

# ISA

## Artificial Intelligence for Research: Ethics, Integrity and Tools

Maria do Rosário Fernandes  
Biblioteca do ISA

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# Contents

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## 1. Ethics and Integrity for AI in research

- ✓ Fundamental rules for interacting with generative AI (GenAI)
- ✓ Violations of integrity (unethical behaviors)
- ✓ Recommendations for a responsible use of AI in research
- ✓ Authorships

## 2. AI research assistant tools

- ✓ AI for literature review, research paper summarization , key insight extraction

# Artificial Intelligence (AI)

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*"AI refers to machine-based systems that can, given a set of human-defined objectives, make predictions, recommendations, or decisions that influence real or virtual environments....."* UNICEF, 2021

## IA for Research



- Speed up large volumes of information
- Automatic generation of text, video, presentations
- Permanent availability
- Qualitative data analysis, transcriptions, translations, writing support, etc

SaikiraiChandra, **The impact of AI in research** Open ScienceFair 2023

# Fundamental rules for interacting with generative AI (GenAI)

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## Precaution

*"Users are responsible for ensuring reliability of the results"*

(Figueiredo, A.D., 2024)

### Concerns with IA:



#### “Hallucinations”

False or misleading information  
e.g generation of non-existent bibliographic references



#### Copyright infringement

Appropriation of authors' intellectual property

# Fundamental rules for interacting with generative AI (GenAI)

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## Concerns with IA:



### Bias

- Distortion of the reality
- Reduced representation of particular groups (e.g., gender stereotype)

**Image-generation**

Some serious limitations... prompt: "medical doctor" (because "doctor" gave some Doctor Who images)



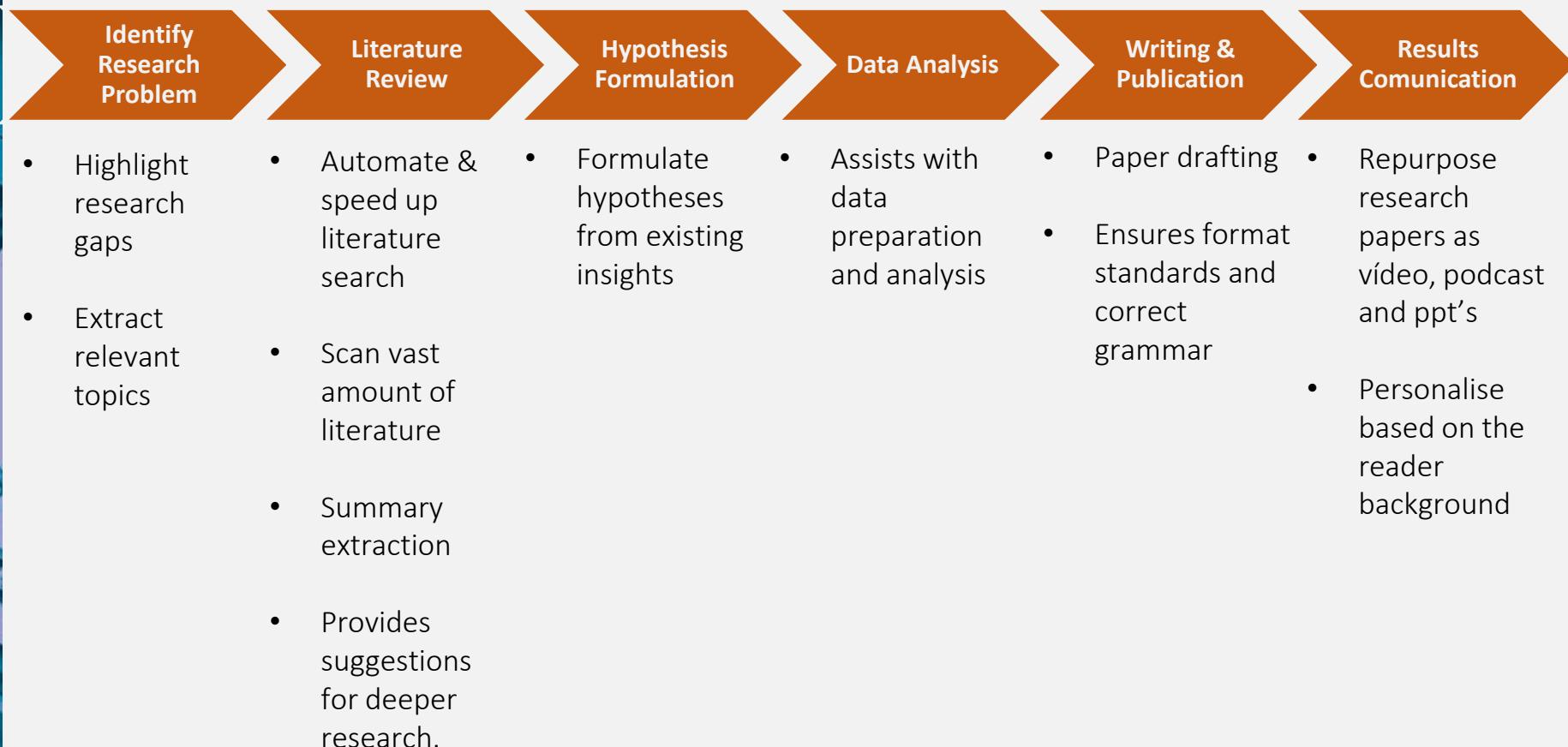
... trained on biased data



# AI for Research

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# Research Integrity

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UKRIO  
RESEARCH INTEGRITY OFFICE

# Violations of research integrity

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## Research misconduct/ unethical behaviors (FFP)

**Fabrication (F)** – making up data as if they were real

**Falsification (F)** – Manipulating materials (e.g. images, processes)

**Plagiarism (F)** – using other people's work without giving proper credits

### Further violations :

*“Hiding the use of AI tools in the creation of content or drafting of publications”*



### IT'S A SLIPPERY SLOPE TO RESEARCH MISCONDUCT

It doesn't matter if you're an undergraduate researcher, a graduate student, a post-doc, or a principal investigator who is performing federally funded research, writing a research paper, or leading a research program; research integrity matters at every level.

**Small lapses in judgment could lead to a slippery slope ending in research misconduct.**

Be vigilant against these common lapses:

#### 1. TAKING SHORTCUTS

Lack of care in experimentation that might impact reproducibility

#### 2. CHEATING

Such as puffery, which is inflating your resume, can establish dangerous behavior patterns

#### 3. “BEAUTIFICATION” OF IMAGES

Removing an unwanted feature, even if unrelated to the result, could be scientifically significant

#### 4. LACK OF APPROPRIATE CONTROLS

Failure to perform a control with the experimental sample could affect result interpretation

#### 5. COMPOSITE IMAGES

Assemblies of images that are not clearly labeled, such as a montage of cell images from the same experiment but not labeled as such.

#### 6. OUTLIERS

Omitting outlier data without appropriate pre-experiment justification which alters the overall conclusion of the analysis

#### 7. IMAGE MANIPULATION

Splicing, cutting, or cropping images; without properly documenting changes, that alters the results or falsely claims a result which was not obtained.

Questionable or Detrimental Research Practices may be considered research misconduct in some cases, but the facts of each case differ and must be individually evaluated.

# Research Integrity

## ULisboa Code of Conduct



The screenshot shows the title page of the 'Código de Conduta e de Boas Práticas da Universidade de Lisboa'. The title is at the top, followed by a section for 'Outros Despachos e Deliberações' from 'ULisboa' dated '01/2015'. A document icon indicates 'Despacho n.º 6641/2015'. Below this are sections for 'ANEXOS' and a link to 'Declaração de concordância'.

### Artigo 5.º

#### Deveres dos estudantes

- 3 - Respeitar as normas de avaliação de conhecimentos, abstendo-se de qualquer conduta que possa injustamente prejudicar ou beneficiar o próprio ou outro estudante;

### Capítulo II

#### Princípios de conduta e de boas práticas

### Artigo 8.º

#### Princípios de conduta

- 1 - Constituem condutas que violam o presente Código:
- A realização de atos de plágio,
  - A realização de atos de auto plágio,
  - A usurpação de criações intelectuais,
  - A apresentação seletiva de resultados,
  - A interpretação de resultados de investigação negligente ou deliberadamente falsa;

**Unethical behaviors**  
Plagiarism,  
Manipulation of results,...

## Helpful, Honest and Harmless AI (HHH)

### What is Helpful AI:

- ✓ Trained and fine-tuned with users' needs and values in mind
- ✓ Clearly attempt to conduct the operation prompted by the user, or suggest an alternative approach when the task requires it
- ✓ Enhance productivity, save time, or make tasks easier for users within a given use case or range of use cases



### What is Honest AI?

- ✓ Provide accurate information when they can, and communicate clearly to users when they can't produce an accurate output
- ✓ Express uncertainty and the reason behind it
- ✓ Are developed and operate transparently so users can understand how they work and trust what they generate

<https://digital-strategy.ec.europa.eu/en/policies/european-approach-artificial-intelligence>

<https://www.invisible.co/blog/helpful-honest-harmless-ai>

## Helpful, Honest and Harmless AI (HHH)

### What is Harmless AI?

- ✓ Don't comply when prompted to perform a dangerous task
- ✓ Are trained within frameworks that transparently and actively mitigate bias
- ✓ Don't discriminate or demonstrate bias explicitly or implicitly
- ✓ Communicate sensitively when engaging with a user on a sensitive topic



The best way to reinforce a model's helpfulness, honesty, and harmlessness is through  
**Reinforcement Learning Human Feedback (RLHF)**



# Responsible use of GenAI in Research

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## Recommendations:

- Researchers/Users
- Research organizations
- Research funding organizations



**Responsibility and Transparency**



## Recommendations for researchers

1. Researchers are responsible for the scientific outputs  
(AI systems are neither authors nor co-authors)
2. The use of AI systems must be reported in work  
(name, version, date, etc. and how it was used and affected the research process)
3. Sensitive data should not be uploaded into AI systems  
(could be used to train future language models or to the untraceable and unverifiable reuse of data)
4. AI systems should not be used in activities that could impact other researchers or organizations  
(e.g. peer reviews or evaluations of research proposals)
5. Respect applicable national, EU and international IA legislation  
(EU Artificial Intelligence Act – August 2024, awaiting national transposition)
6. Continuously learn how to use generative AI tools



# Authorship

[Guidance](#) ▾[Member resources](#) ▾[About COPE](#) ▾[Home](#)

## Authorship and AI tools

### COPE position statement

The use of artificial intelligence (AI) tools such as ChatGPT or Large Language Models in research publications is expanding rapidly. COPE joins organisations, such as [WAME](#) and the [JAMA Network](#) among others, to state that AI tools cannot be listed as an author of a paper.

AI tools cannot meet the requirements for [authorship](#) as they cannot take responsibility for the submitted work. As non-legal entities, they cannot assert the presence or absence of conflicts of interest nor manage copyright and license agreements.

Authors who use AI tools in the writing of a manuscript, production of images or graphical elements of the paper, or in the collection and analysis of data, must be transparent in disclosing in the Materials and Methods (or similar section) of the paper how the AI tool was used and which tool was used. Authors are fully responsible for the content of their manuscript, even those parts produced by an AI tool, and are thus liable for any breach of publication ethics.

- AI systems are neither authors nor co-authors
- AI tools must be reported in the work

# Authorship

## How to cite and reference generative AI? – APA style

### 1) Reference list

Company. (Year). *AI Name* (version) [Descriptor]. URL

OpenAI. (2023). *ChatGPT* (Mar 14 version) [Large language model]. <https://chat.openai.com/chat>

### 2) In-text citation

AI-generated text must be enclosed in quotation marks and the prompt must be included

*When asked to summarize Nagel's essay, OpenAI's ChatGPT described it as an argument that "it is impossible for humans to fully understand the subjective experience of other beings, particularly animals" (2023).*

If the use of AI clearly impact the research, the conversation should be detailed in appendix

*An example of convergent evolution is the independent development of winged flight in both birds and bats (OpenAI, 2023; See Appendix B for the full transcript).*

## How to cite and reference generative AI? – APA style

### 3) How to cite images?

An example of how to cite an AI image in APA would look like this:

**Figure 5**

*Portrait of Jean Baudrillard in postmodern style*

[IMAGE]

*Note.* Image generated with the prompt “Jean Baudrillard in postmodern style”  
by OpenAI, ChatGPT, 2023 (<https://chat.openai.com/chat>).

## Another example:

I acknowledge the use of Copilot [<https://copilot.microsoft.com/>] to generate ideas and material for background research and project planning in the drafting of this assignment. The following prompts were entered into Copilot on 22 march 2024: "Is there any evidence that a large Volcanic eruption changed the nature of planet earth?"

Microsoft. (2024). *Copilot* (March 22 version) [Large language model].  
<https://copilot.microsoft.com>

# GenAI research assistant – some tools

## Chatbots



Acess : Free and Paid  
Knowledge base: Web content

## AI research assistants



Acess: Free and Paid  
Knowledge base: Web content

AI assistants for  
bibliographic  
discovery, literature  
review, paper  
summarization, key  
insight extraction



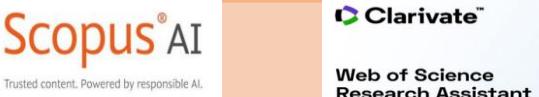
Acess: Free (ResearchRabbit) and Paid  
Knowledge base:  
Semantic Scholar and  
OpenAlex (mainly *Open Access*)

## AI assistants for content summarization



Acess: Free and Paid  
Knowledge base: Upload content

## AI tools integrated in Data Bases



Acess: Paid (subscription-based)  
Knowledge base : Reference Data Bases  
(Scopus e WoS)

# GenAI research assistant – some tools

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## Chatbots



OpenAI  
ChatGPT 4.0

Acess : Free and Paid  
Knowledge base: Web content

## AI research assistants



Acess: Free and Paid  
Knowledge base: Web content

AI assistants for  
bibliographic  
discovery, literature  
review, paper  
summarization, key  
insight extraction



Acess: Free (ResearchRabbit) and Paid

Knowledge base:  
Semantic Scholar and  
OpenAlex (mainly *Open Access*)

AI assistants for  
content summarization



ChatPDF



scholarcy

Acess: Free and Paid  
Knowledge base: Upload content

AI tools integrated in  
Data Bases



Acess: Paid (subscription-based)  
Knowledge base : Reference Data Bases  
(Scopus e WoS)

## GenAI research assistant – some tools

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<https://consensus.app/search/>

- Finds and summarizes a set of articles in response to a question - "*prompt*". Suitable for direct questions (YES/No)
- Classify the results in the “consensus meter” according to the number of articles that support a positive result
- Knowledge Base: Semantic Scholar, GPT-4 Content-based generation (OPEN AI)
- Summarize the content of 5 up to 10 articles in the “Summary” option)
- **Limite of the free version: 20 credits per month**



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## 1) Generate a summary using all documents identified

The screenshot shows the Consensus platform interface. At the top, there's a search bar with the query "Does climate change poses threats to agricultural production?". Below the search bar are two buttons: "Synthesize" (selected) and "Copilot". To the right are "Filter" and "Share" buttons. The main area has two sections: "Summary" (Beta) which says "10 papers analyzed" and contains a text snippet about climate change threats to agriculture; and "Consensus Meter" (Beta) which says "18 papers analyzed" and shows a chart where "Yes - 100%" is at 100% (green), "Possibly - 0%" is at 0% (yellow), and "No - 0%" is at 0% (red). A red arrow points to the "Summary" section. Another red arrow points to the "Consensus Meter" section. A third red arrow points to the "Copilot" section below.

## 2) Measures the consensus response

## 4) Generate an extended summary

.....identify sources of information

- Temperature Increases and Crop Yields:
  - Rising temperatures are projected to reduce crop yields significantly, with wheat, maize, sorghum, and millet particularly affected in regions like Africa and South Asia 3 4 6 .
  - Higher temperatures increase crop respiration rates and evapotranspiration, leading to reduced crop duration and productivity 1 9 .
- Precipitation Changes and Water Scarcity:
  - Altered rainfall patterns and increased water scarcity are expected to negatively impact crop yields, especially in semi-arid regions

## 3) Apply filters

The right sidebar of the Consensus platform shows various filtering options. It includes a date range from 1990 to 2015, checkboxes for "Open access" and "Ask Paper available" (Beta), and dropdown menus for "Citations ≥" and "Methods". The "Methods" section lists study types with corresponding icons: Meta Analysis (blue circle), Systematic Review (orange square), RCT (green diamond), Non-RCT Trial (orange diamond), Observational Study (yellow square), Literature Review (light blue square), Case Report (blue square), and Animal Trial (red square). A red arrow points to the "Methods" section.

## 5) Export to reference managers

Does climate change poses threats to agricultural production?

### 6) Abstract summarize

1 Impact of Climate Change on Agriculture and Its Mitigation Strategies: A Review

Climate change poses threats to agricultural production by increasing crop respiration rate, evapotranspiration, pest infestation flora shift, and reducing crop duration.

Sustainability | Gurdeep Singh Malhi et al. | 314 citations | 2021

Literature Review Highly Cited

[.RIS](#) [.CSV](#)

4 A Critical Review of Climate Change Impact at a Global Scale on Cereal Crop Production  Yes

Climate change can alter crop yields, potentially threatening food security by increasing wheat and maize crop yields in colder regions and decreasing them in countries near the equator.

Agronomy | Ahsan Farooq et al. | 15 citations | 2021

Literature Review Ask this paper

Study snapshot ▾

Save Cite Share

## 7) Enable to enter in the article view mode (detail)

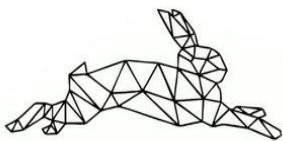


## 8) Share, cite and save



# GenAI research assistant – some tools

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[www.researchrabbit.ai](https://www.researchrabbit.ai/) <https://www.researchrabbit.ai/>

- **Free**
- Literature mapping tool
- Generates a visual network of similar articles, from a base article (*seed*) or a set of base articles, using authors and citations relations (*similar works, all references, all citations*)
- Knowledge base: OpenAlex and Semantic Scholar (mainly scientific articles in *Open Access*)
- Options of search by title, DOI, keywords or upload articles

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## 1) Create collections or categories

A screenshot of the Research Rabbit interface. On the left, there's a sidebar with options like "New Collection", "New Category", and "Import Zotero Collection". A yellow arrow points to the "New Collection" button. The main area shows a list of items under "Uncategorized", including "Climate change impact in Agriculture" and "Riparian ca...". There's a green "Add Papers" button. On the right, there are sections for "EXPLORE PAPERS" with links to "Similar Work", "Earlier Work", and "Later Work".

## 2) Import items by title or DOI or perform search Add a paper you know and love

A screenshot of the Research Rabbit interface. At the top, there's a search bar with a magnifying glass icon and the placeholder "Title, DOI, PMID, or keywords", followed by a "Search" button. Below the search bar, there's a "Connect to Zotero" button. To the right, it says "Or Upload File:" with "BibTeX" and "RIS" options. A yellow arrow points to the "Connect to Zotero" button. At the bottom, there's a "SHAREABLE LINK" button with a "Copy" link next to it, and a "COLLABORATORS" section with an "Edit" button.

## 2) Allows to import from Zotero



## Option 1) Start from one article (seed)

1) Find similar articles based on references and citations

**1 selected paper**

Gurdeep Singh Malhi, Prashant Kaushik

**Impact of Climate Change on Agriculture and Its Mitigation Strategies: A Review**

Sustainability 2021, 13, 314

Climate change is a global threat to the food and nutritional security of the world. As greenhouse-gas emissions in the atmosphere are increasing, the temperature is also rising due to the greenhouse effect. The average global temperature is increasing continuously and is predicted to rise by 2 °C by 2100, which would cause substantial economic losses at the global level. The concentration of CO<sub>2</sub>, which accounts for a major proportion of greenhouse gases, is increasing at an alarming rate, and has led to higher growth and plant productivity due to increased photosynthesis, but increased temperature offsets this effect as it leads to increased crop respiration rate and evapotranspiration, higher pest infestation, a shift in weed flora, and reduced crop duration. Climate change also affects the microbial population and their enzymatic activities in soil. This paper reviews the information collected through the literature regarding the issue of climate change, its possible causes, its projection in the near future, its impact on the agriculture sector as an influence on physiological and metabolic activities of plants, and its potential and reported implications for growth and plant productivity, pest infestation, and mitigation strategies and their economic impact.

**Add Papers**

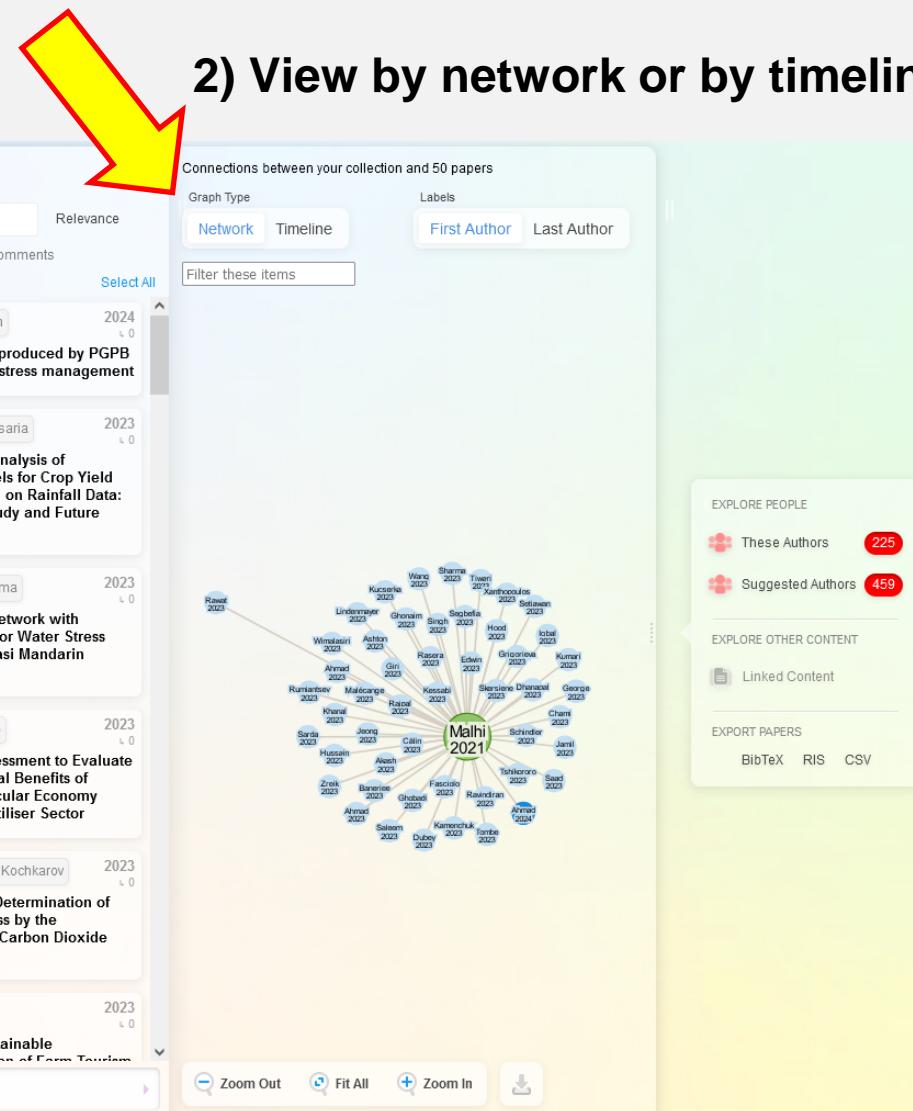
**Similar Work** 1865  
**All References** 131  
**All Citations** 314

**These Authors** 6  
**Suggested Authors** 6

**Linked Content** 1

**BIBTEX RIS CSV**

**PUBLIC COLLECTION**  
**SHAREABLE LINK** Copy  
**COLLABORATORS** Edit  
**EMAIL UPDATES**





## Option 1) Start from one article (seed)

### 3) Sort by relevance or by citations

The screenshot shows the ResearchRabbit application interface. On the left, there's a sidebar with various research metrics and filters. The main area displays a list of papers with their titles, authors, and publication years. A red arrow points to the 'All References' section of the list, which is currently selected. To the right, a large network graph visualizes the connections between the selected papers. A green circle highlights a specific paper from 2021. Another red arrow points to the right side of the screen, where a detailed view of this highlighted paper is shown. This view includes the paper's title, abstract, and full text, along with options to add it to a collection.

**4) Add to collection**

1 selected paper

Chuang Zhao, Senthil Arumugam, Malhi 2021

Temperature increase reduces global yields of major crops in four independent estimates

Proceedings of the National Academy of Sciences of the United States of America

1 PDF

Wheat, rice, maize, and soybean provide two-thirds of human caloric intake. Assessing the impact of global temperature increase on production of these crops is therefore critical to maintaining global food supply, but different studies have yielded different results. Here, we investigated the impacts of temperature on yields of the four crops by compiling extensive published results from four analytical methods: global grid-based and local point-based models, statistical regressions, and field-warming experiments. Results from the different methods consistently showed negative temperature impacts on crop yield at the global scale, generally underpinned by similar impacts at country and site scales. Without CO<sub>2</sub> fertilization, effective adaptation, and genetic improvement, each degree-Celsius increase in global mean temperature would, on average, reduce global yields of wheat by 6.0%, rice by 3.2%, maize by 7.4%, and soybean by 3.1%. Results are highly heterogeneous across crops and geographical areas, with some positive impact estimates. Multimethod analyses improved the confidence in assessments of future climate impacts on global major crops and suggest crop- and region-specific adaptation strategies to ensure food security for an increasing world population.

Similar Work 1865

Earlier Work 40

Later Work 44

These Authors 6

1 Selected Paper

Add to: Climate change impact in Agriculture

Add to Other Collection

EXPLORER PAPERS

Similar Work 1896

All References 31

All Citations 1519

EXPLORER PEOPLE

These Authors 71

Suggested Authors 71

EXPLORER OTHER CONTENT

Linked Content 20

EXPORT PAPERS

BibTeX RIS CSV

PUBLIC COLLECTION

SHAREABLE LINK

COLLABORATORS

EMAIL UPDATES

Connections Click to Hide

Zoom Out Fit All Zoom In

11:31 21/10/2024



## Option 1) Start from one article (seed)

Filter Custom  
 Abstracts  Comments  
Select None Select All

● Climate change impact in Agriculture

**Malhi ... Kaushik 2021**  
Impact of Climate Change on Agriculture and Its Mitigation Strategies: A Review  
Sustainability  
Climate change is a global threat to the food and nutritional security of the world. As greenhouse-gas emissions in the atmosphere are increasing, the temperature is also rising due to the greenhouse effect. The average global temperature is increasing continuously and is predicted to rise by 2 °C u

**Zhao ... Asseng 2017**  
Temperature increase reduces global yields of major crops in four independent estimates  
Proceedings of the National Academy of Sciences of the United States of America  
Wheat, rice, maize, and soybean provide two-thirds of human caloric intake. Assessing the impact of global temperature increase on production of these crops is therefore critical to maintaining global food supply, but different studies have yielded different results. Here, we investigated the impact

**Add Papers**

PUBLIC COLLECTION   
SHAREABLE LINK **Copy**  
COLLABORATORS **Edit**  
EMAIL UPDATES

2 Selected Papers  
Remove from: Climate change impact in Agriculture  
Add to Other Collection

EXPLORE PAPERS  
Similar Work (1674)  
Earlier Work (3)  
Later Work (9)

EXPLORE PEOPLE  
These Authors (77)  
Suggested Authors (184)

EXPLORE OTHER CONTENT  
Linked Content (21)

EXPORT PAPERS  
BibTeX RIS CSV

Similar Work  
review Relevance  
 Abstracts  Comments Select All

Lobell ... Goel 2012  
The Influence of Climate Change on Global Crop Productivity  
Plant Physiology

Raza ... Xu 2019  
Impact of Climate Change on Crops Adaptation and Strategies to Tackle Its Outcome: A Review

Daryanto ... Jacinthe 2016  
Global Synthesis of Drought Effects on Maize and Wheat Production  
PLOS ONE

James ... Conway 2017  
Characterizing half-a-degree difference: a review of methods for identifying regional climate responses to global warming targets  
Wiley Interdisciplinary Reviews: Climate Change

Rojas-Downing ... Woznicki 2017  
Climate change and livestock: Impacts, adaptation, and mitigation  
Climate Risk Management

Load More

Connections between your collection and 50 papers  
Graph Type Network Timeline Labels First Author Last Author  
Filter these items

5) Apply filters



# 1) Encontra trabalhos similares, trabalhos anteriores e posteriores

## Option 2) Start from a set of articles

### 1) Find similar articles, previous and later studies

The screenshot displays the Research Rabbit platform interface. On the left, a sidebar shows collections like 'New Collection', 'New Category', and 'Import Zotero Collection'. Below these are sections for 'Uncategorized' and 'Shared with Me', each containing a list of articles with titles, authors, and publication years. A large red arrow points from the 'Shared with Me' section towards the central search results area.

The central area shows a search results page for 'Climate change impact Agriculture'. It includes a sidebar with options like 'Similar Work', 'Earlier Work', 'Later Work', 'Explore People', 'These Authors', 'Suggested Authors', 'Linked Content', and 'Export Papers'. A second red arrow points from this sidebar towards the right-hand network visualization.

The right side features a complex network graph titled 'Similar Work' with nodes representing various authors and their connections. A third red arrow points from this graph towards the bottom right corner of the interface.

**2) Suggests related authors and content**

**3) Allow to export**

On the far right, there are sections for 'EXPLORE PEOPLE' (These Authors: 807, Suggested Authors: 1430), 'EXPLORE OTHER CONTENT' (Linked Content: 189), and 'EXPORT PAPERS' (BibTeX, RIS, CSV).



# SCISPACE

<https://scispace.com/>

- Search articles and other scientific publications in response to a research question - "*prompt*"
- Analyse, summarize and compare scientific articles
- Includes writing assistant, AI detector, video generator, concept and paraphraser generator
- Knowledge base: OpenAlex and Semantic Scholar (mainly scientific articles in *Open Access*)
- **Low availability of all functions (max 5 columns in the review grid, no exportation, limited number of searches for concepts, paraphrases etc.)**



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The screenshot shows the SCISPACE AI Chat platform. On the left, a sidebar lists various tools: Home, My Library, My Notebooks, My Profile, Chat with PDF, Literature Review, AI Writer, Find Concepts, Paraphraser, Citation Generator, Extract Data, AI Detector, PDF to Video, Affiliate Program, Chrome Extension, Use on ChatGPT, and Contact Us. A large yellow arrow points from the top-left towards the search interface. The main area features a header "The Fastest Research Platform Ever" and a sub-header "All-in-one AI tools for students and researchers." Below this is a search bar containing the question "Does climate change impose threats to agricultural production?". Underneath the search bar, there's a section titled "Try asking or searching for:" with four suggestions: "What are the primary agricultural sectors most vulnerable to climate change-induced threats?", "How do changes in temperature and precipitation patterns impact crop yields and food security?", and "What adaptive strategies can farmers employ to mitigate the effects of climate change on agricultural production?". A tip at the bottom of this section says, "Tips: If you're asking a question, add a question mark (?) at the end to get better results". To the right of the search interface, another large yellow arrow points towards the "Popular Tools" section. This section includes two boxes: "Chat with PDF" (with a speech bubble icon) and "AI Writer" (with a pen icon). The "Best for Researchers" section is also partially visible at the bottom.

1) Menu: large number of functions

1) Provides suggestions for deeper research



SCISPACE

# 1) Literature review

## 1) Generate a summary based on top 5 articles

ISA

The screenshot shows the SCISPACE platform interface. At the top, there's a search bar with the query "Does climate change impose threats to agricultural product". Below the search bar, a main content area displays a summary from the top 5 papers, followed by detailed sections on "Extreme Weather Events" and "Crop and Soil Health". At the bottom, a table lists 10 publications with columns for "Papers (10)", "Insights", "Methods Used", and a sidebar for "Create or add columns" and "Export as". A vertical sidebar on the left contains various icons for different features like saving to a notebook, requesting PDFs, and more.

Caixa de entrada - mrosariofern X Bootcamp 2024 de Formação d X Does climate change imposes t X https://typeset.io/search/does-climate-change-imposes-threats-to-agricultural-5gg6... does+climate+change+imposes+threats+to+agricultural+production%3F Importar marcadores... Começar aqui Microsoft Edge Imagem\_catalogoJPG... Group content | Institu... SCISPACE Papers ▾ Does climate change impose threats to agricultural product Answer from top 5 papers Climate change significantly threatens agricultural production through various mechanisms, including extreme weather events, altered precipitation patterns, and rising temperatures. These changes disrupt crop yields, threaten food security, and challenge the sustainability of agricultural practices globally. The following sections detail the specific impacts of climate change on agriculture. Extreme Weather Events • Increased frequency of droughts, floods, and heatwaves disrupt planting and harvesting cycles, leading to reduced crop yields (Verma et al., 2024) (Prakash, 2024). • Erratic rainfall patterns contribute to water stress, affecting soil moisture and crop health (Saleem et al., 2024) (Acharya et al., 2024). Crop and Soil Health • Climate change alters soil processes, impacting nutrient cycling and moisture levels, which are critical for crop production (Acharya et al., 2024). • Shifts in suitable growing regions for various crops complicate agricultural adaptation, leading to decreased productivity in vulnerable areas (Acharya et al., 2024) (Thakur & Sharma, 2024). Read More ▾ Save to Notebook APA, Bullets ▾ Find Concepts Add columns (2) ▾ PDF Open Access Year ▾ More filters Sort by: Relevance Export ... Papers (10) Insights Methods Used Create or add columns Export as... Create your own custom column or select from suggestions Create new column + TL:DR + Conclusions + Summarize + Results + Introduction Journal Article + DOI 1. Climate change adaptation: Challenges for agricultural sustainability Krishan K. Verma +8 more 13 Aug 2024 - Plant Cell and Environment Request PDF Journal Article + DOI 2. Securing a sustainable future: the climate change threat to... Climate change significantly threatens agricultural production through extreme weather events, water stress, heatwaves, and erratic rainfall, disrupting productivity and increasing vulnerability for farmers, particularly in developing countries. Climate-smart practices for agricultural resilience and productivity. Advanced technologies for adaptation and mitigation strategies. Data gathered from research organizations, CSV file Excel file BibTeX file XML file RIS file 10:27 24/10/2024

5) Details the article

4) Exports the comparison (paid version)

3) Compares publications based on different aspects

SCISPACE

Concepts Ecological Focal Areas X Pricing

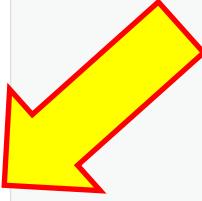
Answer from top 5 concepts

Ecological focal areas are critical regions designated for conservation efforts due to their rich biodiversity and the threats they face from human activities. One prominent measure within the Common Agricultural Policy (CAP) is the Ecological Focus Area (EFA), which mandates that farmers allocate 7% of their land for ecological purposes, thereby promoting biodiversity and sustainable land use practices [1]. Biodiversity hotspots, identified as regions with high levels of endemic species and significant threats, serve as essential ecological focal points for conservation initiatives [2]. Protected areas are another vital component, as they are designated regions aimed at conserving biodiversity and natural resources, providing habitats for endangered species and maintaining ecological integrity [3]. Wetlands and coral reefs exemplify specific ecological focal areas that require targeted conservation due to their unique ecosystems and the services they provide. Wetlands support diverse habitats and improve water quality, while coral reefs are among the most diverse ecosystems, crucial for marine life and coastal protection [4][5]. Together, these focal areas highlight the importance of strategic conservation efforts to preserve biodiversity and ecosystem services globally.

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Concepts	Sources
<b>Ecological Focus Area (EFA)</b> EFA is a specific measure within the Common Agricultural Policy (CAP) that requires farmers to dedicate 7% of their land for ecological purposes, directly addressing the query for named ecological focal areas.	<ul style="list-style-type: none"><li>Het Nederlandse kabinet ziet vooral heil in de maatregel Ecological Focus Area (EFA), waarbij een boer 7% van zijn areaal moet inrichten 'voor ecologische doeleinden' (Doorn et al., 2012).</li></ul>
<b>Biodiversity Hotspots</b> Biodiversity hotspots are regions that are both rich in endemic species and significantly threatened by human activities. Identifying these areas is	<ul style="list-style-type: none"><li>The biodiversity hotspots are 35 biogeographical regions that have both exceptional endemism and extreme threats to their vegetation integrity, and as such are global conservation priorities. Nonetheless, prior estimates of natural intact vegetation (NIV) in the hotspots are generally imprecise, indirect, coarse, and/or dated. Our analysis indicates that hotspots retain 14.9% of their total area as NIV (3,546,975 km<sup>2</sup>) (Sloan et al., 2014).</li></ul>



Identifies and defines concepts, terms and ideas related to the theme

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Riparian zones are co-constructed by the long-standing influence of environmental and human disturbance processes that shape their structural and compositional attributes. They represent the interface between aquatic and terrestrial ecosystems, encompassing the stream channel and that portion of the terrestrial landscape where vegetation may be influenced by fluctuations in the water table, flooding and waterlogged soils.

Riparian zones are shaped by both natural and human disturbances, serving as the boundary between aquatic and terrestrial ecosystems, where vegetation is affected by water table changes, flooding, and saturated soils.

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Riparian ecosystems are critical habitats that support a diverse array of plant and animal species (Santos et al., n.d.) and play a vital role in maintaining water quality, regulating stream flow, and providing essential resources for wildlife (Fernandes et al., n.d.). These ecosystems serve as buffers against flooding, filter pollutants, and offer corridors for species migration, making their preservation essential for ecological health and resilience.

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