	12	0													No quantitative results not based on selected metrics
25	J	Lei, T, Jia, XH, Zhang, YN, Li Lei, Tao, Jia, Xiaohong, Zhang, Y		2019	Superpixel-Based Fast Fuzzy C-Means Clus A great nu		80	88	0													No quantitative results not based on selected metrics
26	J	Yang, SQ, Li, P, Wen, HX, Yang, Senquan, Li, Pu, Wen, H		2018	K-Hyperline Clustering-Based Color Image S Color ima		3	3	0													No quantitative results not based on selected metrics
27	J	Sun, LQ, Luo, B, Liu, T, Liu, Y, Sun, Longqing, Luo, Bing, Liu, T		2019	Algorithm of Adaptive Fast Clustering for FisI Fish sw		2	3	0													No quantitative results not based on selected metrics
28	J	Liu, HQ, Zhao, F	Liu, Hanqiang; Zhao, Feng	2021	Multiobjective fuzzy clustering with multiple c Clustering		0	0	0													No quantitative results not based on selected metrics
29	J	Zhou, ZP, Zhao, XX, Zhu, SW Zhou, Zhiping, Zhao, Xiaoxiao; Z		2018	K-harmonic means clustering algorithm using This pape		6	7	0													No quantitative results not based on selected metrics
30	J	Salmi, A, Hammouch, K, M, Salmi, Abdelrezaq, Hammouch		2021	Constrained feature selection for semisupen Color-lex		1	1	0													Only Abstract
31	J	Subramani, K, Panayasu, S, Subramani, K, Panayasu, S		2019	Double Line Clustering Based Colour Image Background		1	1	0													No quantitative results not based on selected metrics
32	J	Guo, YH, Sengur, A, Akbulut, Guo, Yanhui, Sengur, Abdulhak		2018	An effective color image segmentation apro: Color ima		18	21	0													No quantitative results not based on selected metrics
33	J	Xu, GM, Zhou, J, Dong, JW, Xu, Guangmei, Zhou, Jin, Dong,		2020	Multivariate morphological reconstruction bas The fuzzy		3	3	0													No quantitative results not based on selected metrics
34	J	Garcia-Lamont, F, Cervantes, Garcia-Lamont, Farid, Cervantes		2020	Automatic computing of number of clusters f In this pap		4	4	0													No quantitative results not based on selected metrics
35	J	Khan, A, Rehman, ZU, Jaffar, Khan, Ahmad, Rehman, Zia Ur,		2019	Color image segmentation using genetic alg: Clustering		9	9	0													No quantitative results not based on selected metrics
36	J	Zhao, XM, Li, Y, Zhao, QH, Zhao, Xuemei, Li, Yu, Zhao, Qiu		2018	A Fuzzy Clustering Approach for Complex C In comple		8	8	0													No quantitative results not based on selected metrics
37	J	Basar, S, Ali, M, Ochoa-Ruiz Basar, Sadia, Ali, Mushtaq; Ocl		2020	Unsupervised color image segmentation: A c-Color-bas		6	6	0													No quantitative results not based on selected metrics
38	J	Mujica-Vargas, D, Gallegos-F, Mujica-Vargas, Dante, Gallegos		2013	A fuzzy clustering algorithm with spatial rob: In this pap		37	37	0													No quantitative results not based on selected metrics
39	J	Aferez, S, Merino, A, Aceved Aferez, Santiago, Merino, Anna		2019	Color clustering segmentation framework for Current cc		10	10	0													Only Abstract
40	J	Shi, WH, Yu, YL, Wang, S, Zeng, Shaohua, Wu, Yalan, Wa		2021	Adaptive scale weighted fuzzy C-Means clus The segm		0	0	0													Only Abstract
41	J	Jha, S, Jha, S	Malhotra, Jitin, Jha, S	2017	Fuzzy c-means clustering based Super		1	1	0													No quantitative results not based on selected metrics
42	J	Ren, DY, Jia, ZH, Yang, J, Ki-Ren, Davoon, Jia, Zhenhong, Y		2014	A Practical GrabCut Color Image Segmental in order to		10	11	1	unsupervised	clustering	SLIC grabcut		0 ECSSO	17	0.929		0.943			0.938	YES
43	J	Liang, BM, Zhang, JZ	Liang, Binmei; Zhang, Jianzhou	2014	KmsGc: An Unsupervised Color Image Segn For unsup		4	4	0													No quantitative results not based on selected metrics
44	J	Zhao, F, Zeng, Z, Liu, HQ, La Zhao, Feng, Zeng, Zhe, Liu, Har		2020	Semisupervised Approach to Surrogate-Assi Multiobiec		6	6	0	Semisupervised	Clustering	FCM		0 Berkeley Segment	20				0.927	0.601		
45	J	Zhao, F, Zeng, Z, Liu, HQ, La Zhao, Feng, Zeng, Zhe, Liu, Har		2020	Semisupervised Approach to Surrogate-Assi Multiobiec		6	6	1	Semisupervised	Clustering	FCM		0 Weizmann	12				0.934	0.6	YES	
46	J	Pramod, S, Payal, A	Pramod, S., Payal, Ashish	2017	Wavelet Based Hybrid Compression and Col Image cor		0	0	0													No quantitative results not based on selected metrics
47	J	Chang, DX, Zhao, Y, Li, Z, Chang, Dongxia, Zhao, Yao, Li		2016	A dynamic niching clustering algorithm base In this pap		14	14	0													No quantitative results not based on selected metrics
48	J	Gamino-Sanchez, F, Hernan Gamino-Sanchez, Fernando, He		2018	Block-Matching Fuzzy C-Means clustering in a this pap		10	10	0													No quantitative results not based on selected metrics
49	J	Hesnat, MA, Alata, O, Trieme Hesnat, M, Abul, Alata, Olivier		2015	Joint Color-Spatial-Directional Clustering and Recnt ac		27	27	0													No quantitative results not based on selected metrics
50	J	Zhang, YP, Yao, LQ, Li, Zhong, Yao, Liao, Li, Yinpeng, G		2020	A student's t-based density peaks clustering col		2	2	0													No quantitative results not based on selected metrics
51	J	Zhao, F, Chen, YL, Liu, HQ, FZha, Feng, Chen, Yilei, Liu, Ha		2019	An Adaptive PSO-Based Adaptive Interval Typing and Int		18	21	0													No quantitative results not based on selected metrics
52	J	Alkabaradeh, G, Rahmani, M, Alkabaradeh, Golnareza; Rahi		2017	Efficient Combination of Texture and Color F In this pap		31	33	0													No quantitative results not based on selected metrics
53	J	Nonameikapam, K, Kumar, V, Nonameikapam, Kishorjit, Kums		2018	An Unsupervised Cluster-wise Color Segmen The tradit		4	4	0													Only Abstract

Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

Phase 3 : Eligibility Criteria

- Example for inclusion and exclusion criteria

ID	Criterion
Exclusion criteria	
EC1	Papers in which only the abstract is available
EC2	Review and conference papers
EC3	Duplicates records
EC4	Papers are not written in the English language
EC5	Papers are not aimed at the artificial intelligence and cyber security
EC6	Papers do not apply the AI based techniques for Cyber security process
Inclusion criteria	
IC1	Articles published in the period of 2015 - 2025
IC2	Papers that addressed the cyber security process using Artificial intelligence
IC3	Papers that provided clear information about the Experiment details including the network setup and details of datasets
IC4	Papers that provided the results in terms of average precision, recall, and F-Score.

ID	Criterion
Exclusion criteria	
EC1	Papers in which only the abstract is available
EC2	Review and conference papers
EC3	Duplicates records
EC4	Papers are not written in the English language
EC5	Papers are not aimed at the color image segmentation
EC6	Papers do not apply the clustering or saliency methods for image segmentation
EC7	Papers do not directly apply object detection or segmentation
EC8	Papers that used non-image data for segmentation
EC9	Papers do not report the segmentation evaluation metrics in terms of average precision, recall, and F-Score.
Inclusion criteria	
IC1	Articles published in English.
IC2	Papers that clearly stated the segmentation methods and the techniques used for image segmentation.
IC3	Papers that provided clear information about the image database and the number of images used for evaluation.
IC4	Papers that provided the segmentation results in terms of average precision, recall, and F-Score.

Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

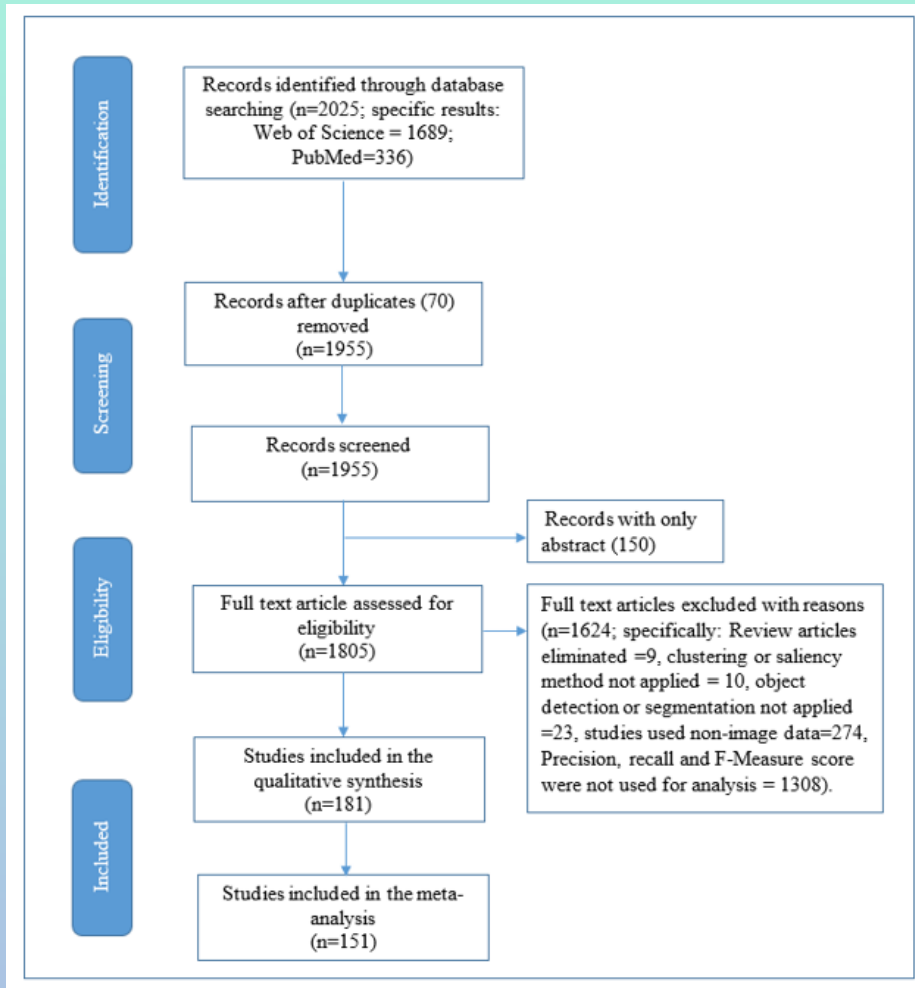
Inclusion.

- Example for search variables used to extract the relevant information to extract information from included studies

#	Extraction element	Contents	Type
General Information			
1	Title	Title of the article	Text
2	Author	The authors of the article	Text
3	Country	The country of the research institute	Text
4	Year	The year of publication	Numeric
Description of the study			
5	Segmentation approach	☐ Supervised ☐ Unsupervised	Classes
6	Segmentation method	☐ Clustering ☐ Saliency ☐ Clustering and saliency	Classes
7	Segmentation technique	For instance, K-Means Algorithm, SLIC, Mean shift, Deep learning, bottom-up saliency, and top-down saliency.	Text
8	<u>Preprocessing</u> stage is implemented	☐ Yes ☐ No	Classes
9	Unit of processing	☐ Pixel ☐ Patch ☐ Region	Classes
10	Dataset	List of the dataset used for evaluation	Text
11	Number of datasets	Number of datasets used for the evaluation	Numeric
12	Number of images	Number of images used for the evaluation	Numeric
13	Precision	The average precision of the produced results	Numeric
14	Recall	The average recall of the produced results	Numeric
15	F-Score	The average F-Score of the produced results	Numeric

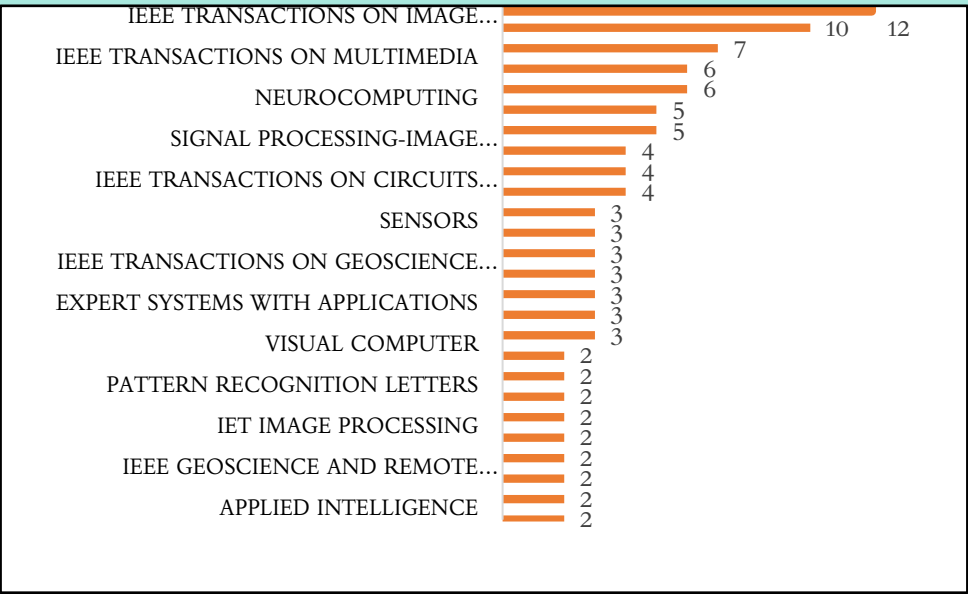
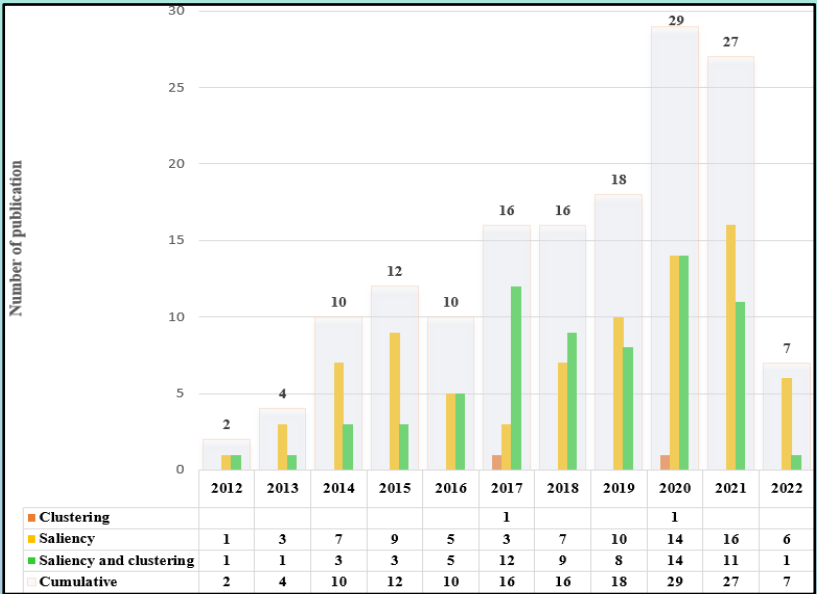
Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

Example: Four phase flow diagram



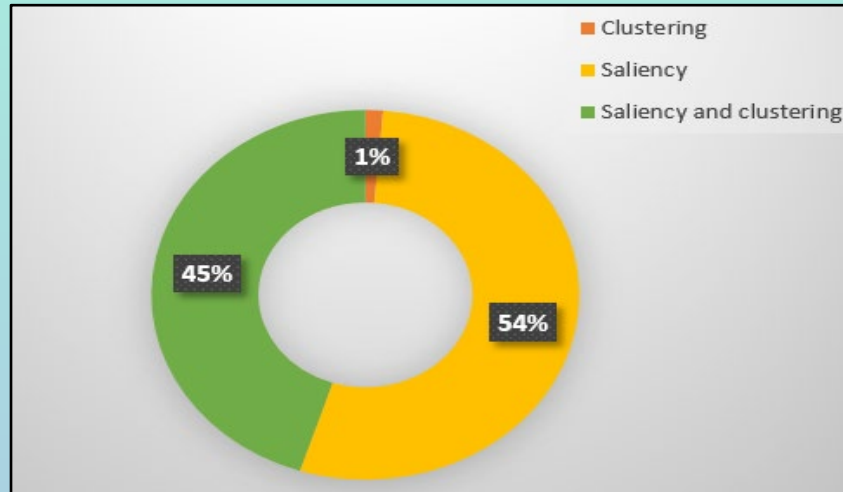
Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

- Sample results (General characteristics of included studies)



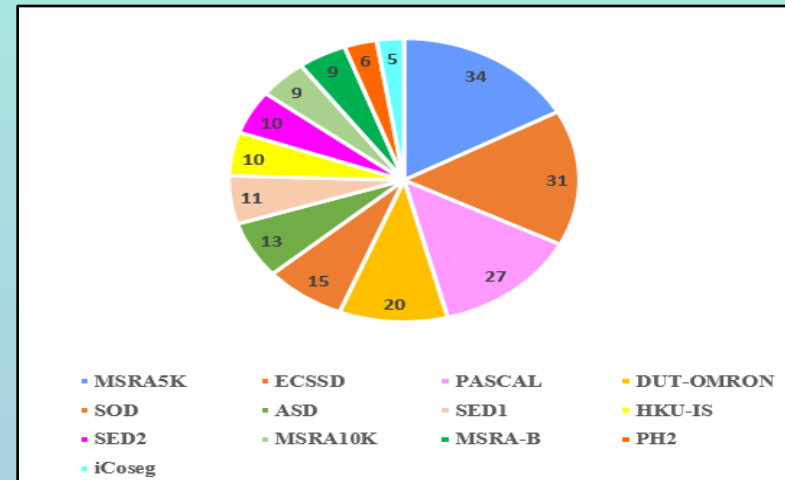
Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

- Sample results (General characteristics of included studies)



Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

- Sample results (General characteristics of included studies)



Systematic Literature review – work flow

1. Data extraction

- Keywords, select electronic databases

2. Prepare a framework for organizing and interpreting the collected data

- To structure the review process

3. Learn from the literature

- gain valuable insights and perspectives from existing literature

4. Classify the literature in different theme/clusters

- To identify the research gap

5. Literature synthesis

- Synthesis the findings from the literature and develop theories to guide your research

Systematic literature review

- A systematic review is a review of a clearly articulated question that use systematic and explicit methods to identify, select, and critically evaluate relevant research as well as gather and analyze data from the studies that are included in the review (Needleman 2002).
- A “systematic review” is a high-level assessment of existing evidence that aims to provide a clear response to a specific question.
- Systematic review aim to mitigate bias by using explicit, systematic methods documented in advance with a protocol.

Review Papers Example



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RESEARCH ARTICLE

A Comprehensive Review of AI's Current Impact and Future Prospects in Cybersecurity

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Review

A Systematic Literature Review and Meta-Analysis of Studies on Online Fake News Detection

Robyn C. Thompson ^{*}, Seena Joseph  and Timothy T. Adeliyi

Int. j. inf. tecnol. (October 2021) 13:1867–1877
<https://doi.org/10.1007/s41870-017-0080-1>



ORIGINAL RESEARCH

Survey on SVM and their application in image classification

Mayank Arya Chandra¹ · S. S. Bedi¹

References

- [1] Paré G, Kitsiou S. Chapter 9 Methods for Literature Reviews. In: Lau F, Kuziemy C, editors. Handbook of eHealth Evaluation: An Evidence-based Approach [Internet]. Victoria (BC): University of Victoria; 2017 Feb 27. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK481583/>
- [2] Needleman, I. G.. A guide to systematic reviews. Journal of clinical periodontology, Vol. 29, pp. 6-9, 2002
- [3] Stroup, D. F., Berlin, J. A., Morton, S. C., Olkin, I., Williamson, G. D., Rennie, D., Moher, D., Becker, B. J., Sipe, T. A. and Thacker, S. B. Meta-analysis of observational studies in epidemiology: a proposal for reporting. Jama, Vol. 283, No. 15, pp. 2008-2012, 2000.
- [4] Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G. and Group*, P. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. Annals of Internal Medicine, vol. 151, No.4, pp. 264-269, 2009.
- [5] American Psychological Association. Publication manual of the American Psychological Association (6th ed.). Washington, DC, 2010.
- [6] Paul, J., Lim, W. M., O'Cass, A., Hao, A. W. and Bresciani, S.. Scientific procedures and rationales for systematic literature reviews (SPAR-4-SLR). International Journal of Consumer Studies, vol. 45, No. 4, pp: O1-O16, 2021