

Praxis Development for Artificial Intelligence

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SEAS 8599 – DA1

Lecture 5

May 18, 2024



Any Questions?

- Any questions about HW #2?
- Any questions about praxis proposals?
- Any other questions?

Agenda

1. Academic Writing
2. Citation and Referencing
3. Library Resources
4. Annotated Bibliography
5. Literature Review

Main Takeaways from HW #1 & HW #2

1. Concise and clear title
2. Scope of work that can be accomplished within a year of research
3. Quantifiable problem statement
4. Thesis statement that makes a claim with a deliverable
5. Research questions that help develop your deliverable and get you closer to a solution for the issue in your problem statement
6. Research hypotheses that are testable and make claims to answer your research questions

Academic Writing

1. Definition
2. Characteristics
3. Checklist
4. Praxis Expectations
5. Examples

Academic Writing – Definition

- Academic writing is a formal type of writing that is structured and focused on an evidence-based approach. It aims to communicate the findings of researchers in a logical format.
- Academic writing provides an analysis and a critical view of other work found in the field while ensuring proper attribution to the sources used.
- The goal of academic writing is to advance the existing body of knowledge within a specific field or discipline.

Academic Writing – Characteristics

- **Formal structure and tone** – structured into chapters or sections and avoids colloquial phrases and words.
- **Objective** – focuses on evidence-based arguments rather than the author's opinions.
- **Balanced and logical** – avoids biases and follows a clear structure that makes the argument easy to understand by the readers.
- **Concise and focused** – uses words that help develop the argument while staying focused on the topic.

Academic Writing – Checklist

Academic writing **avoids** the following:

- Informal phrases and words.
- The use of personal pronouns, such as “I” or “You”.
- Starting a sentence with a conjunction, such as “And” or “But”.
- Long run-on sentences.
- Including multiple major ideas in one paragraph.
- Generalizations, such as using the words “Always” or “Best”.

Academic Writing – Praxis Expectations*

- Follow the provided praxis template to avoid any formatting errors.
- Practice **tight writing**. Make your topic flow from concept to concept without being wordy, while providing sufficient detail for understanding.
- The main body of your work should be between 70 and 90 pages (not including front matter, References, and Appendices), with a total Praxis length of 95-110 pages.
 - Front Matter – Cover Page to Chapter 1: ~16 pages.
 - Main Body of Praxis – Chapter 1 (~7 pages), Chapter 2 (~18 pages), Chapter 3 (~16 pages), Chapter 4 (~28 pages), and Chapter 5 (~3 pages) → ~72 pages total. Expected to be 70-90 pages.
 - Back Matter – References (~7 pages) and Appendices (~10 pages).

* Source: SEAS Online D.Eng., Other Praxis Tips and Expectations, 2022.

Academic Writing – Praxis Expectations*

- **Review and edit your work before submitting** any chapter or the completed work. If needed or directed, use the services of a professional editor.
- **Your Advisor is not your editor**, and poorly written chapters (e.g., flow, understandability, grammatical issues, etc.) may be returned without full review for your correction, which can lead to not meeting deadlines, low Semester grades, etc.
- Ensure you provide sufficient references to help the reader understand the aspects of your topic and convey confidence. As a rule of thumb, we would expect to see about 50 references, with **more than 30 of those from robust peer-reviewed journal papers**.
- In addition to the acronyms list, **spell out acronyms the first time you use them in each chapter** – do not assume that the reader is familiar with your domain or require them to flip back to the acronym list, glossary, or prior chapters.

* Source: SEAS Online D.Eng., Other Praxis Tips and Expectations, 2022.

Academic Writing – Praxis Expectations*

- **Properly use quotation marks** – reserve “” for actual quotes, not emphasis. Where emphasis is needed, italics may be used, albeit sparingly.
- Plagiarism is a very serious violation. Do not use any material (text, tables, figure, equations, etc.) from other sources without properly citing that reference (and using “” if direct quotes).
- Long direct quotes (a sentence or more) should be included very sparingly. Paraphrase most of them and keep the most important ones, i.e., those from authoritative figures in the domain. Make sure you use “” if quoting directly AND cite the reference.
- **Use equation editor if including equations** or variables. **All equations must be numbered** and summarized in your list of equations in the Front Matter.
- In chapter 4, **include sufficient graphs and tables to ensure understandability** without needing to turn to the appendix.

* Source: SEAS Online D.Eng., Other Praxis Tips and Expectations, 2022.

Academic Writing – Examples

Example 1

- And Machine Learning models are always the best method for detecting denial of service attacks.
- Comment on the above sentence.

Example 2

- DDoS attacks are harder to detect than DoS attacks since they come from multiple sources that use spoofed IP addresses, which makes it even harder to identify the actual sources of the attack, and similar to a DoS attack, a DDoS attack aims at overwhelming the attacked target with network traffic that exhausts its resources, leading to denying access to its intended users.
- Comment on the above sentence.

Academic Writing – Examples

Example 1 Review

- Original: And Machine Learning models are always the best method for detecting denial of service attacks.
- Updated: Machine learning models are suitable for detecting Denial of Service (DoS) attacks due to their ability to scale and handle large amounts of data.
 - Starting with a conjunction
 - Generalizing by using “Always” and “Best”
 - Is not objective and seems to be the author’s opinion

Example 2 Review

- Original: DDoS attacks are harder to detect than DoS attacks since they come from multiple sources that use spoofed IP addresses, which makes it even harder to identify the actual sources of the attack, and similar to a DoS attack, a DDoS attack aims at overwhelming the attacked target with network traffic that exhausts its resources, leading to denying access to its intended users.
- Updated: Distributed Denial of Service (DDoS) attacks are harder to detect than Denial of Service (DoS) attacks since they come from multiple sources that use spoofed IP addresses, which makes it even harder to identify the actual sources of the attack. Similar to a DoS attack, a DDoS attack aims to overwhelm the attacked target with network traffic that exhausts its resources, leading to denying access to its intended users.
 - Long run-on sentence
 - If this is the first time these acronyms appear in a chapter, spell them out

Citation and Referencing

1. APA Citation Style
2. RefWorks

APA Citation Style*

- American Psychological Association (APA) citation style is widely utilized for referencing sources in academic papers within scientific fields.
- The citation format differs based on the type of the source being cited. The most common cited sources are:
 - Journals
 - Books
 - Websites

APA Citation Style – Format for Journals*

Format for Journals with One Author

In-Text Citation (Paraphrase):

(Author Surname, Year)

In-Text Citation (Quotation):

(Author Surname, Year, page number)

References:

Author Surname, First Initial. Second Initial. (Year). Article title: Subtitle. *Journal Title*, Volume(issue), page range. <http://doi.org/xx.xxxxxxxxxx>

APA Citation Style – Format for Journals*

Format for Journals with Two Authors

In-Text Citation (Paraphrase):

(Author Surname & Author Surname, Year)

In-Text Citation (Quotation):

(Author Surname & Author Surname, Year, page number)

References:

Author Surname, First Initial. Second Initial., & Author Surname, First Initial. Second Initial. (Year). Article title: Subtitle. *Journal Title*, Volume(issue), page range.
<http://dx.doi.org/xxxxxxxxxxx>

APA Citation Style – Format for Journals*

Format for Journals with Three to Seven Authors

In-Text Citation (Paraphrase):

(Author Surname et al., Year)

In-Text Citation (Quotation):

(Author Surname et al., Year, page number)

References:

Author Surname, First Initial. Second Initial., Author Surname, First Initial. Second Initial., & Author Surname, First Initial. Second Initial. (Year). Article title: Subtitle. *Journal Title*, Volume(issue), page range. <http://doi.org/xxxxxxxxxxx>

APA Citation Style – Format for Journals*

Format for Journals with Seven or More Authors

In-Text Citation (Paraphrase):

(Author Surname et al., Year)

In-Text Citation (Quotation):

(Author Surname et al., Year, page number)

References:

Author Surname, First Initial. Second Initial., Author Surname, First Initial. Second Initial., & Author Surname, First Initial. Second Initial. (Year). Article title: Subtitle. *Journal Title, Volume(issue), page range.* <http://doi.org/xxxxxxxxxx>

NOTE: List the surnames and initials for up to 20 authors.

APA Citation Style – Format for Books*

Format for Books with One Author or Editor

In-Text Citation (Paraphrase):

(Author Surname, Year)

In-Text Citation (Quotation):

(Author Surname, Year, page number)

References:

Author Surname, First Initial. Second Initial. (Year). *Book title: Subtitle*. Publisher.

APA Citation Style – Format for Books*

Format for Books with Two Authors or Editors

In-Text Citation (Paraphrase):

(Author Surname & Author Surname, Year)

In-Text Citation (Direct Quote):

(Author Surname & Author Surname, Year, page number)

References:

Author Surname, First Initial. Second Initial., & Author Surname, First Initial. Second Initial. (Year). *Book title: Subtitle*. Publisher.

APA Citation Style – Format for Books*

Format for Books with Three to Five Authors or Editors

In-Text Citation (Paraphrase):

(Author Surname et al., Year)

In-Text Citation (Direct Quote):

(Author Surname et al., Year, page number)

References:

Author Surname, First Initial. Second Initial., Author Surname, First Initial. Second Initial., & Author Surname, First Initial. Second Initial. (Year). *Book title: Subtitle*. Publisher.

APA Citation Style – Format for Websites*

Format for a Basic Webpage

In-Text Citation (Paraphrase):

(Author Surname, Year)

In-Text Citation (Quotation):

(Author Surname, Year, page or paragraph number [if available])

References:

Personal or Corporate Author. (Last update or copyright date; if not known, put n.d.). *Title of specific document*. Site name (if needed). URL of specific document

APA Citation Style – Format for Websites*

Format for a Webpage from a University Site

In-Text Citation (Paraphrase):

(Author Surname, Year)

In-Text Citation (Quotation):

(Author Surname, Year, page or paragraph number [if available])

References:

Author Surname, First Initial. Second Initial. (Last update or copyright date; if not known, put n.d.). *Title of specific document*. Site name (if needed). URL of specific document

APA Citation Style – Format for Websites*

Format for a Website with no Author

In-Text Citation (Paraphrase):

(Title of specific document, Year)

In-Text Citation (Quotation):

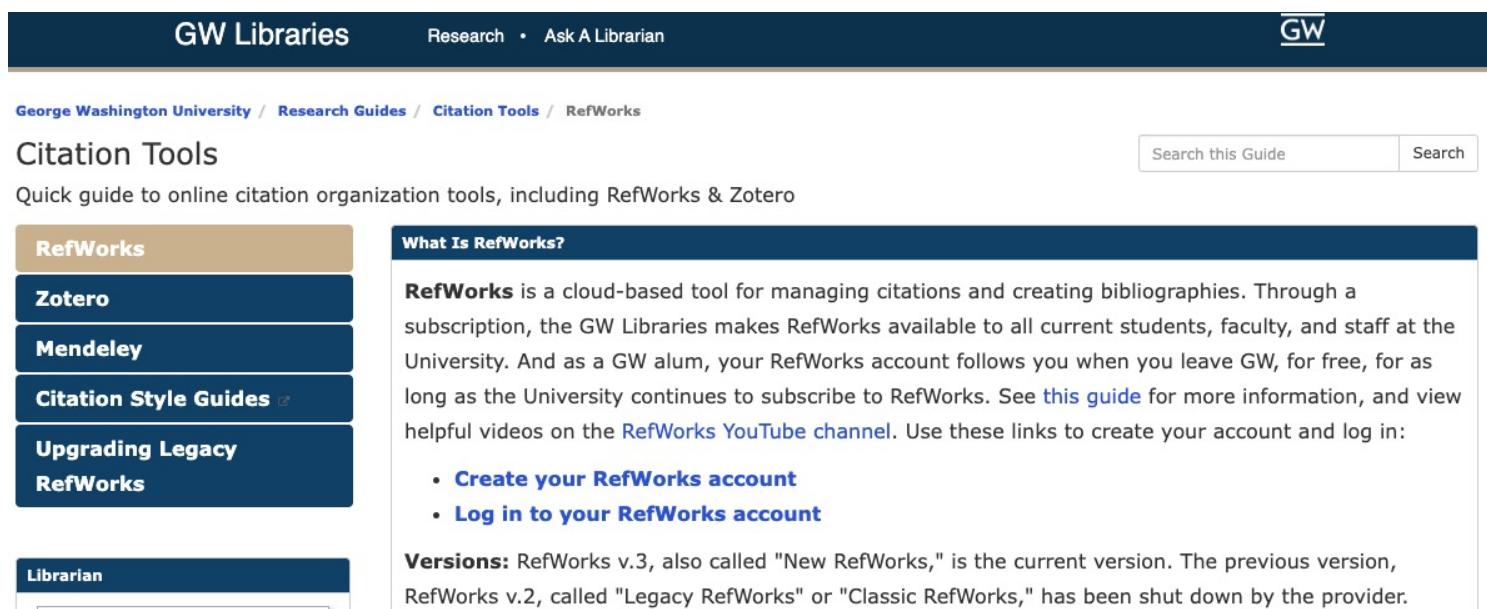
(Title of specific document, Year, page or paragraph number [if available])

References:

Title of specific document. (Last update or copyright date; if not known, put n.d.). *Title of website*. URL of specific document

RefWorks

- <https://libguides.gwu.edu/citing>
- RefWorks is an online research tool to help you manage your references
- You can import, store, and organize all your references into RefWorks
- There is an add-on for RefWorks for MS Word, which allows you to dynamically cite references and build your bibliography



The screenshot shows a web page from the GW Libraries website. At the top, there's a dark blue header bar with the text "GW Libraries", "Research • Ask A Librarian", and the "GW" logo. Below the header, the main content area has a white background. The title "Citation Tools" is centered at the top of the page. Below it, a sub-headline reads "Quick guide to online citation organization tools, including RefWorks & Zotero". To the left, there's a sidebar with several links: "RefWorks" (highlighted in orange), "Zotero", "Mendeley", "Citation Style Guides", "Upgrading Legacy RefWorks", and "Librarian". To the right, under the heading "What Is RefWorks?", there's a detailed description of the tool, mentioning its cloud-based nature, availability to students, faculty, and staff, and its continued support by the university. It also includes links to create an account and log in. At the bottom, there's a note about "Versions" comparing RefWorks v.3 and v.2.

GW Libraries Research • Ask A Librarian GW

George Washington University / Research Guides / Citation Tools / RefWorks

Citation Tools

Quick guide to online citation organization tools, including RefWorks & Zotero

RefWorks

Zotero

Mendeley

Citation Style Guides

Upgrading Legacy RefWorks

Librarian

What Is RefWorks?

RefWorks is a cloud-based tool for managing citations and creating bibliographies. Through a subscription, the GW Libraries makes RefWorks available to all current students, faculty, and staff at the University. And as a GW alum, your RefWorks account follows you when you leave GW, for free, for as long as the University continues to subscribe to RefWorks. See [this guide](#) for more information, and view helpful videos on the [RefWorks YouTube channel](#). Use these links to create your account and log in:

- [Create your RefWorks account](#)
- [Log in to your RefWorks account](#)

Versions: RefWorks v.3, also called "New RefWorks," is the current version. The previous version, RefWorks v.2, called "Legacy RefWorks" or "Classic RefWorks," has been shut down by the provider.

Library Resources

1. GW Gelman Library
2. Engineering Village
3. Web of Science
4. Main Engineering Management / AI Journals

GW Gelman Library



Libraries & Academic Innovation

Today's Hours

Gelman Library: 7am to 8pm

[Complete Hours Info](#)

Ask Us

[Gelman Library Home Page](#)

<https://library.gwu.edu>

Visit & Study | Find & Borrow | Support for Teaching & Faculty | Support for Students | Research & Scholarship | About 

What would you like to find at the libraries today?

Books, Articles & Media Books & Media Available Online Course Reserves Journal Title Library Website

Virginia Woolf, modernism, A Room of One's Own

Articles, books, e-books, media, and archival resources at GW and WRLC libraries, plus [research guides](#).



[Study Room Reservations](#)

Reservable rooms in Gelman
for doctoral, graduate, and
undergraduate students



[My Account](#)

Check due dates, access
saved articles, etc.



[Databases](#)

Find by subject or by the A-Z
listing



[Academic Commons](#)

Your one-stop shop for
academic services and
support across campus



[Blackboard](#)

Access GW's official course
management system

THE GEORGE
WASHINGTON
UNIVERSITY
WASHINGTON, DC

GW Gelman Library – Journal Search

Journal Search

- Searching for all journals that are “Engineering Management” related
- To search available journals, click on “Journal Title”, enter your search terms, and click Search

The screenshot shows the GW Gelman Library homepage. At the top, there is a navigation bar with links for Visit & Study, Find & Borrow, Support for Teaching & Faculty, Support for Students, Research & Scholarship, and About. On the right side of the top bar is a blue button labeled "Ask Us". Below the navigation bar is a search bar with the placeholder text "What would you like to find at the libraries today?". The search bar has several input fields: Books, Articles & Media, Books & Media, Available Online, Course Reserves, Journal Title, and Library Website. A blue arrow points from the text "click on ‘Journal Title’" in the list above to the "Journal Title" input field. The search bar also contains the text "Engineering Management" and a "Search" button. Below the search bar, there is a sub-header "Find journals, magazines, and newspapers by title or ISSN." At the bottom of the page, there are five service links: Study Room Reservations, My Account, Databases, Academic Commons, and Blackboard.

Today's Hours
Gelman Library: 12pm to 6pm
[Complete Hours Info](#)

Ask Us

Visit & Study | Find & Borrow | Support for Teaching & Faculty | Support for Students | Research & Scholarship | About

What would you like to find at the libraries today?

Books, Articles & Media Books & Media Available Online Course Reserves Journal Title Library Website

"Engineering Management"

Find journals, magazines, and newspapers by title or ISSN.

[Study Room Reservations](#)
Reservable rooms in Gelman for doctoral, graduate, and undergraduate students

[My Account](#)
Check due dates, access saved articles, etc.

[Databases](#)
Find by subject or by the A-Z listing

[Academic Commons](#)
Your one-stop shop for academic services and support across campus

[Blackboard](#)
Access GW's official course management system

Upcoming Events

GW Gelman Library – Journal Search

- Journal search screen is displayed
- List of all journals that have “Engineering Management” in their name is displayed

The screenshot shows the GW Gelman Library Journal Search interface. At the top, there is a navigation bar with links for New Search, Journal Search, Search by Citation, Databases, Place an ILL Request, and Found a Problem? On the far right of the top bar is a magnifying glass icon.

In the main search area, the search term "Engineering Management" is entered in the search bar. Below the search bar, there is a yellow banner with a "Sign in" link and a "DISMISS" button.

On the left side of the results page, there are several filtering options: "Refine your Results", "Sort by Relevance", "Availability" (with sub-options: Available online, Peer-reviewed Journals, Held at library, Open Access), and "Journals by category" (with sub-options: Arts, Architecture & Applied Arts, Business & Economics, Earth & Environmental Sciences, Engineering & Applied Sciences).

The search results are listed on page 1 of 28 results. The first result is "JOURNAL ENGINEERING MANAGEMENT" (Available Online). The second result is "JOURNAL IEEE transactions on engineering management" (Available at Gelman Library Offsite Storage (Periodicals) and other locations, Available Online). The third result is "JOURNAL Engineering management journal (London, England)" (Institution of Electrical Engineers, issuing body).

GW Gelman Library – Subject Databases

Subject Database Search

- Provides access to Journals
- On the main page, select “Databases” below the main search bar

The screenshot shows the GW Gelman Library website. At the top, there is a navigation bar with links: Visit & Study, Find & Borrow, Support for Teaching & Faculty, Support for Students, Research & Scholarship, and About. To the right of the navigation bar is a "Today's Hours" section indicating the library is open from 7am to 8pm, with a link to "Complete Hours Info". There is also a "Ask Us" button. Below the navigation bar is a search bar with the placeholder text "What would you like to find at the libraries today?". The search bar includes a dropdown menu with options: Books, Articles & Media, Books & Media, Available Online, Course Reserves, Journal Title, and Library Website. Below the search bar is a text input field containing "Virginia Woolf, modernism, A Room of One's Own" and a "Search" button. A large blue arrow points from the "My Account" link in the navigation bar down to the "Databases" link in the "Find by subject or by the A-Z listing" box. The "Databases" box is highlighted with a blue border. At the bottom of the page, there are links for Study Room Reservations, My Account, Databases, Academic Commons, and Blackboard.

Today's Hours
Gelman Library: 7am to 8pm
[Complete Hours Info](#)

Ask Us

Visit & Study | Find & Borrow | Support for Teaching & Faculty | Support for Students | Research & Scholarship | About

What would you like to find at the libraries today?

Books, Articles & Media Books & Media Available Online Course Reserves Journal Title Library Website

Virginia Woolf, modernism, A Room of One's Own

Articles, books, e-books, media, and archival resources at GW and WRLC libraries, plus [research guides](#).

[Study Room Reservations](#)
Reservable rooms in Gelman for doctoral, graduate, and undergraduate students

[My Account](#)
Check due dates, access saved articles, etc.

[Databases](#)
Find by subject or by the A-Z listing

[Academic Commons](#)
Your one-stop shop for academic services and support across campus

[Blackboard](#)
Access GW's official course management system

GW Gelman Library – Subject Databases

Subject Database Search

- **Databases by Subject Area Screen is displayed**
- **You can access the databases either by category (i.e. Engineering) or by database list using the “A-Z Database List” tab**

GW Libraries Research • Ask A Librarian GW

George Washington University / Research Guides / Databases by Subject Area and A-Z / Subject Areas

Databases by Subject Area and A-Z: Subject Areas

Research databases are available off-campus to members of the GWU community only and have terms of use. Selected databases are available to alumni.

Subject Areas **A-Z Database List** **Most Popular Databases**

Arts and Humanities	Science and Engineering	Global Affairs
<ul style="list-style-type: none">African StudiesAmerican StudiesArt and ArchitectureArt TherapyCultural StudiesFilm StudiesHistoryInterior Architecture and DesignJudaic StudiesLanguages and LinguisticsLiteratureMuseum StudiesMusicPhilosophyReligionTheatre and Dance	<ul style="list-style-type: none">Biological SciencesChemistryComputer ScienceEngineeringEnvironmental StudiesForensic SciencesGeological SciencesMathematics and StatisticsMedicine and HealthPhysicsSpeech and Hearing Science	<ul style="list-style-type: none">International RelationsAsiaLatin AmericaMiddle East and AfricaRussia, Eurasia and Central/Eastern Europe
Social Sciences	Business and Management	Background Info and Primary Sources
<ul style="list-style-type: none">AnthropologyCommunicationCounselingEconomicsEducation	<ul style="list-style-type: none">Business and Management	<ul style="list-style-type: none">BiographyDatasets and StatisticsDictionaries and EncyclopediasDissertationsEbooksGeneral and MultidisciplinaryHistorical and RetrospectiveImagesNewspapers and News SourcesPrimary Source Collections

GW Gelman Library – Subject Databases

Subject Database Search

- Click on A-Z Database List
- Databases Screen is displayed
- A good place to start is Engineering Village
- Scroll down to Engineering Village



libguides.gwu.edu/az.php

Researchers in the fields of gender studies, Middle Eastern and Islamic studies, as well as scholars of religion, history, politics, anthropology, geography and related disciplines.

EnergyWire

Offers expansive coverage of developments in the energy sector, focusing on fossil fuels and related issues such as cybersecurity, technology, market conditions, government regulations, and environmental concerns. 3 calendar years ago - Present

Engineering Village

Database platform that links to materials in physics, engineering and related fields. Provides access to the databases Compendex, GEOBASE, and Knovel which can be searched separately or together. NOTE: For the Findit button to work, you must allow the computer to access pop-ups when asked. Users accessing this title should use the [GW VPN](#). Also IE 8 is no longer supported for this database.

English Short Title Catalogue (ESTC)

The English Short Title Catalogue (ESTC) indexes English or English-language letterpress materials published in Great Britain or its colonies or in English from 1473-1800, including Pollard and Redgrave (1473-1640), Wing (1640-1700), Eighteenth Century Short Title Catalogue, and Evans' Early American Imprints, Series I (1639-1800). Materials indexed in ESTC may be available in Early English Books Online or Literature Online, or in the microform STC collection on Gelman's third floor.

Environmental Impact Statement (EIS) Database (EPA)

Provides information about Environmental Impact Statements (EISs) prepared by federal agencies, as well as EPA's comments concerning the EISs. Includes records of all EISs since 1987, and full text of all since 2012.

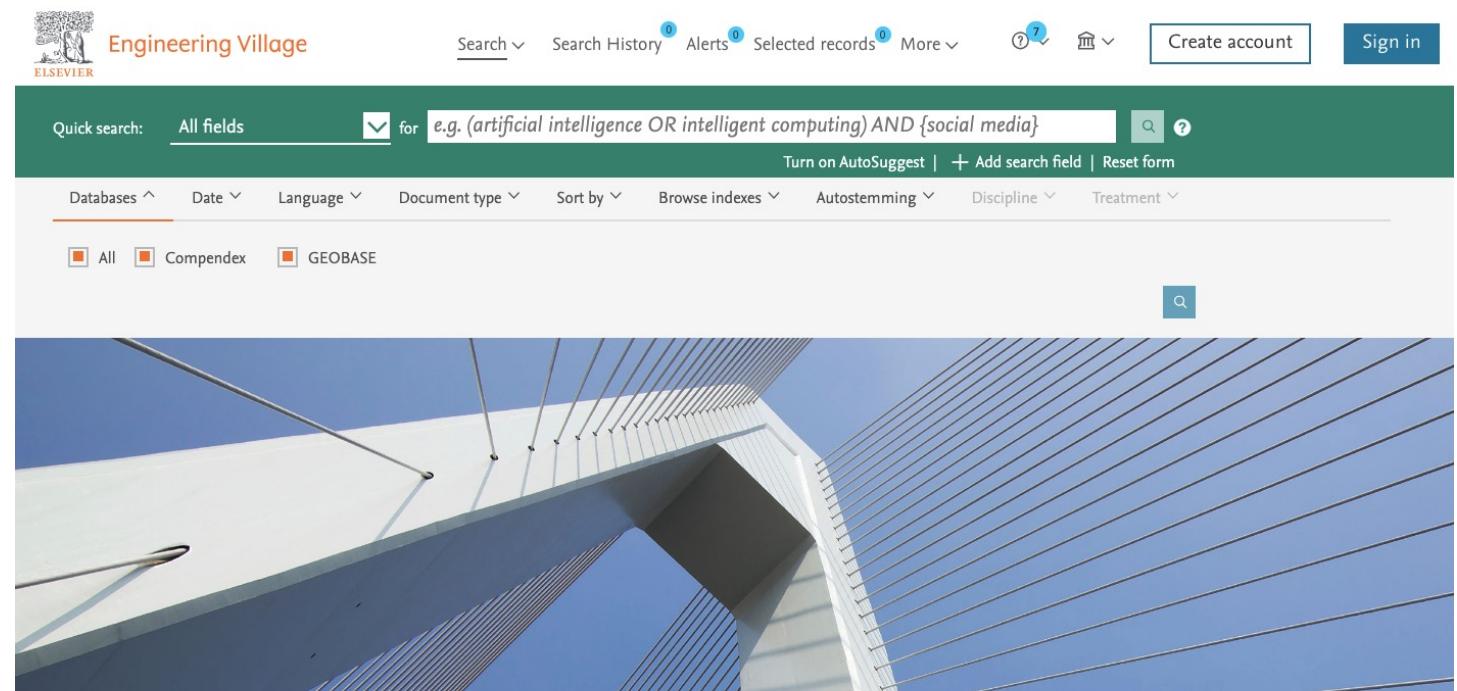
Environmental Impact Statements (ProQuest)

The National Environmental Policy Act (NEPA) requires that U.S. federal agencies or anyone receiving federal funding prepare detailed analyses of any of their actions that significantly affect the quality of the environment. Abstracts available back to 1985; the full-text, including maps and SIS, is available for statements issued in and since 2003.

Engineering Village – Login

Subject Database Search

- Engineering Village is a search platform
- Allows researchers to search multiple engineering databases (e.g. Compendex)
- Underlying databases contain journals, conference proceedings, trade publications, patents, government reports, and articles in press
- Click on the Sign in button in the top right corner of the screen



The screenshot shows the homepage of the Engineering Village search platform. At the top, there's a navigation bar with the Elsevier logo, the site name "Engineering Village", and links for "Search", "Search History", "Alerts", "Selected records", "More", "Create account", and "Sign in". Below the header is a search bar with the placeholder text "e.g. (artificial intelligence OR intelligent computing) AND {social media}" and a search icon. Underneath the search bar are various search filters: "Databases" (set to "All"), "Date", "Language", "Document type", "Sort by", "Browse indexes", "Autostemming", "Discipline", and "Treatment". There are also checkboxes for "All", "Compendex", and "GEOBASE". A large, high-resolution image of a modern cable-stayed bridge dominates the center of the page.

Ei Engineering Village Customer Service Careers

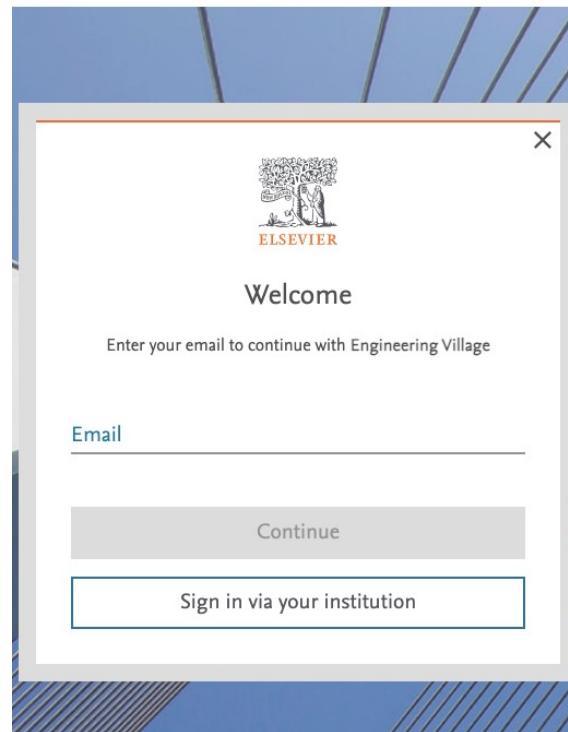
About Ei About Engineering Village Contact and support All engineering jobs
Accessibility Statement Subscribe to newsletter By job category funded by

Feedback 

Engineering Village – Login

Subject Database Search

- Click on Sign in via your institution
- Enter The George Washington University as your institution
- Sign in with you GW UserID and password



The George Washington University
Web Single Sign-on

Login to **Elsevier**

UserID

Password

Don't Remember Login

Clear prior granting of permission for release of your information to this service.

› Forgot your password?

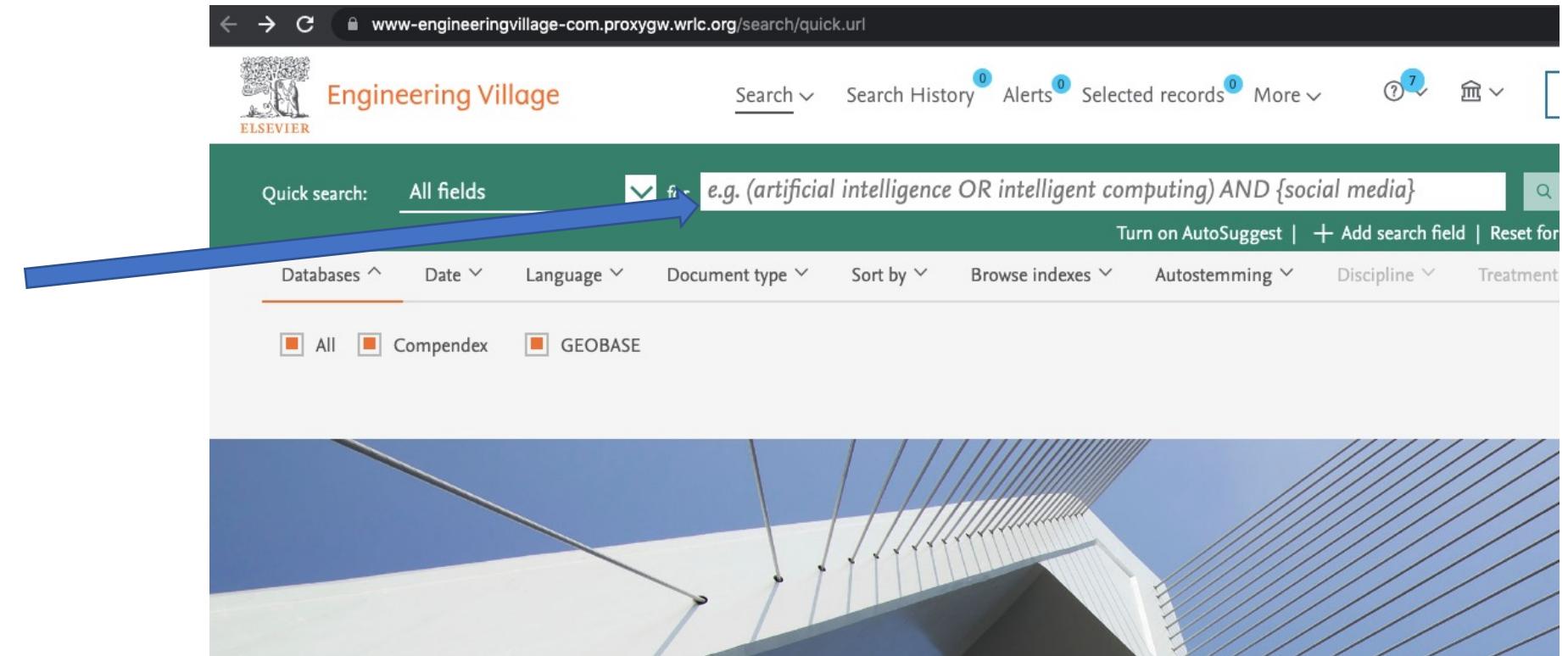
Login

Please do not bookmark this page

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2121 Eye St, NW; Washington, DC 20052
Phone: (202) 994-GWGW (4949)
Site Maintained by Division of IT.

Engineering Village – Quick Search

- Engineering Village Quick Search screen is the default screen
- Type your phrase into the search bar and click the search icon



Engineering Village – Phrase Search

- Searching for a phrase such as Insider Threat will return all results that include either the term Insider, Threat, or Insider Threat

The screenshot shows the Engineering Village search interface. The search bar at the top contains the query "Insider Threat". Below the search bar, a green header bar displays the search results: "4,962 records found in Compendex & GEOBASE for 1884-2023: ((Insider Threat) WN ALL)". On the left side, there is a "Refine" sidebar with options for "Remove duplicates", "By physical property", "By category", and "Open Access". The main search results area shows two entries:

1. **Insider threat detection and prevention using semantic score and dynamic multi-fuzzy clas**
Singh, Malvika (Institute for Development and Research in Banking Technology, Hyderabad, India); Sangeetha, S.; N
International Journal of Ad Hoc and Ubiquitous Computing, v 42, n 2, p 95-112, 2023
Database: Compendex
Document type: Journal article (JA)
Show preview
2. **CapsITD: Malicious Insider Threat Detection Based on Capsule Neural Network**
Xiao, Haitao (Institute of Information Engineering, Chinese Academy of Sciences, Beijing, China); Zhang, Chen; Liu, Wang, Fei; Liu, Yuling Source: Lecture Notes of the Institute for Computer Sciences, Social-Informatics and Telecommunic

Engineering Village – Exact Phrase Search

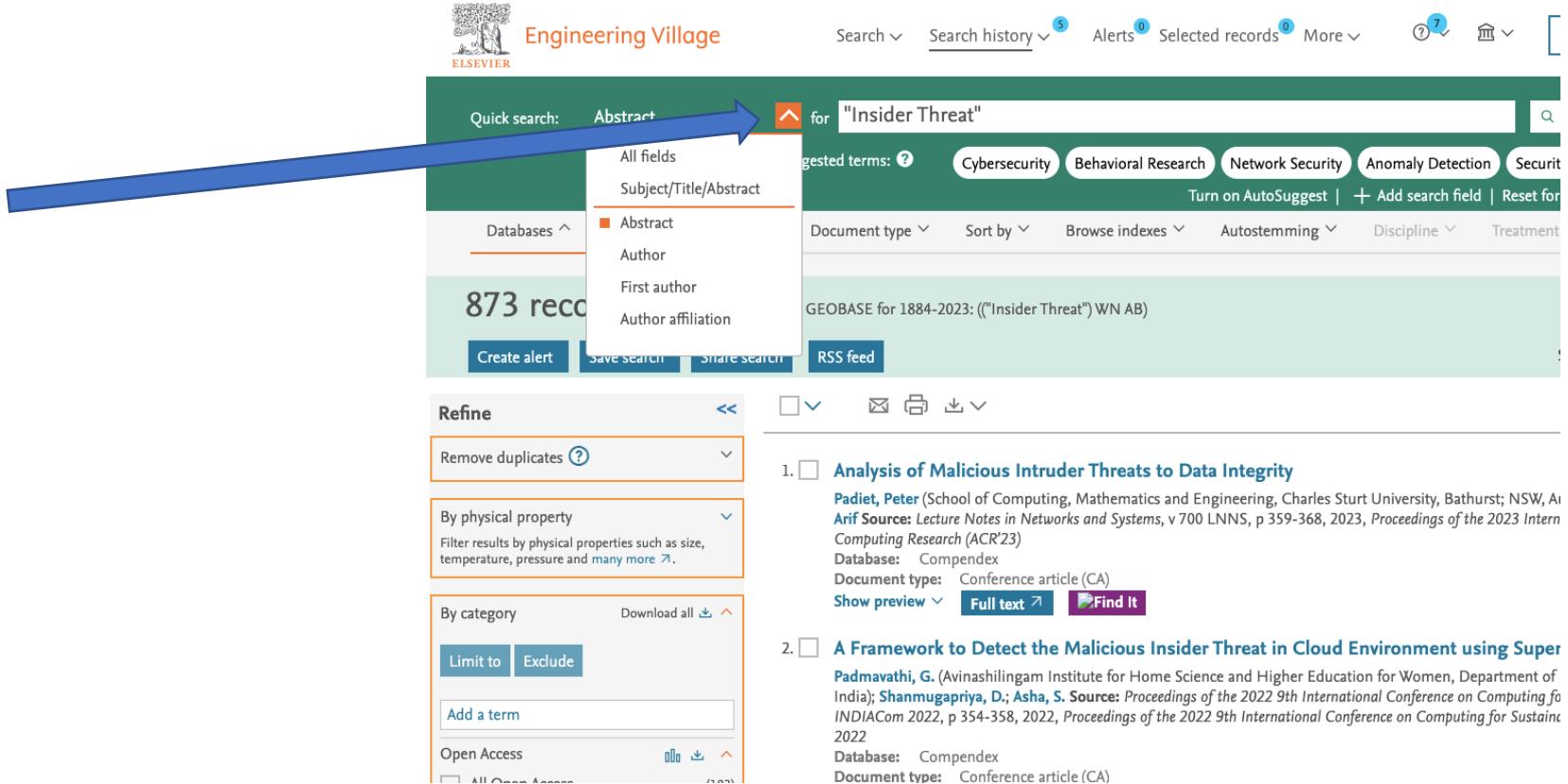
- Phrases entered with quotation marks will return results containing the exact phrase
- The results include only records that have the phrase “Insider Threat”
- Notice how the number of records found dropped significantly

The screenshot shows the Engineering Village search interface. The search bar at the top contains the query "Insider Threat" with a dropdown menu set to "All fields". Below the search bar, there are several filters: "Databases", "Date", "Language", "Document type", "Sort by", "Browse indexes", "Autostemming", "Discipline", and "Treatment". A message indicates that preprint articles are included in the results. The main search results section displays "1,384 records" found in Compendex & GEOBASE for 1884-2023. The first two results are listed:

1. **Insider threat detection and prevention using semantic score and dynamic multi-fuzzy logic**
Singh, Malvika (Institute for Development and Research in Banking Technology, Hyderabad, India); Sangeetha, International Journal of Ad Hoc and Ubiquitous Computing, v 42, n 2, p 95-112, 2023
Database: Compendex
Document type: Journal article (JA)
Show preview
2. **Research Opportunity of Insider Threat Detection based on Machine Learning Methods**
Moekhti Prajitno, Noer Tjahja (Diponegoro University, Department of Information System, School of Postgraduate Studies); Hadiyanto, H.; Rochim, Adian Fatchur Source: 5th International Conference on Artificial Intelligence in Information and Communication, ICAIIC 2020, p 292-296, 2023, 5th International Conference on Artificial Intelligence in Information and Communication, ICAIIC 2020
Database: Compendex

Engineering Village – Field Search

- You can select the specific field to search for your phrases in
- Searching for the exact phrase “Insider Threat” in abstracts drops the number of total records found



The screenshot shows the Engineering Village search interface. A blue arrow points from the text "You can select the specific field to search for your phrases in" to the "Abstract" button in the dropdown menu. The search bar contains the phrase "Insider Threat". The results page displays 873 records. The "Abstract" field is selected in the dropdown menu. The search results list two entries:

1. **Analysis of Malicious Intruder Threats to Data Integrity**
Padiet, Peter (School of Computing, Mathematics and Engineering, Charles Sturt University, Bathurst; NSW, Australia); Arif Source: Lecture Notes in Networks and Systems, v 700 LNNS, p 359-368, 2023, Proceedings of the 2023 International Conference on Computing Research (ACR'23)
Database: Compendex
Document type: Conference article (CA)
[Show preview](#) [Full text](#) [Find it](#)
2. **A Framework to Detect the Malicious Insider Threat in Cloud Environment using Super**
Padmavathi, G. (Avinashilingam Institute for Home Science and Higher Education for Women, Department of India); Shanmugapriya, D.; Asha, S. Source: Proceedings of the 2022 9th International Conference on Computing for Sustainability (INDIACom 2022), p 354-358, 2022, Proceedings of the 2022 9th International Conference on Computing for Sustainability (INDIACom 2022)
Database: Compendex
Document type: Conference article (CA)

Engineering Village – Add. Fields Search

- You can further refine your search results by adding additional search fields

The screenshot shows the Engineering Village search interface. At the top, there is a logo for ELSEVIER and the text "Engineering Village". Below the logo are search navigation links: "Search", "Search history", "Alerts", "Selected records", "More", and a help icon. A blue arrow points from the text "You can further refine your search results by adding additional search fields" to the search interface.

The search bar contains two queries: "Insider Threat" and "Machine Learning", both set to search in "All fields". Below the search bar are various filters: "Databases", "Date", "Language", "Document type", "Sort by", "Browse indexes", "Autostemming", "Discipline", and "Treatment".

The main search results area displays "152 records" found in Compendex & GEOBASE for 1884-2023. The results are listed in a table with columns for document type, title, author, source, and download options. The first result is titled "Research Opportunity of Insider Threat Detection based on Machine Learning Method".

On the left side, there is a "Refine" sidebar with sections for "Remove duplicates", "By physical property" (with a link to "many more"), "By category" (with "Download all" and "Limit to" buttons), and a search bar for "Add a term".

Engineering Village – Boolean Search

- Additional “All fields” search box appears
- You can refine your search using the “AND” drop-down menu
- It allows for Boolean AND, OR, and NOT connections between the search fields
- Example: find all papers on “Insider Threat” AND “Machine Learning”
- Example: find all papers on “Insider Threat” AND NOT “Machine Learning”

The screenshot shows the Engineering Village search interface. At the top, there is a header with the Elsevier logo, search history, alerts, selected records, and a help icon. Below the header, the search bar contains two search queries: "Insider Threat" in the first field and "Machine Learning" OR "Artificial Intelligence" in the second field, separated by an AND operator. The search results page displays 284 records found in Compdex & GEBASE for 1884-2023. The results list includes a title, author(s), source, abstract, and download links. On the left, there is a 'Refine' sidebar with options for removing duplicates, filtering by physical properties, and selecting categories.

Engineering Village – Database Search

- You can select the databases to search in
- The list to choose from includes the different databases subscribed to by GW
- Selection of “All” may result in duplicate results

The screenshot shows the Engineering Village search interface. At the top, there's a logo for Elsevier and the text "Engineering Village". To the right are links for "Search", "Search history" (with 12 items), "Alerts" (1), "Selected records" (0), "More", and user account options. Below the header is a search bar with the query "Quick search: All fields for "Insider Threat"" and another row with "AND All fields for "Machine Learning"".

In the middle section, there are filters for "Databases" (set to "All", "Compendex", and "GEOBASE"), "Date", "Language", "Document type", "Sort by", "Browse indexes", "Autostemming", "Discipline", and "Treatment". Below these filters, a message says "152 records found in Compendex & GEOBASE for 1884-2023: ((("Insider Threat") WN ALL) AND ((("Machine Learning") WN ALL))". There are buttons for "Create alert", "Save search", "Share search", and "RSS feed".

On the left, a "Refine" sidebar has a dropdown for "Remove duplicates" (which is currently selected). Another dropdown for "By physical property" is also visible. A note in the sidebar says "Preprint articles are included in these search results. To exclude them, please filter by document type." Below the refine sidebar, the first search result is listed: "1. [checkbox] Research Opportunity of Insider Threat Detection based on Machine Learning Method".

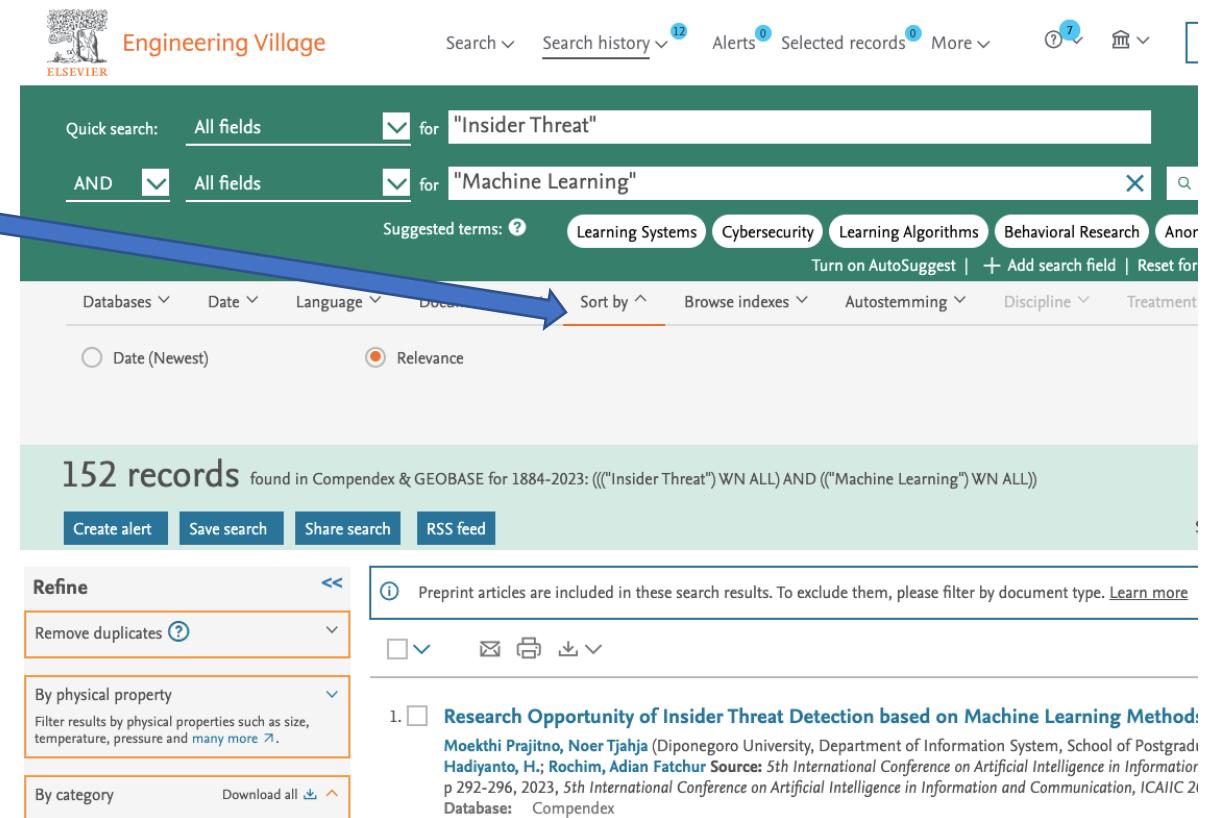
Engineering Village – Date Range Search

- You can refine your search by selecting a date range
- This feature is especially helpful for viewing the most recent contributions to a specific field of study

The screenshot shows the Engineering Village search interface. At the top, there is a search bar with the query "Insider Threat" AND "Machine Learning". Below the search bar, there are filters for "Databases", "Date" (set to "Published" from 1884 to 2023), "Language", "Document type", "Sort by", "Browse indexes", "Autostemming", "Discipline", and "Treatment". A large blue arrow points to the "Date" filter. The results section displays "152 records" found for the query "Compendex & GEOBASE for 1884-2023: ((\"Insider Threat\") WN ALL) AND ((\"Machine Learning\") WN ALL)". The results list includes a single item: "Research Opportunity of Insider Threat Detection based on Machine Learning Method" by Moekhti Prajitno, Noer Tjahja, Hadiyanto, H., Rochim, Adrian Fatchur, published in the 5th International Conference on Artificial Intelligence in Informatics (ICAIIIC) 2023, pp 292-296.

Engineering Village – Sort By Search

- You can choose how your search results are sorted by selecting one of the SORT BY options: Date or Relevance
- Date sorts result by publication year
- The relevance sort is based on an algorithm that considers various inputs, such as the number of times that the word/phrase appears in the record, whether words are found as an exact phrase or separately, etc.
- The default sort is Relevance



The screenshot shows the Engineering Village search interface. At the top, there is a search bar with the query "Insider Threat" and "Machine Learning". Below the search bar, there is a "Sort by" dropdown menu with two options: "Date (Newest)" and "Relevance". A large blue arrow points from the left towards the "Sort by" dropdown. The main search results area displays "152 records" found in Compendex & GEOBASE for 1884-2023. The first result is a research paper titled "Research Opportunity of Insider Threat Detection based on Machine Learning Method".

Engineering Village – Refine Results

- After completing a search, a list of categories appears on the left side of the search results page to further refine your results
- Each category enables you to modify your search queries

The screenshot shows the Engineering Village search results page. At the top, there is a navigation bar with links for 'Search', 'Search history' (with a count of 12), 'Alerts' (0), 'Selected records' (0), 'More', and a help icon. Below the navigation is a search bar with a placeholder message about preprint articles. Underneath the search bar are several icons for sharing and printing. The main content area displays a list of search results, each with a checkbox, the title, author(s), source information, database, document type, and links for 'Show preview', 'Full text', and 'Find It'. To the left of the search results is a 'Refine' sidebar titled 'Refine' with the following sections:

- Remove duplicates** (with a question mark icon)
- By physical property** (with a dropdown arrow) - description: Filter results by physical properties such as size, temperature, pressure and many more.
- By category** (with a 'Download all' link and a dropdown arrow)
 - Limit to** (button)
 - Exclude** (button)
 - Add a term** (input field)
 - Open Access** (with a dropdown arrow)
 - Document type** (with a dropdown arrow)
 - Database** (with a dropdown arrow)
 - Author** (with a dropdown arrow)
 - Author affiliation** (with a dropdown arrow)
 - Controlled vocabulary** (with a dropdown arrow)
 - Machine Learning (58)
 - Learning Systems (48)
 - Cybersecurity (42)
 - Learning Algorithms (33)
 - Behavioral Research (30)

Engineering Village – Refine Results

- **Limit to Button:** Limits search results to only include terms that were selected from the categories
- **Exclude Button:** Eliminate terms from selected categories

The screenshot shows a sidebar for refining search results. It includes a 'Document type' section with a bar chart, a 'Database' section, and sections for 'Author', 'Author affiliation', 'Controlled vocabulary', 'Classification code', 'Country/Region', 'Language', 'Year', 'Source title', and 'Funding spons'. The 'Source title' section is currently active, indicated by a highlighted button. At the bottom are 'Limit to' and 'Exclude' buttons.

Document type	(82)
<input type="checkbox"/> Conference article	(82)
<input checked="" type="checkbox"/> Journal article	(32)
<input type="checkbox"/> Preprint	(19)
<input type="checkbox"/> Conference proceeding	(14)
<input type="checkbox"/> Dissertation	(5)

Bar chart

Database	(82)
Author	(82)
Author affiliation	(82)
Controlled vocabulary	(82)

Machine Learning	(58)
<input type="checkbox"/> Learning Systems	(48)
<input type="checkbox"/> Cybersecurity	(42)
<input type="checkbox"/> Learning Algorithms	(33)
<input type="checkbox"/> Behavioral Research	(30)

[View more >](#)

Classification code	(82)
Country/Region	(82)
Language	(82)
Year	(82)
Source title	(82)

Funding spons	Source title	(82)
Limit to	Exclude	

Engineering Village – Full Text

- A Full text button will be displayed on the record if an electronic subscription to the document is available

The screenshot shows the Engineering Village search interface. At the top, there's a logo for Elsevier and the text "Engineering Village". To the right are links for "Search", "Search history", "Alerts", "Selected records", and "More". Below the search bar is a "Refine" section with options like "Remove duplicates" and "By physical property". The main area displays five search results, each with a title, author(s), source, and a "Full text" button. The results are:

1. **Random resampling algorithms for addressing the imbalanced dataset classes in insider threat detection**
Al-Shehri, Tamer (Computer Skills, Self-Development Skills Department, Deanship of Common First Year, King Saud University, Riyadh; 11362, Saudi Arabia); International Journal of Information Security, v 22, n 3, p 611-629, June 2023
Database: Compendex
Document type: Journal article (JA)
Full text Find It
2. **Analyzing Data Granularity Levels for Insider Threat Detection Using Machine Learning**
Le, Duc C. (Faculty of Computer Science, Dalhousie University, Halifax; NS, Canada); Zincir-Heywood, Nur; Heywood, Malcolm I. Source: IEEE Transactions on Management, v 17, n 1, p 30-44, March 2020
Database: Compendex
Document type: Journal article (JA)
Show preview Cited by in Scopus (45) Full text Find It
3. **Survey of Techniques on Data Leakage Protection and Methods to address the Insider threat (Open Access)**
Herrera Montano, Isabel (Department of Signal Theory and Communications and Telematics Engineering, University of Valladolid, Paseo de Belén Aranda, José Javier; Ramos Diaz, Juan; Molina Cardín, Sergio; de la Torre Diez, Isabel; Rodrigues, Joel J. P. C. Source: Cluster Computing, v 25, n 6, 2022
Database: Compendex
Document type: Journal article (JA)
Show preview Cited by in Scopus (1) Full text Find It
4. **Detecting Potential Insider Threat: Analyzing Insiders' Sentiment Exposed in Social Media (Open Access)**
Park, Won (Institute of Cyber Security and Privacy, Korea University, Seoul; 02841, Korea, Republic of); You, Youngin; Lee, Kyungho Source: Security and Privacy, 2018
Database: Compendex
Document type: Journal article (JA)
Show preview Cited by in Scopus (21) Full text Find It
5. **A study on classification of insider threat using markov chain model (Open Access)**
Kim, Dong-Wook (Department of Computer Engineering, University of Gachon, Seongnam-Si, Korea, Republic of); Hong, Sung-Sam; Han, Myung-Jae Source: Internet and Information Systems, v 12, n 4, p 1887-1898, April 30, 2018
Database: Compendex
Document type: Journal article (JA)

Web of Science

- Web of Science is a platform which provides access to multiple databases that provide a comprehensive citation index
- Select Web of Science from Subject Database A-Z Database List result screen



- Washington Information Directory Online Edition** ⓘ
A single source for locating contacts (including brief descriptions) in U.S. government and non-governmental organizations and international organizations
- Washington Post (current)** ⓘ
Full access to the current web edition of the Washington Post. For more information see [the digital news subscription page](#).
- Washington Post (Historical,1877-2006)** ⓘ
Online archival access to The Washington Post. Includes page images from every issue—cover to cover—in downloadable PDF files. Fully searchable.
- WCEE Online Proceedings** ⓘ
Provides free access to all volumes of the Proceedings of the World Congress on Earthquake Engineering from the National Information Centre on Earthquake Engineering.
- Web of Science (WOS)** ⓘ
Includes several citation indices covering sciences, social sciences, arts, and humanities. Search by a specific index, or across all indices. Citations to articles in more than 8,000 major research journals. Also permits cited reference searching (searching for articles that cite a particular author or work).
- Wharton Research Data Services (WRDS)** ⓘ
Includes Compustat Database. Users must create a WRDS account and log in to access data. See [Wharton Research Data Services](#) for more information.
- Wiley Online Library (Core Collection)** ⓘ
- Women and Social Movements in the United States, 1600-2000** ⓘ
A collection of full-text primary materials documenting various movements and events in the history of women's social reform activities. Sources include documents, images, and books, and are organized around topical document projects.

Web of Science – Forward Searching

- Forward Searching is a research method that looks for all sources that cite back to a given source
- Let's search for the same terms that we searched for on Engineering Village

The screenshot shows the Web of Science search interface. At the top, there are tabs for "DOCUMENTS" (selected), "CITED REFERENCES", and "STRUCTURE". Below the tabs, there are two search input fields. The first field is labeled "Topic" and contains the text "Insider Threat". The second field is labeled "All Fields" and contains the text "Machine Learning". There are also dropdown menus for "Search in: Web of Science Core Collection" and "Editions: All". At the bottom right, there are buttons for "Clear" and "Search".

Web of Science – Forward Searching

- To the right you can see how many times the article was cited
- By pressing on the citation number (i.e. 23), you can get a list of all the resources that had cited this work

The screenshot shows the Web of Science search results page. The search query is "Insider Threat" (All Fields) AND "Machine Learning" (All Fields), resulting in 90 publications. The results are sorted by Relevance. The first result is a paper titled "Machine learning based Insider Threat Modelling and Detection" by Le, DC and Zinir-Heywood, AN, presented at the IFIP/IEEE Symposium on Integrated Network and Service Management (IM) in 2019. The paper has 23 citations and 23 references. A large blue arrow points from the text in the previous slide to the citation count '23' next to the first result. The second result is a paper titled "Analyzing Data Granularity Levels for Insider Threat Detection Using Machine Learning" by Ozturk, H and Heywood, M, with 30 citations.

Rank	Title	Citations	References
1	Machine learning based Insider Threat Modelling and Detection	23	23
2	Analyzing Data Granularity Levels for Insider Threat Detection Using Machine Learning	30	20

Web of Science – Forward Searching

- List of citations is displayed
- You can get these papers
- And click on their citations and get those papers

The screenshot shows the Web of Science search results for the query "Insider Threat". The results are sorted by date, newest first, and there are 23 results cited. The first result is a paper by Pal, P., Chattopadhyay, P., and Swarnkar, M., titled "Temporal feature aggregation with attention for insider threat detection from activity logs". The second result is a paper by Liu, Z.Y., Tseng, Y.F., and Tso, R., titled "Cryptanalysis of a round optimal lattice-based multisignature scheme". Both results include options to add to a marked list, export, and view full text or associated data.

Web of Science™ Search Sign In Register

Search > Results for "Insider Threat" ... > Citing Results: Citations of Machine learning based Insider Threat Modelling...

23 results cited:

Machine learning based Insider Threat Modelling and Detection

Copy query link

Refine results

Search within results...

Filter by Marked List

Quick Filters

- Review Article 2
- Open Access 8
- Associated Data 1
- Enriched Cited References 7

Citation Topics Meso

- 4.61 Artificial Intelligence & Machine Learn... 15
- 4.187 Security Systems 5

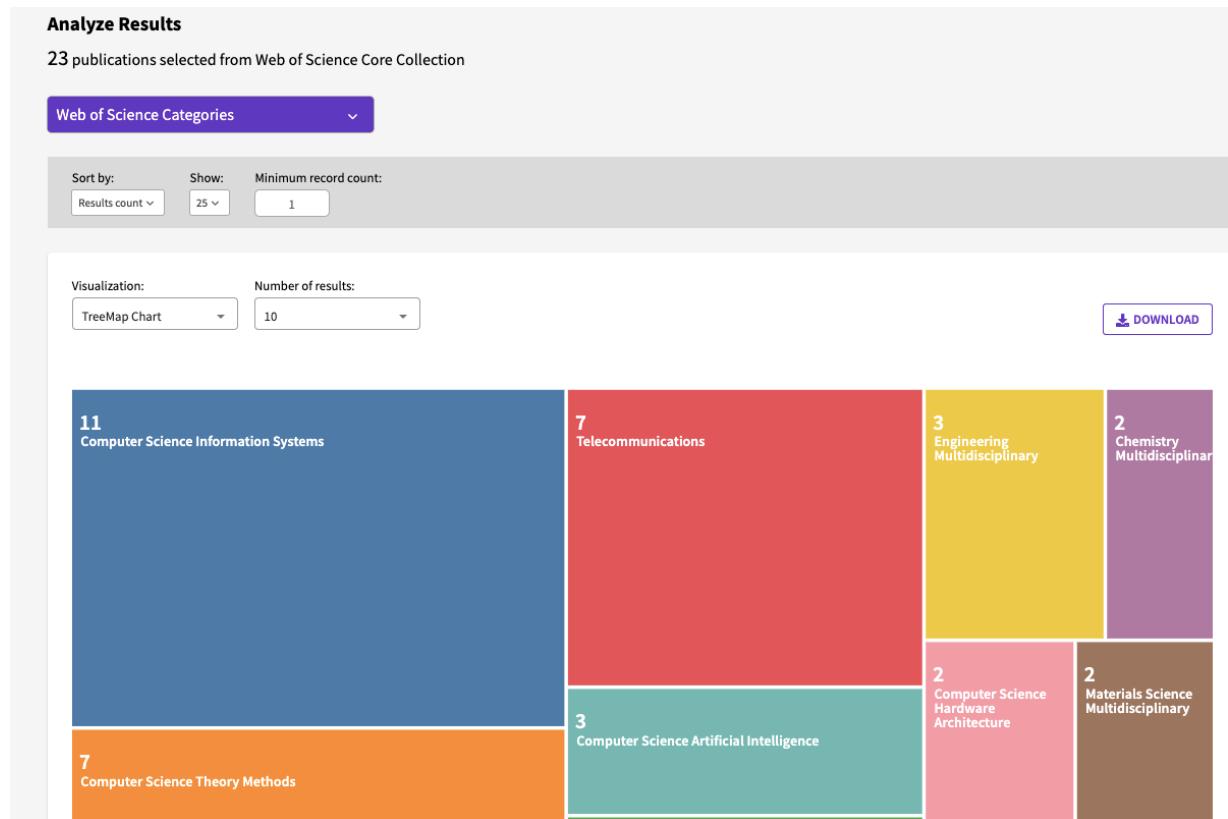
0/23 Add To Marked List Export Sort by: Date: newest first 1 of 1

1 Temporal feature aggregation with attention for insider threat detection from activity logs
Pal, P.; Chattopadhyay, P. and Swarnkar, M.
Aug 15 2023 | Mar 2023 (Early Access) | EXPERT SYSTEMS WITH APPLICATIONS 224
Nowadays, insider attacks are emerging as one of the top cybersecurity threats. However, the detection of insider threats is a more arduous task for many reasons. A significant cause is the availability of various data types related to insider activities and their possible behavioral drift. Another major reason is that threat activities rarely happen within any organiza ... Show more
Full Text @ Gelman Full Text at Publisher View Associated Data ...
91 References Related records ?

2 Cryptanalysis of a round optimal lattice-based multisignature scheme
Liu, Z.Y.; Tseng, Y.F. and Tso, R.
Aug 2023 | Feb 2023 (Early Access) | INFORMATION PROCESSING LETTERS 182
Kancal and Dutta recently proposed a multisignature scheme at AFRICA-CRYPT 2020. This is the first lattice-based multisignature
17 References 20 ?

Web of Science – Forward Searching

- You can click on Analyze Results, and you will be able to dissect the results in various way, such as: industries, publication years, document types, publishers, etc.



Main Artificial Intelligence Journals

- IEEE Transactions on Neural Networks and Learning Systems – h5-index of 145
 - Neurocomputing – h5-index of 135
 - IEEE Transactions on Fuzzy Systems – h5-index of 113
 - Journal of Machine Learning Research (JMLR) – h5-index of 106
 - Engineering Applications of Artificial Intelligence – h5-index of 87
-
- The h5-index measures the impact of articles published in the last five complete years. It is defined as the highest number h such that there are h articles from 2019 to 2023 that have each been cited at least h times. An h5-index of 50 means that the journal published 50 articles in the last 5 years with 50 or more citations each.

Annotated Bibliography

1. Definition
2. Main Sections
3. Example

Annotated Bibliography – Definition

- An annotated bibliography provides an evaluation and commentary on **each individual source** reviewed for a given research topic.
- Annotated bibliographies assist researchers with:
 - Organizing their findings from the literature
 - Learning more about the field of study they are interested in
 - Envisioning the structure of the literature review chapter by identifying common areas to form into subchapters

Annotated Bibliography – Main Sections

- There are many details you could include in an annotated bibliography, and the most important details are:
 - **Reference:** provide the reference using APA citation style
 - **Summary:** summarize the main points or ideas found in the source, as well as the conclusions the author made
 - **Methodology:** name the methodology used by the author (e.g., Machine Learning, Integer Programming, etc.)
 - **Evaluation:** evaluate the article (i.e., useful, goal, reliable, limiting factors, **performance metrics**, etc.)
 - **Relevance:** describe the article's relevance to your research. (Was the article helpful? How does the article shape your research?)

Annotated Bibliography – Example

Reference	Saharkhizan, M., Azmoodeh, A., Dehghanianha, A., Choo, K.-K. R., & Parizi, R. M. (2020). An Ensemble of Deep Recurrent Neural Networks for Detecting IoT Cyber Attacks Using Network Traffic. <i>IEEE Internet of Things Journal</i> , 7(9), 8852–8859. https://doi.org/10.1109/jiot.2020.2996425
Summary	<ul style="list-style-type: none">Designing an approach using Deep Learning (DL) to detect IoT cyberattacks.Using a Decision Tree to aggregate a set of Long Short-Term Memory (LSTM) modules to detect cyberattacks using network traffic.
Methodology	<ul style="list-style-type: none">Ensemble of Deep Recurrent Neural Networks
Evaluation	<ul style="list-style-type: none">This article details the methodology behind building an ensemble machine learning model to achieve the final goal of intrusion detection.The model developed in the article achieves an intrusion detection accuracy rate of 99.59% and a false alarm rate of 4.53%.The article does not address efficiency of the model developed.
Relevance	<ul style="list-style-type: none">This article is essential for my research because it covers a significant amount of literature done on this topic, especially since it was published recently in 2020.The ensemble model developed in this article will help me in structuring and constructing my ensemble model for IoT intrusion detection.

Literature Review

1. Definition
2. Purpose
3. Tips
4. Sample Tracker

Literature Review – Definition

- Taking a look back at the definition from lecture 1 of this course.
- A D.Eng. praxis literature review needs to focus on writings that support the limited practical application of the technology or method researched.
 - **Sourced from:** books, peer-reviewed journal papers, websites, etc.
 - **Demonstrates:** your deep understanding of the topic and field researched.
 - **Includes:** a topic overview, comparison of existing literature, and an evaluation of the works reviewed.
 - **Focuses on:** application of theory in the field of study and gaps in the literature that will be addressed and fulfilled by the praxis.

Literature Review – Purpose

- Unlike an annotated bibliography, a literature review:
 - provides background details on the field of study researched in the praxis.
 - provides a summary and an analysis of the sources reviewed by the researcher.
 - provides a synthesis of the findings from the sources reviewed by the researcher.
 - highlights the gaps found in the literature.
 - highlights the need for the solution presented in the praxis.

Literature Review – Tips

- A few tips that will help you as you are preparing and writing your literature review chapter:
 - Download and save the papers that you are interested in, and number them – it gets very complicated to keep track of papers once you have started reading and gaining interest in many.
 - Build a tracker that helps you organize your database on sources and allows you to filter through them – there are various tools to use for this; a simple tool is Excel (an example to follow).
 - Keep researching your topic even as you have finished writing your Literature Review chapter – this helps you stay up-to-date on any new research published on your topic of interest.

Literature Review – Sample Tracker

#	Title	Authors	Link	Publication Date	Document Type	Methodology	Performance	Classification Type	Dataset Used	Source	Domain/ Approach	Future Work	Notes
1				Mar-20	Journal Article	Random Forest. Apache Spark	Acc: 99%	Binary	SYN-DOS	Electronics	Domain		
2				2020	Journal Article	Light CNN with Gated RNN	Acc: 91%. FPR, TPR, FNR	Multi-Class	KDD		Approach		
3				Apr-18	Conference Article	High-level framework. No actual model used	-	Binary	-	5th Cybersecurity Symposium	Domain		
4				Jun-19	Journal Article	Enhanced-Fuzzy Min-Max Neural Network (EFMN)	Acc: 99%	Binary		Applied Soft Computing	Approach		
...													
50													

- Note: This Excel tracker can be found on Blackboard under Electronic Reserves.

HW #3

- Using the template provided on Blackboard, provide your annotated bibliography on **5 sources** related to your praxis topic (at least 2 must be journal articles).
- Paste in your slides from HW #2 where it is stated.
- Follow the guidelines provided in this lecture on writing your annotated bibliography.
- Color any updates you made to your slides from HW #2 in **red**.
- Follow the template as is without making any changes to its structure or organization.
- Name your submitted assignment as follows:
lastName(firstName)_HW#3_SEAS_8599.pptx

Next Steps

- Come to office hours with any questions you may have: Mondays and Tuesdays, 7:00 pm – 8:30 pm ET.
- Work on your HW #3 and submit it by **11:59 pm ET on Thursday**.
- Continue reading up on AI research topics.
- See you next class!

Thank you!