IEEE
Advancing Technology for Humanity

IEEE *Xplore* AI Research Suite User Guide

Introducing:
IEEE *Xplore* AI Research Suite

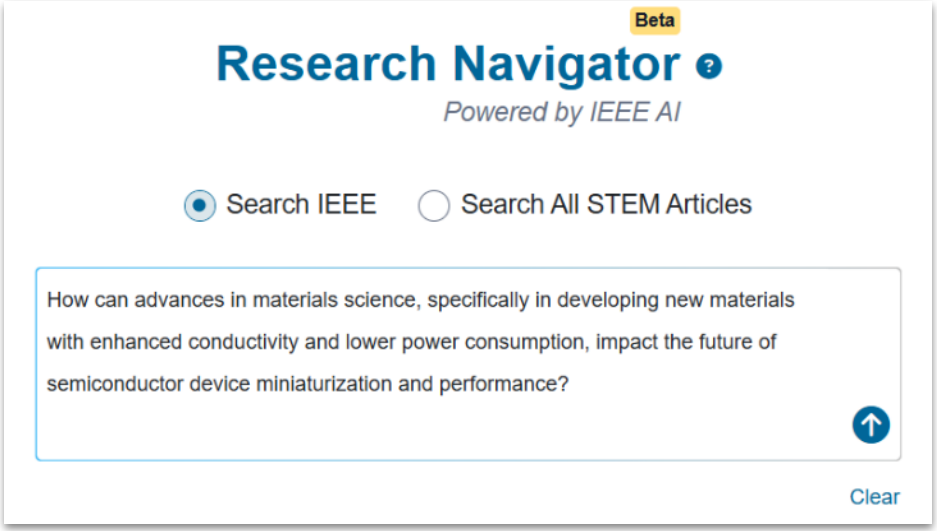
The IEEE *Xplore* AI Research Suite provides a new set of AI-powered features that enhance a user's experience with IEEE *Xplore*. These features allow users to easily search and discover articles of interest from both IEEE and other STEM publishers, accelerate their understanding of individual papers, and gain new insights.

With these powerful tools integrated into the engineering and development workflow, the IEEE *Xplore* AI Research Suite transforms the research experience to help researchers deepen understanding, quickly assimilate new ideas, and accelerate research efforts

IEEE Research Navigator
Powered by IEEE Xplore AI

IEEE Research Navigator

IEEE Research Navigator, powered by IEEE *Xplore* AI, provides an advanced query tool for journal articles and conference papers published by IEEE as well as a specially curated database of other publishers focused on STEM-related fields of study—all in one place.

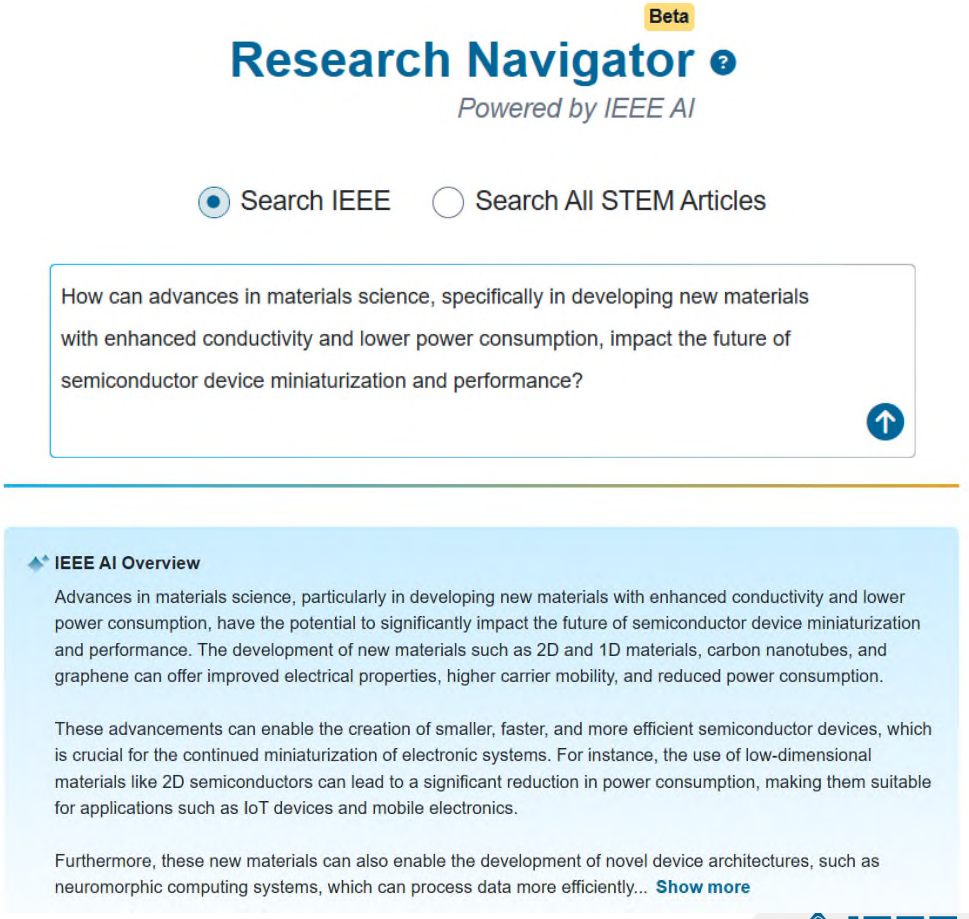


Key Benefits of IEEE Research Navigator

- **Time Savings:** Quickly understand more about your topic with the IEEE AI Overview and AI Article Summaries.
- **Coverage:** AI Search provides access to an extensive range of STEM metadata from journal articles and conference papers. While the search is broader than the typical IEEE Xplore search, the selection is curated to scholarly articles in STEM, without the typical noise of other tools.
- **User-Friendly Interface:** As users type their searches, the system gives smart keyword suggestions, to quickly refine their search terms. It allows users to input freeform semantic queries, tailoring the search process to individual research needs.

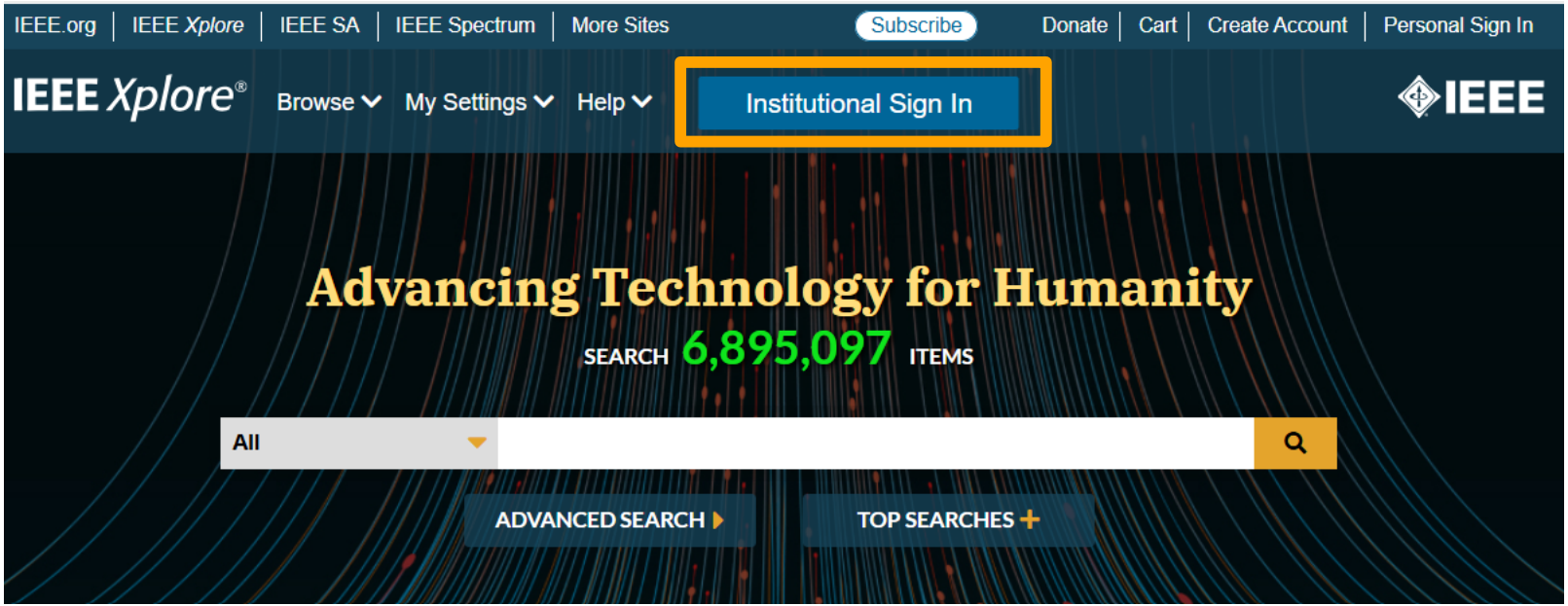
IEEE Research Navigator

- AI powered search/summarization going beyond traditional keyword search
- Users can execute a free-form search and get a summary and links to most relevant articles by understanding the intent and meaning of queries
- Learn quickly about the query topic with the IEEE AI Overview and gain insights into the content of an article with AI Article Summaries
- Discover highly relevant journal articles and conference papers from both IEEE and other STEM publishers, covering Computer Science, Engineering, Mathematics, Material Science, and Physics



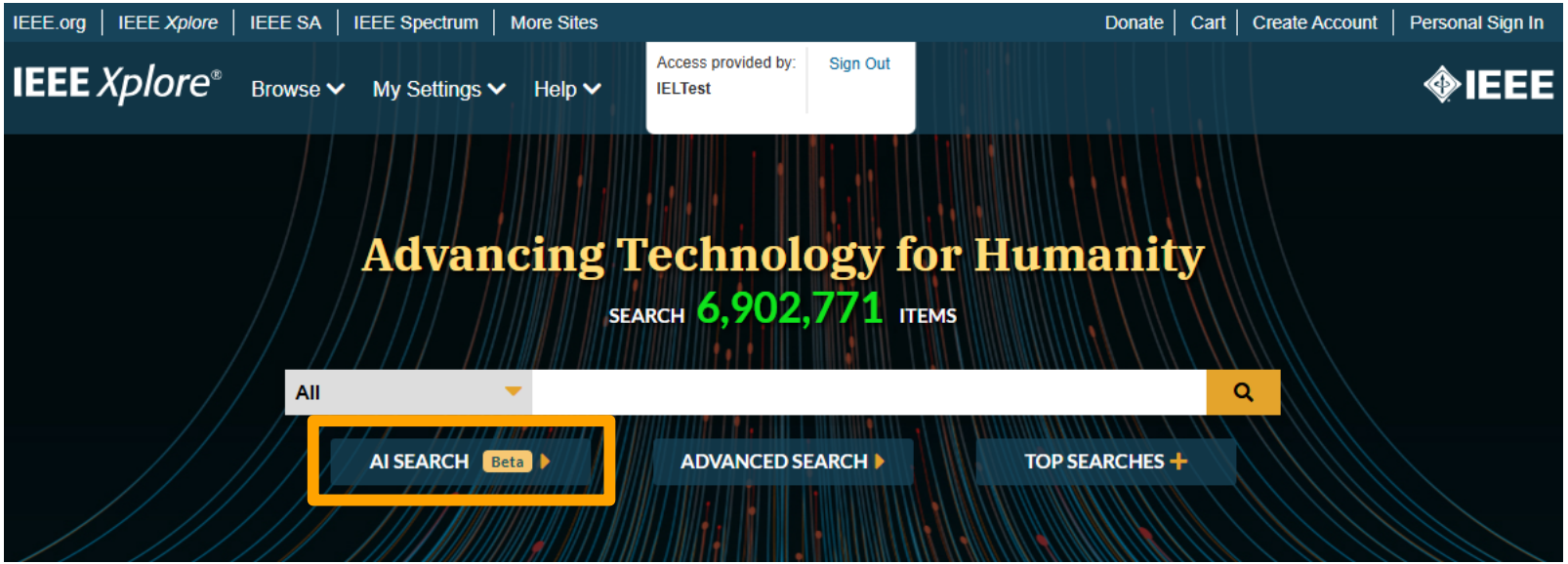
Accessing IEEE Research Navigator from IEEE *Xplore*

IEEE Research Navigator and IEEE Reading Lens features are only shown upon authentication, please sign in with the credentials provided using the “Institutional Sign In” button at the top of the page and select “Sign in with Username and Password”.



Accessing IEEE Research Navigator from IEEE *Xplore*

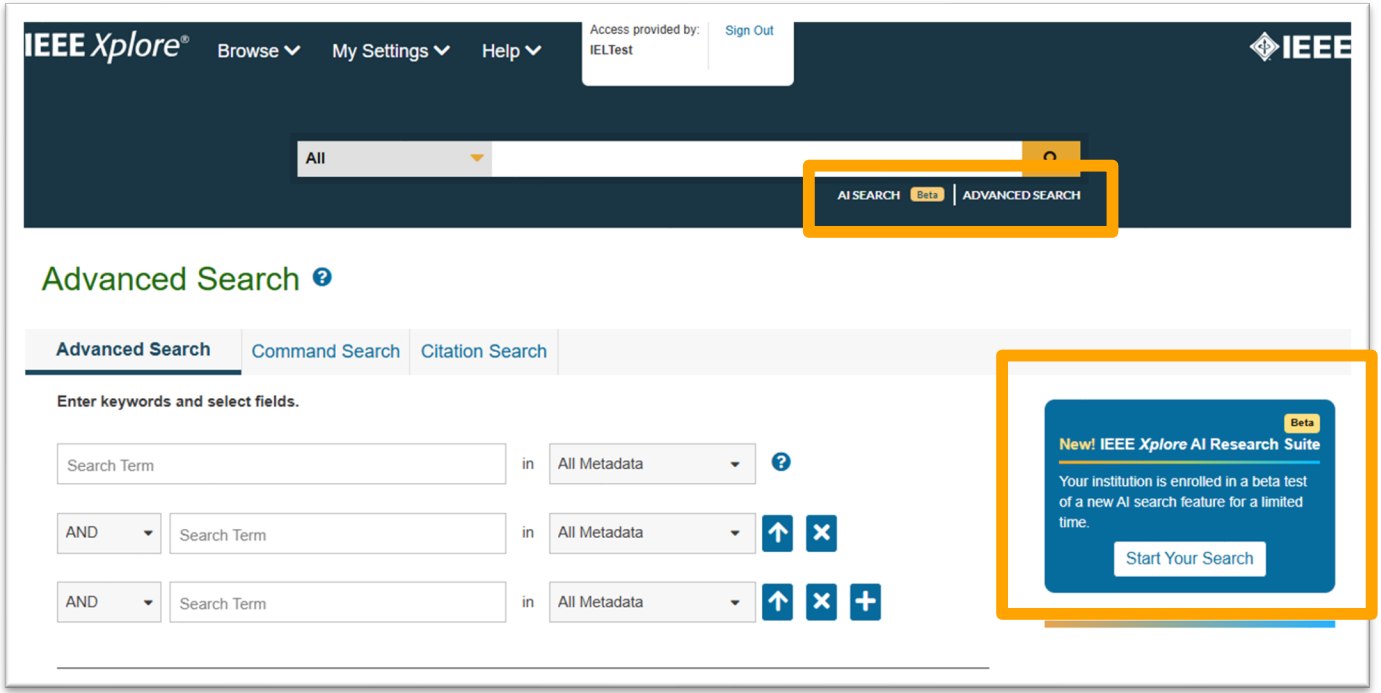
Upon successful login, you will see an AI Search button beneath the search bar on the homepage.



Note: Upon session timeout, users will be redirected to the homepage. (Session timeout after 15 minutes of inactivity).

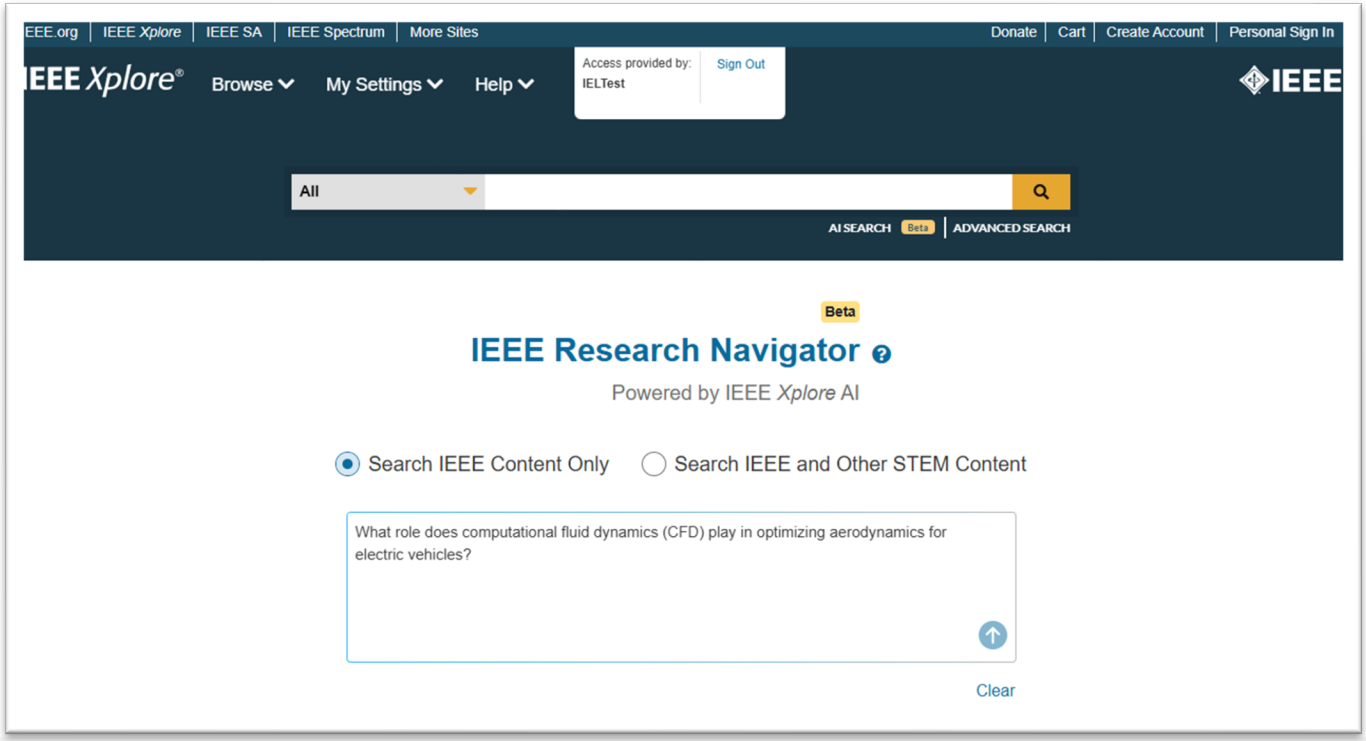
Accessing IEEE Research Navigator from IEEE *Xplore*

Alternatively, you can click on “AI Search” from the global header or select the link from Advanced Search.



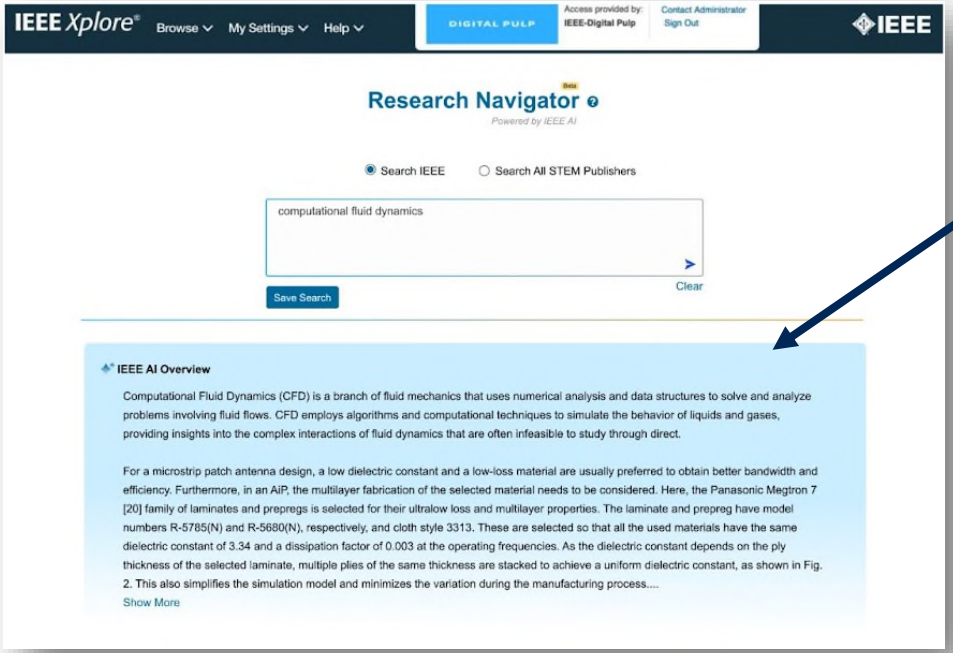
Initiating a Search from IEEE Research Navigator

From the IEEE Research Navigator page, you can begin your search by leveraging the large search box provided. You can search IEEE content only or expand your search to other STEM content that has been indexed.



IEEE Research Navigator

IEEE AI Overview

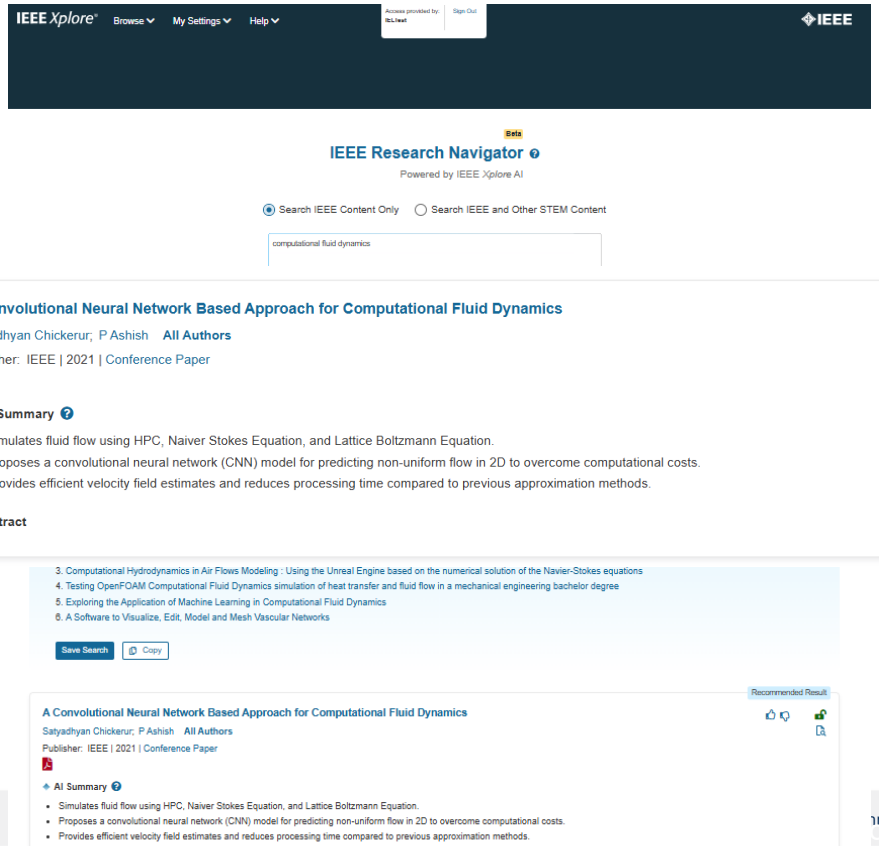


At the top of the search results, a panel called “IEEE AI Overview” shows the IEEE Large Language Model (LLM) response to the user query.

This summary is dynamically generated using **content extracted from the top search results**, which are ranked by relevance and aims to directly address the user’s query.

IEEE Research Navigator

AI Summary of Article



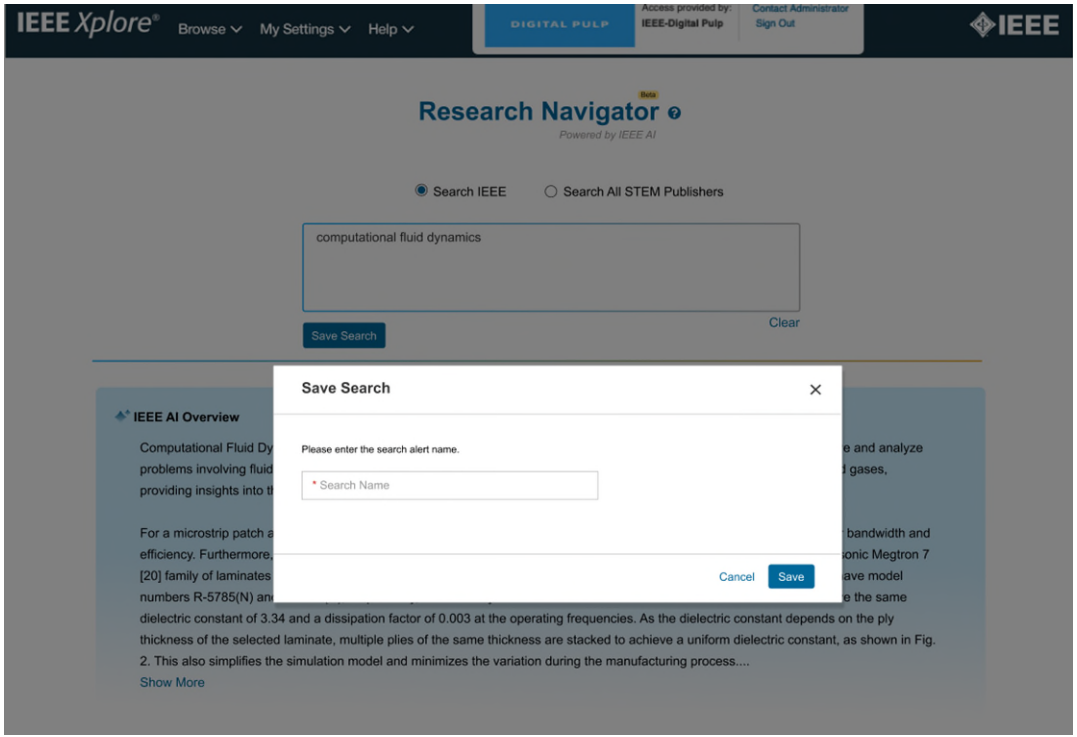
Under each search result, an AI-generated summary of the article is available.

Each Summary shows three key points of the article derived from the full-text and abstract.

The AI summary provides a short synopsis of the article so that the user can quickly understand why the article was retrieved and decide whether to continue to the full article.

IEEE Research Navigator

Saved Search



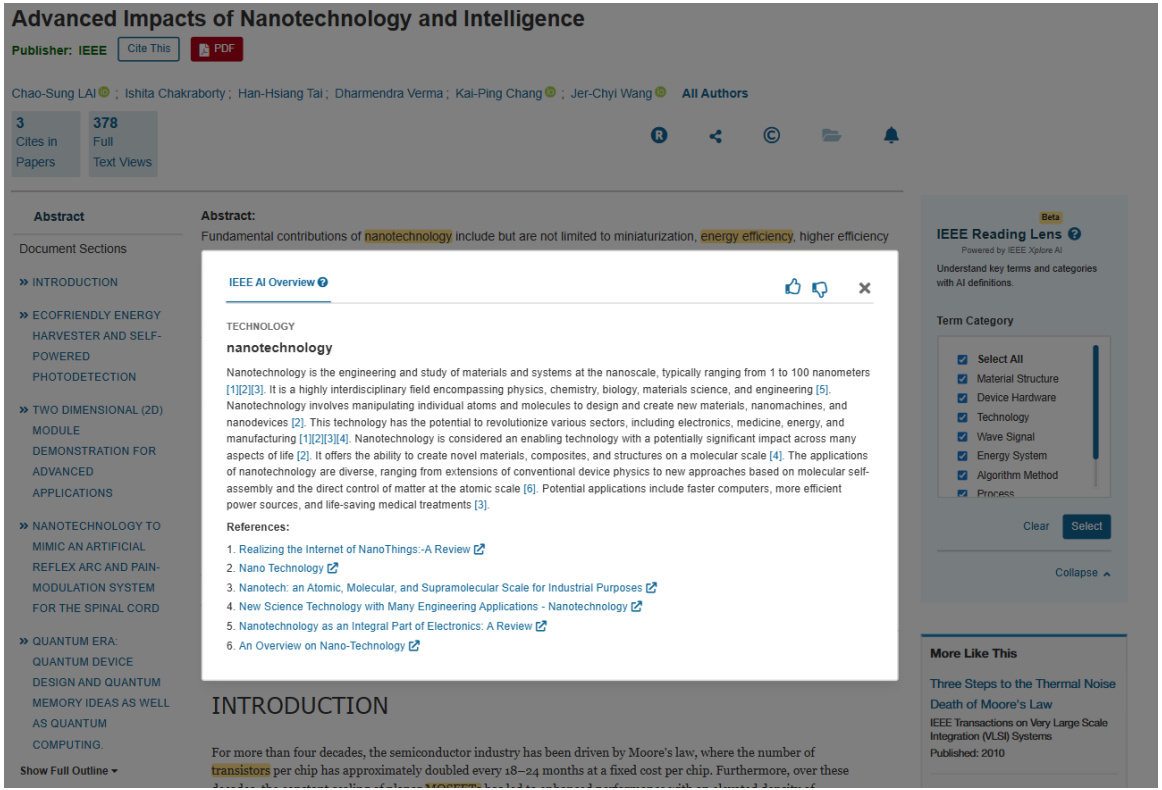
Search queries can be saved so that users can access them at a later time, if needed.

This helps save time and improves research efficiency.

IEEE Reading Lens
Powered by IEEE Xplore AI

IEEE Reading Lens

- Accelerates reading and understanding of articles by highlighting and contextually defining terms within abstracts and full-text
- View term definitions to learn more about a concept without the need for external web browsing while reading an article
- Terms are assigned into 50+ categories, such as Algorithms, Hardware, Programming Languages, and more, which can be used to filter content for enhanced discoverability
- Allows for users to highlight text and provide their own personal tags and notes



Key Benefits of IEEE Reading Lens

- **Increase Comprehension:** Quickly understand unfamiliar topics without leaving the article, through LLM-generated summaries
- **Enhanced Learning:** Expand your knowledge on a topic through the keyword definitions within an article.
- **Save Time:** Locate specific types of content (e.g. Algorithms, Data Structures, Software) without sifting through many words of text

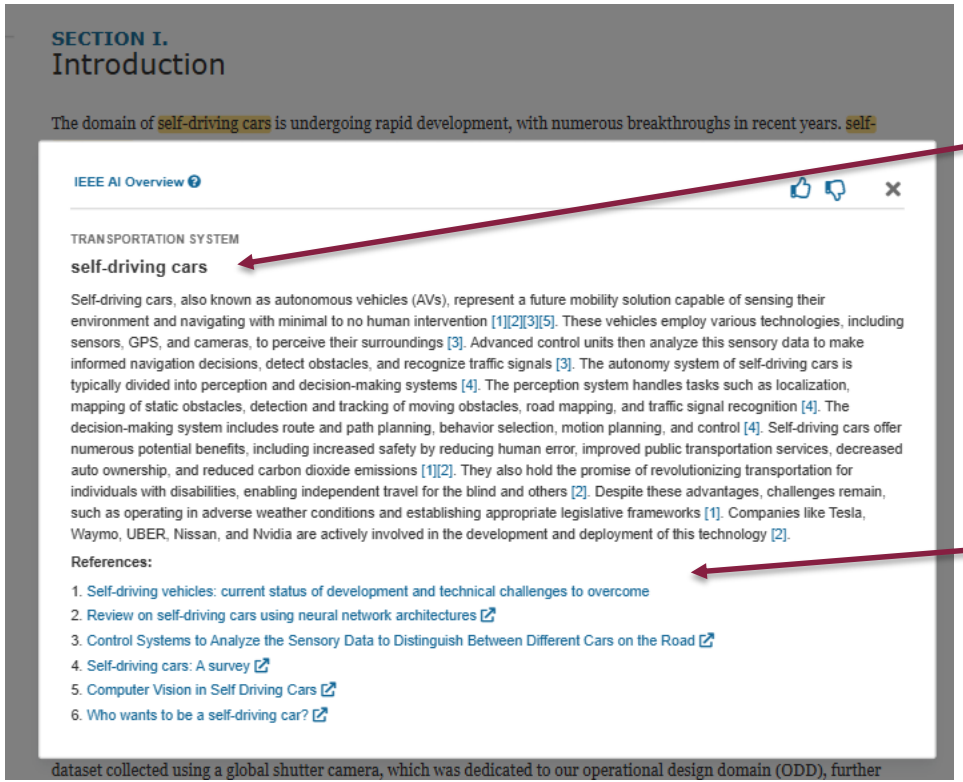
IEEE Reading Lens

Highlight Toggle Panel

A panel on the side of the page allows the user to browse the available categories, filter highlighted terms by category, or turn off the highlighting for all terms

IEEE Reading Lens

Highlighted Key Terms - AI definition

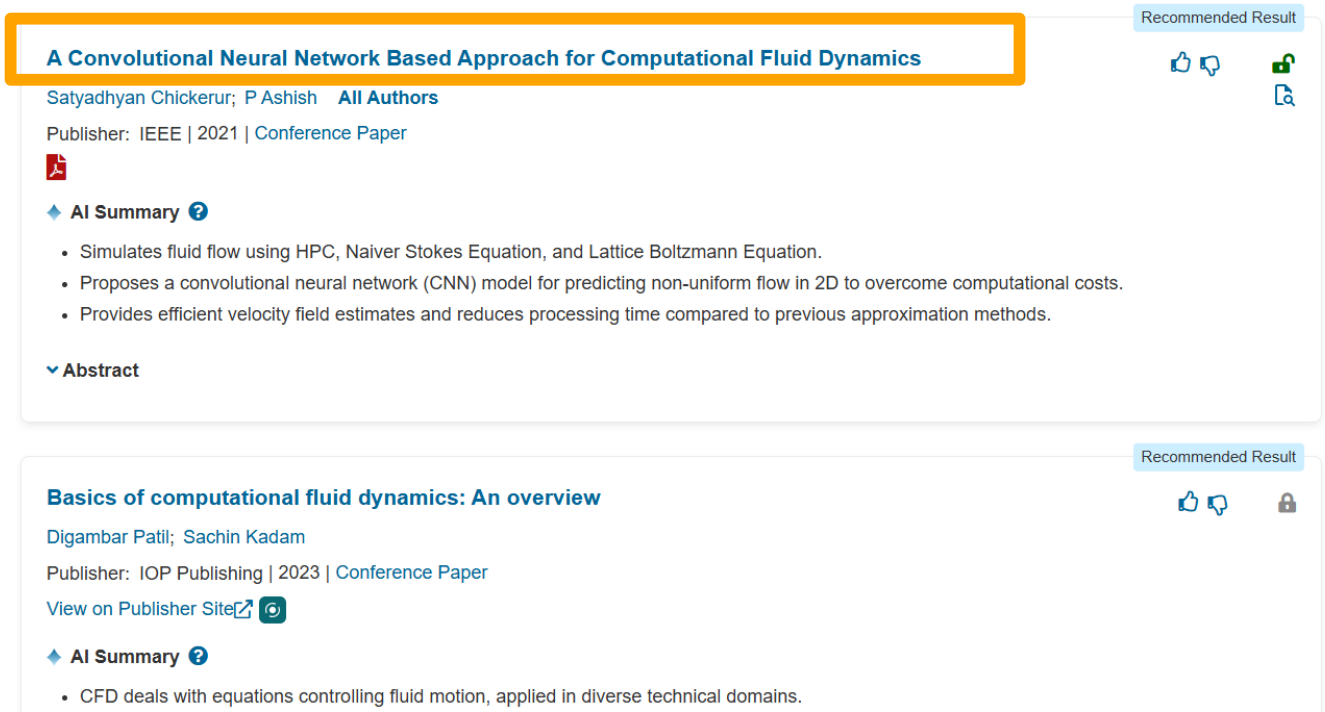


For each highlighted keyword, an AI generated definition is derived from the IEEE Large Language Model (IEEE LLM) trained on the IEEE articles.

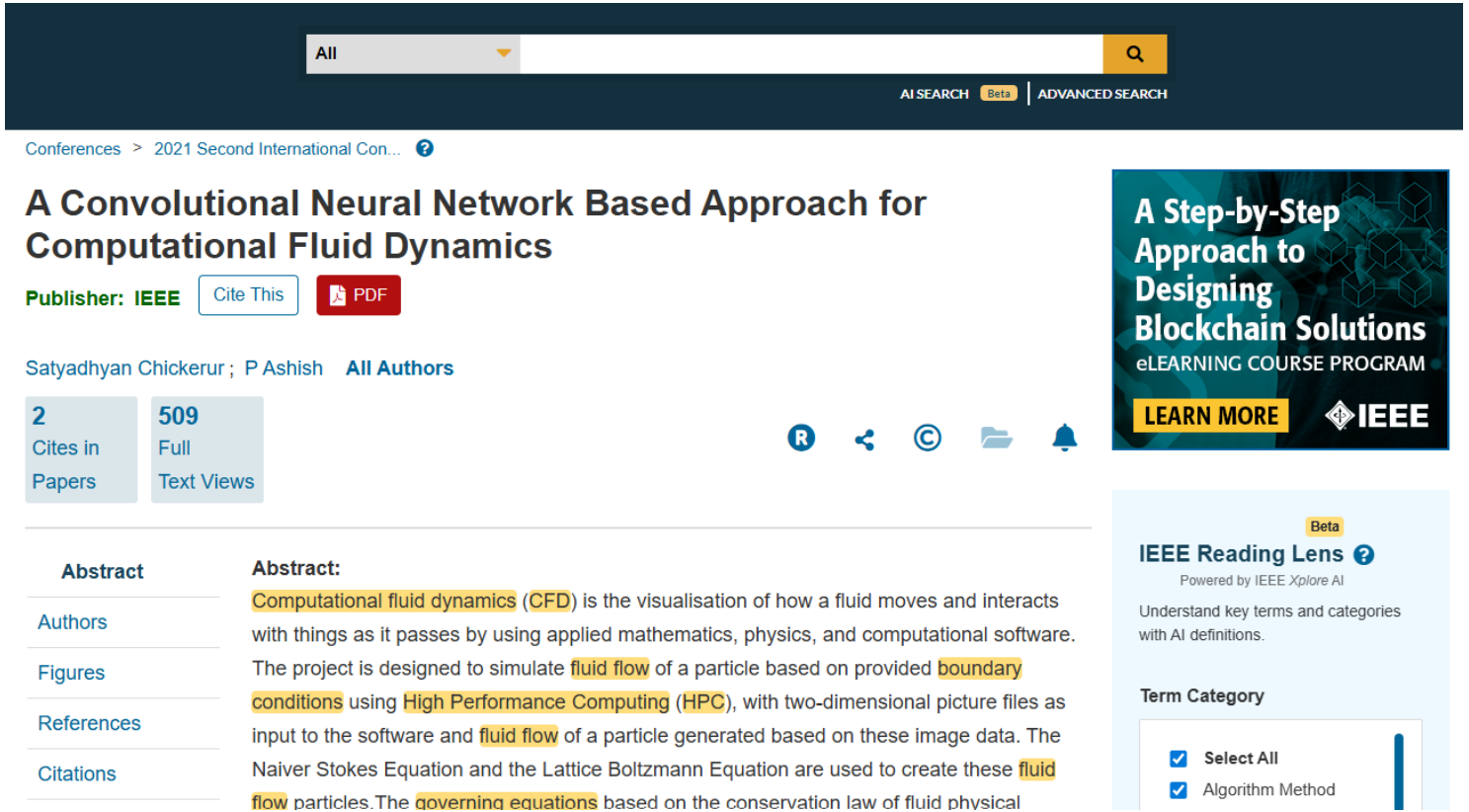
Six IEEE references will be provided at the end of the generated text as well, so that the users can read the source material.

Navigating to IEEE Reading Lens

- Click on the document title from the search results page of Research Navigator to open Reading Lens.
- Reading Lens available for IEEE content.
- A subset of IEEE documents that do not have Reading Lens terms will link to the abstract page.



Navigating to IEEE Reading Lens



Search Tips for Using the IEEE *Xplore* AI Research Suite

Keyword vs AI Search

	Keyword Search	AI (Vector) Search
Search Mode	Lexical	Semantic
Maximum Characters	25 terms per clause	4,000 characters
Wildcards	Up to 10 wildcards	Not applicable
Content Types	Periodicals, conferences, standards, books, courses	Periodicals & Conferences
Publishers	IEEE & 37 Partners	IEEE & STEM Publishers
Index	Metadata & Full-Text	Metadata Only *(for Beta)*
Year	1884-Present	2018-June 2025 *(for Beta)*
Records	6.85 Million	9.5 Million

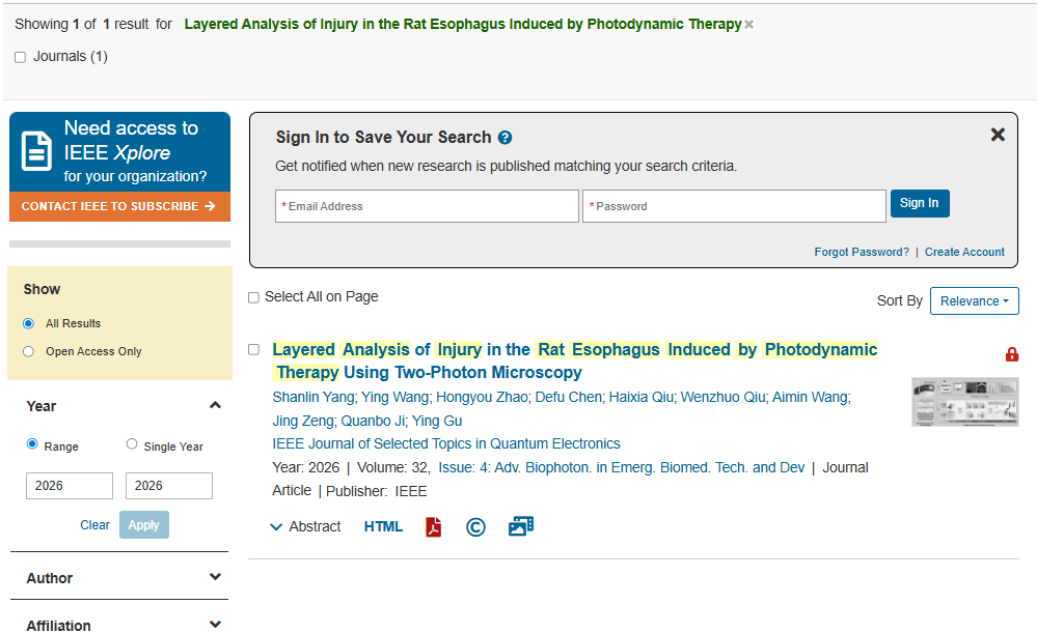
Use Keyword Search For:

- Looking for exact matches on document title, abstract, etc.
- Searching for something very specific.
- Entering structured lexical searches using wildcards and Boolean expressions.

Use AI Search For:

- Finding content based on semantic similarity.
- When do not have a clear idea of what looking for.
- Discover articles with multiple variations of keywords and phrases.

Search For: **Layered Analysis of Injury in the Rat Esophagus Induced by Photodynamic Therapy**



Keyword Search

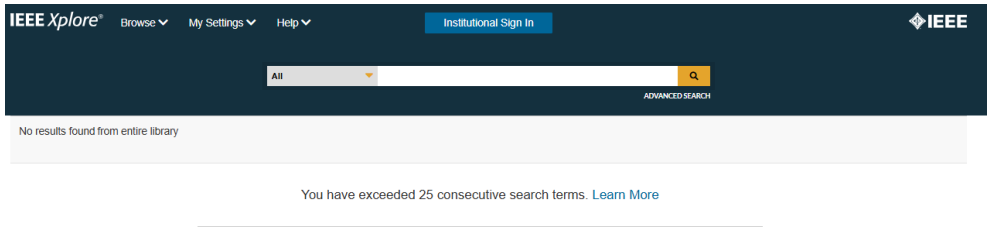
- Keywords are processed as a phrase (assumes “AND” operator).
  - When 5-6 or more keywords entered.
- Focuses on literal matches for keywords.
- Only one result is returned with an exact match.

Search For: **Layered Analysis of Injury in the Rat Esophagus Induced by Photodynamic Therapy**

AI Search

- Focuses on fuzzy (approximate) matches using numerical embeddings (vectors).
- Incorporates semantic and contextual understanding.
- Returns a higher number of matches (30) than a keyword search.

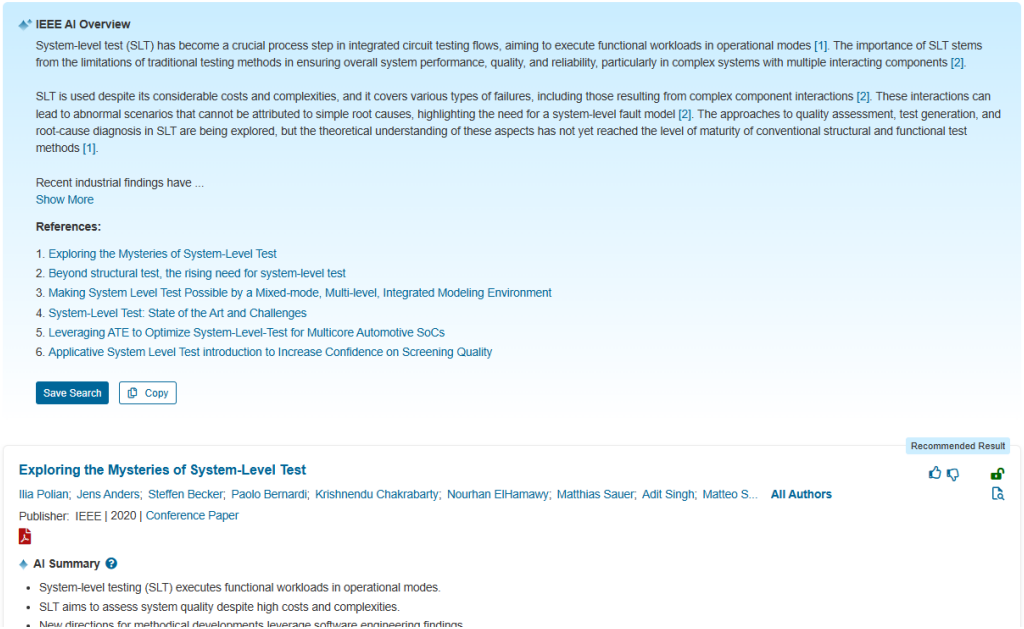
Search For: System-level test, or SLT, is an increasingly important process step in today's integrated circuit testing flows. Broadly speaking, SLT aims at executing functional workloads in operational modes. In this paper, we consolidate available knowledge about what SLT is precisely and why it is used despite its considerable costs and complexities. We discuss the types or failures covered by SLT, and outline approaches to quality assessment, test generation and root-cause diagnosis in the context of SLT. Observing that the theoretical understanding for all these questions has not yet reached the level of maturity of the more conventional structural and functional test methods, we outline new and promising directions for methodical developments leveraging on recent findings from software engineering.



Keyword Search

- Unable to process search.

Search For: System-level test, or SLT, is an increasingly important process step in today's integrated circuit testing flows. Broadly speaking, SLT aims at executing functional workloads in operational modes. In this paper, we consolidate available knowledge about what SLT is precisely and why it is used despite its considerable costs and complexities. We discuss the types or failures covered by SLT, and outline approaches to quality assessment, test generation and root-cause diagnosis in the context of SLT. Observing that the theoretical understanding for all these questions has not yet reached the level of maturity of the more conventional structural and functional test methods, we outline new and promising directions for methodical developments leveraging on recent findings from software engineering.



AI Search

- Returns AI overview and semantically relevant results.

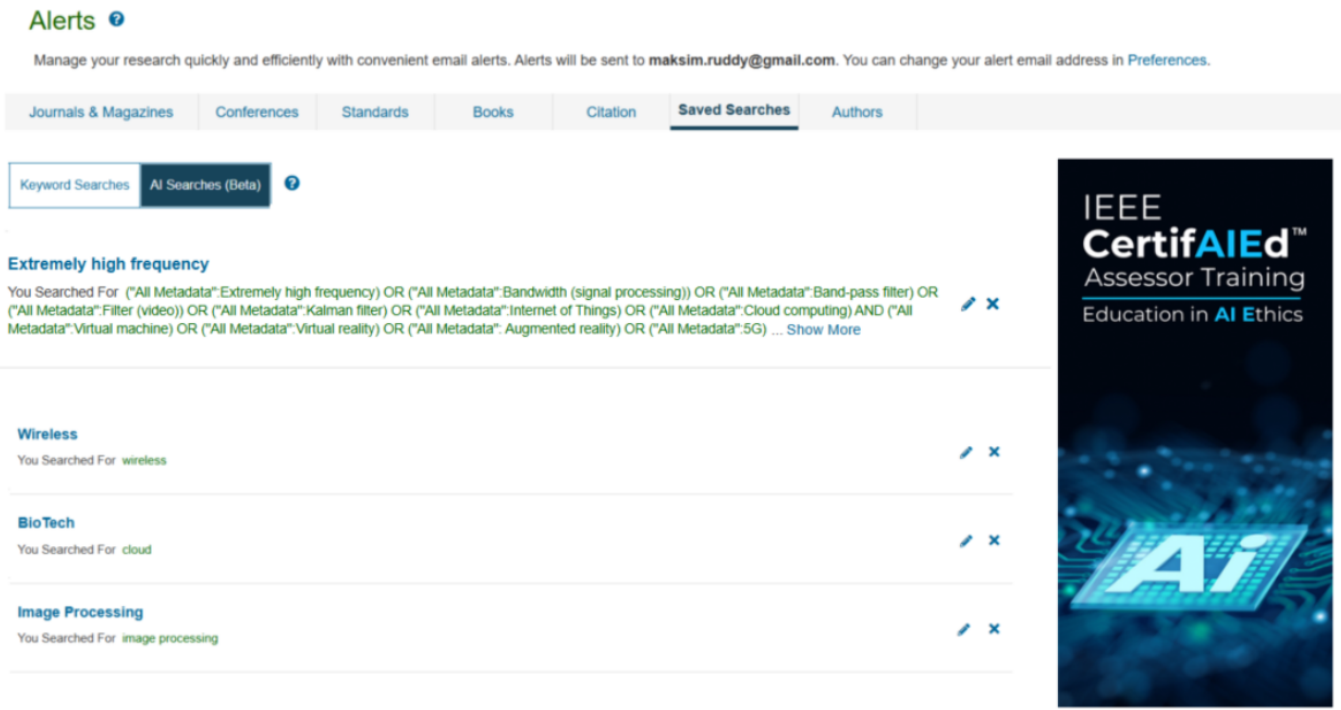
Functions Supported by Search Mode

	Keyword Search	AI Search
Boolean Operators	☑	✗
Wildcard Characters	☑	✗
Fuzzy Matching	✗	☑
Search Paragraphs	✗	☑
Search Full-Text*	☑	✗
Search Legacy Content*	☑	✗

*During Beta, AI Search will not include full-text searching and content published prior to 2018. However, both items will be included for production launch in 2026.

AI Saved Searches

- Up to 15 AI searches can be saved.
- Alerting not available for AI saved searches.
- Available via My Settings > Saved Searches.



Thank you!

We'd like your feedback! Your experiences and thoughts about this new set of features will help to shape the future of the research in IEEE *Xplore*.

As you test these new features, please take note of what you like, what could be improved, or what you might want to see in the future. A survey will be distributed during the beta testing period.

Questions about the Beta?
Contact xploreAI@ieee.org