Comunicação gráfica com Inteligência Artificial:

O Poster

Marco Soares, designer

Objetivos de uma boa apresentação científica

1.
Comunicar a Ciência de forma clara

2.
Deixar uma impressão duradoura no público

3.
Melhorar a reputação do cientista

O que faz uma boa apresentação científica em Poster?

1. Ter um aspeto visual **cativante que desperte a atenção** e que induza à leitura.

2. Ter mensagens **claras e informativas** , bem estruturadas e de fácil entendimento.

3. Grande **capacidade de síntese** mas que ao mesmo tempo diga o essencial e deixe uma mensagem clara.

Cores

Significado


POLÍCIA
POLÍCIA


BOMBEIRO
BOMBEIROS

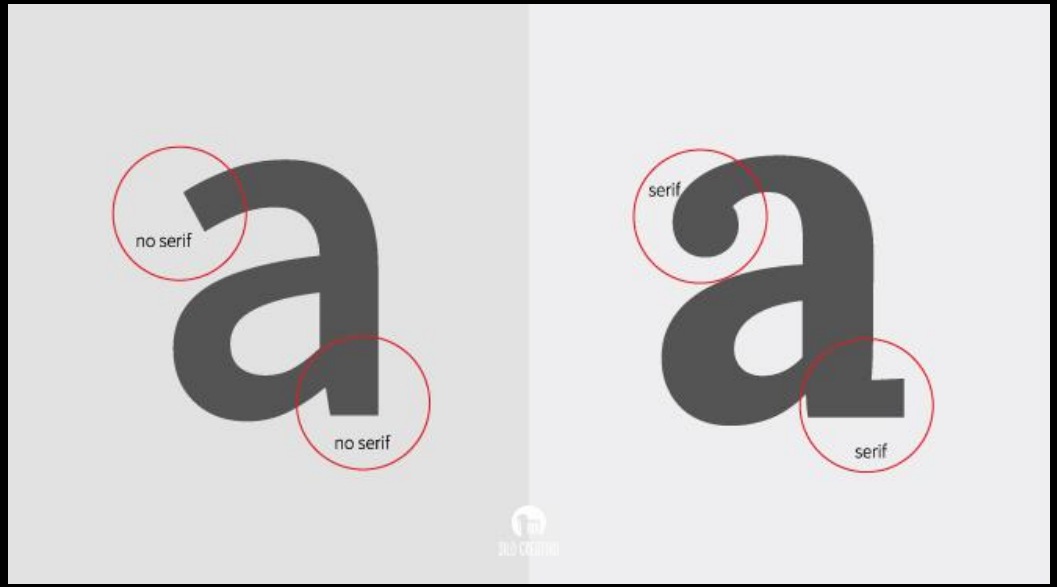

FARMÁCIA


TNT
sure we can
pak 5


McDonald's

Tipografia

Tipos



Tipografia

Tipos

A casa que os Maias vieram habitar em Lisboa, no outono de 1875, era conhecida na vizinhança da rua de S. Francisco de Paula, e em todo o bairro das Janelas Verdes, pela casa do Ramalhete ou simplesmente o Ramalhete.

– Os Maias, Eça de Queiroz

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- Os Maias, Eça de Queiroz

Tipografia

Alinhamento

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- Os Maias, Eça de Queiroz

Tipografia

Famílias

Open Sans

Light	*Light Italic*
Regular	*Italic*
Semibold	***Semibold Italic***
Bold	***Bold Italic***
Extrabold	***Extrabold Italic***

Tipografia

Tamanhos

And you will read this last

You will read this first

And then you will read this

Then this one

Tipografia

Famílias / Tamanhos

Formas

Psicologia das Formas

Quadrado

Círculo

Triângulo

Orgânico

Forma

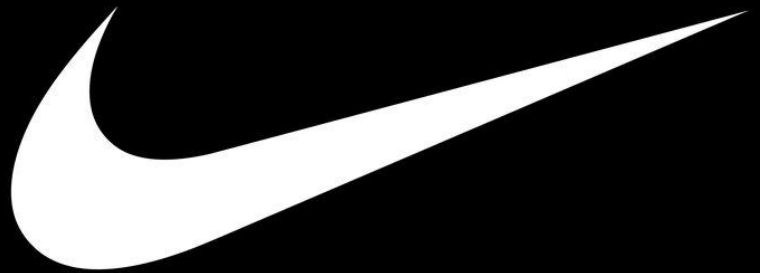
Cultura

Forma

Cultura

Forma

Cultura




LiGHT

Poster

Estrutura

Formato IMRaD

Introduction

Apresenta os antecedentes e o objetivo da investigação.

Methods

Conceção da investigação, contexto da investigação, número de pessoas incluídas no estudo e forma como foram seleccionadas.

Results

Apresentação das conclusões, sem qualquer explicação ou comentário sobre as mesmas.

Discussion

Indica de forma concisa o que se pode concluir do estudo e as suas implicações.

Estrutura

Simplicidade e Equilíbrio

Diferenciação entre as diferentes áreas.

Uso da **tipografia** para uma boa hierarquização da informação.

Usar **cores** como códigos quer de identificação, quer de diferenciação.

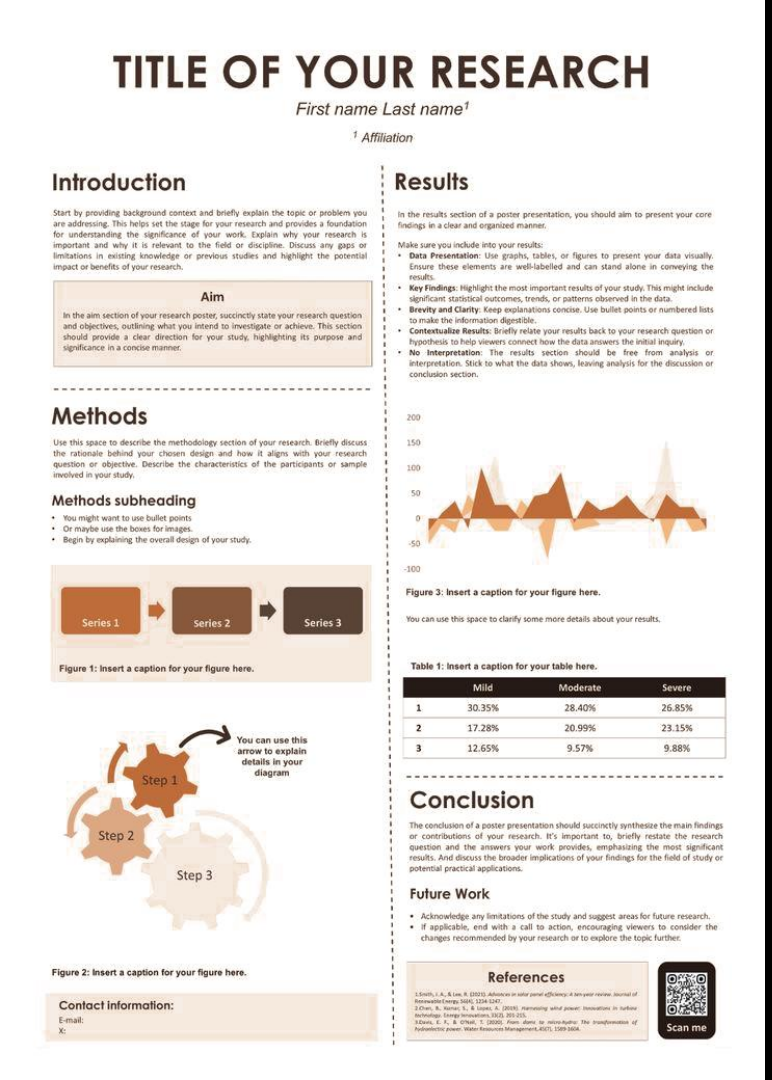
Estrutura

Simplicidade e Equilíbrio

Uso de **gráficos** limitado mas simples e legíveis.

Áreas **vazias** para que a informação “respire”.

Utilização de **ícones** para evitar texto.



TITLE OF YOUR RESEARCH

First name Last name[1]

[1] Affiliation

Introduction

Start by providing background context and briefly explain the topic or problem you are addressing. This helps set the stage for your research and provides a foundation for understanding the significance of your work. Explain why your research is important and why it is relevant to the field or discipline. Discuss any gaps or limitations in existing knowledge or previous studies and highlight the potential impact or benefits of your research.

Aim

In the aim section of your research poster, succinctly state your research question and objectives, outlining what you intend to investigate or achieve. This section should provide a clear direction for your study, highlighting its purpose and significance in a concise manner.

Methods

Use this space to describe the methodology section of your research. Briefly discuss the rationale behind your chosen design and how it aligns with your research question or objective. Describe the characteristics of the participants or sample involved in your study.

Methods subheading

- You might want to use bullet points
- Or maybe use the boxes for images.
- Begin by explaining the overall design of your study.

Figure 1: Insert a caption for your figure here.

Figure 2: Insert a caption for your figure here.

Contact information:

E-mail:

X:

Results

In the results section of a poster presentation, you should aim to present your core findings in a clear and organized manner.

Make sure you include into your results:

- **Data Presentation**: Use graphs, tables, or figures to present your data visually. Ensure these elements are well-labelled and can stand alone in conveying the results.
- **Key Findings**: Highlight the most important results of your study. This might include significant statistical outcomes, trends, or patterns observed in the data.
- **Brevity and Clarity**: Keep explanations concise. Use bullet points or numbered lists to make the information digestible.
- **Contextualize Results**: Briefly relate your results back to your research question or hypothesis to help viewers connect how the data answers the initial inquiry.
- **No Interpretation**: The results section should be free from analysis or interpretation. Stick to what the data shows, leaving analysis for the discussion or conclusion section.

Figure 3: Insert a caption for your figure here.

You can use this space to clarify some more details about your results.

Table 1: Insert a caption for your table here.

	Mild	Moderate	Severe
1	30.35%	28.40%	26.85%
2	17.28%	20.99%	23.15%
3	12.65%	9.57%	9.88%

Conclusion

The conclusion of a poster presentation should succinctly synthesize the main findings or contributions of your research. It's important to, briefly restate the research question and the answers your work provides, emphasizing the most significant results. And discuss the broader implications of your findings for the field of study or potential practical applications.

Future Work

- Acknowledge any limitations of the study and suggest areas for future research.
- If applicable, end with a call to action, encouraging viewers to consider the changes recommended by your research or to explore the topic further.

References

1.Smith, J. A., & Lee, R. (2021). *Advances in solar panel efficiency: A ten-year review*. Journal of Renewable Energy, 56(4), 1234-1247.

2.Chen, B., Kumar, S., & Lopez, A. (2019). *Harnessing wind power: Innovations in turbine technology*. Energy Innovations, 15(2), 201-215.

3.Davis, E. P., & O'Neil, T. (2020). *From dams to micro-hydro: The transformation of hydroelectric power*. Water Resources Management, 45(7), 1589-1604.

Scan me

Elementos Gráficos

Boas ilustrações e gráficos são essenciais

Usar gráficos, fotografias ou ilustrações para mostrar a experiência ou o sistema de estudo em ação e para explicar conceitos abstratos.

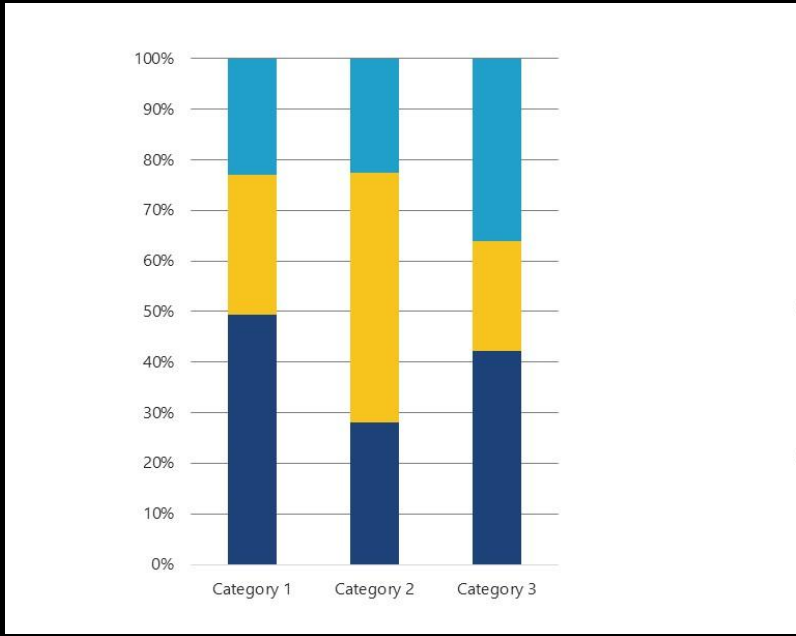
Elementos Gráficos

Usar gráficos para mostrar resultados

As tabelas são difíceis de digerir pelo público, mas se tiver de usar, deve ser simplificada.

Rotular os eixos dos gráficos com as unidades

Identificar os componentes importantes e incluir legendas.



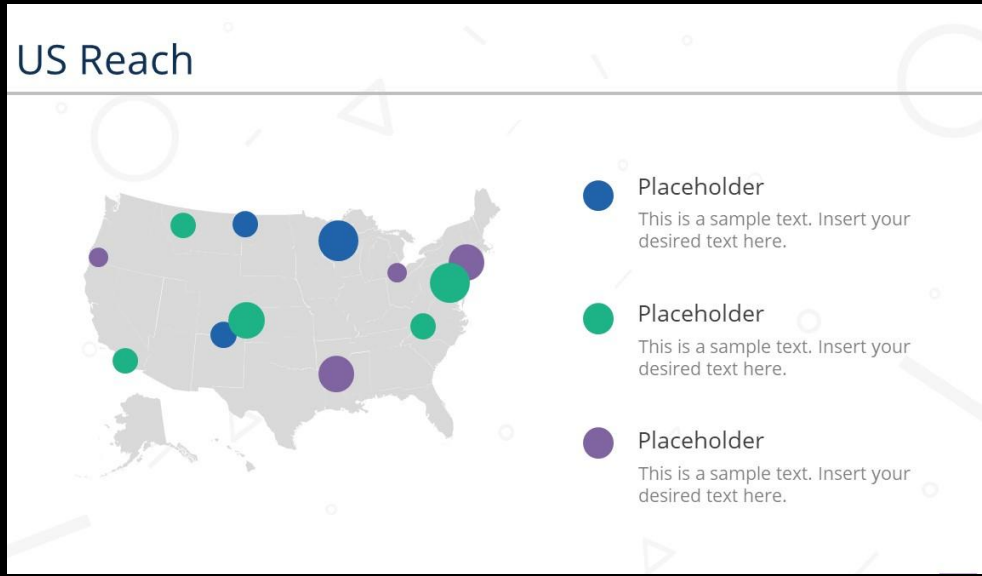
Elementos Gráficos

Explicar todos os elementos de um gráfico

Incluindo os eixos, o significado das cores e dos marcadores e os padrões nos dados.

Simplificar os gráficos

Se necessário, fazer novas versões mais simplificadas e suficientemente grandes para serem vistas ao longe.



Elementos Gráficos

Usar as cores de forma consistente

As cores contrastantes podem ser eficazes para apontar comparações e/ou diferenças.

Usar linhas grossas nas figuras para serem bem observadas ao longe, e cores para criar contrastes nas figuras apresentadas.

Elementos Gráficos

Infografia

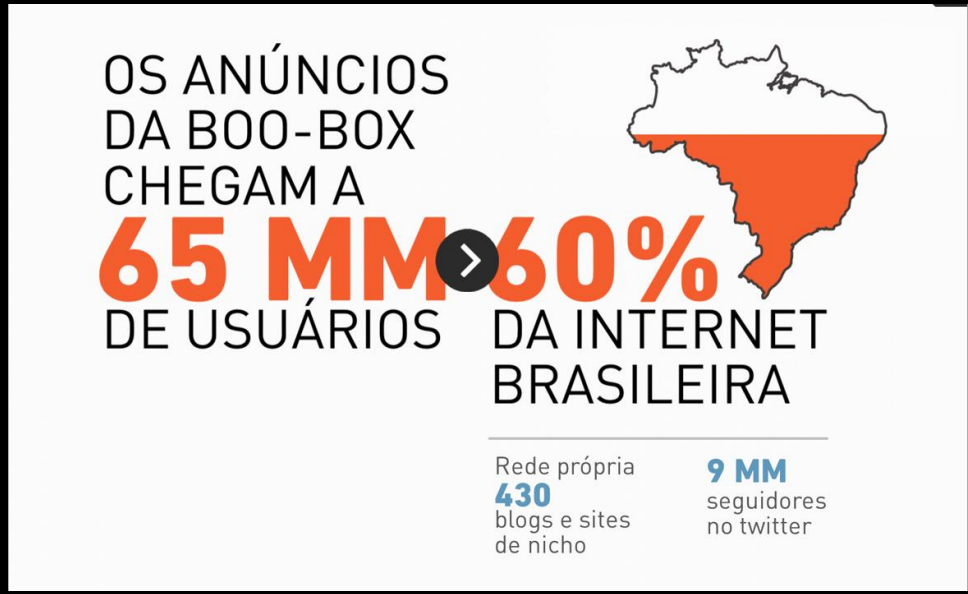
É uma união entre informação e recursos gráficos para facilitar ao máximo a comunicação.

Elementos Gráficos

Infografia

É uma união entre informação e recursos gráficos para facilitar ao máximo a comunicação.

É um recurso muito utilizado em revistas, jornais e livros didáticos.

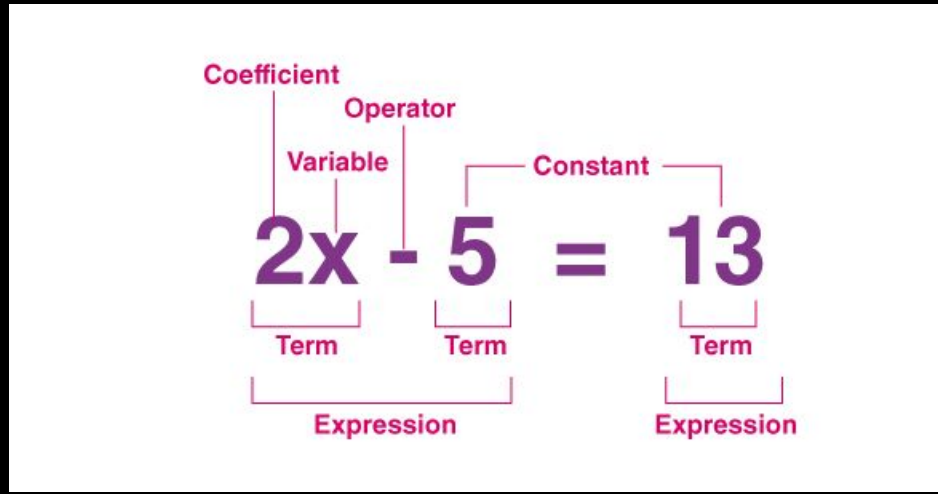


Elementos Gráficos

Equações

Dedicar algum tempo a explicar as equações e as fórmulas

Incluir caixas de texto para explicar as variáveis e os termos matemáticos e colocá-las por baixo de cada termo da equação



THE SVUH RAPID ACCESS CLINIC FOR SUSPICIOUS

THE SVUH RAPID ACCESS CLINIC FOR SUSPICIOUS NECK LUMPS:

AN AUDIT OF PATIENTS' TIMELINES AND OUTCOMES

LEEANN TAN[1], MADI YOUSIF[1], AONGUS CURRAN[2]
1. UCD SCHOOL OF MEDICINE AND MEDICAL SCIENCE, BELFIELD, DUBLIN 4
2. DEPARTMENT OF ENT, ST VINCENT'S UNIVERSITY HOSPITAL, ELM PARK, DUBLIN 4

BACKGROUND & OBJECTIVES

The Rapid Access Clinic for patients with suspicious neck lumps was set up at St Vincent's University Hospital in order aid the speedy diagnosis of malignancy in patients with Head & Neck Cancer. This is the first clinic of its kind for Head & Neck Cancer in Ireland. The aim of this audit was to evaluate the clinic's output and analyse new referrals to the clinic in a 6-month period with considerations for patients' timelines and outcomes.

METHODOLOGY

A retrospective cohort of **new referrals** seen in the Rapid Access Neck Lump Clinic was identified from clinic lists over a period of **6 months** between September 2012 and January 2013. Of the 73 patients identified 10 did not attend the first consultation at the clinic and hence were excluded from the study, giving a final sample of **63 patients**. Audit data was obtained from clinical notes via a **retrospective chart review**. Patients' demographics, referring diagnosis, timelines, and outcomes were recorded and data analysed in Excel® [Microsoft, Redmond, WA, US].

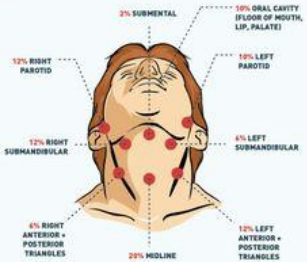
RESULTS

PATIENT DEMOGRAPHICS

48% | 52%

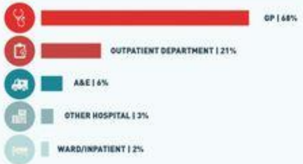
AVERAGE AGE AT PRESENTATION
50 YEARS
(RANGE: 17-88 YEARS)

SITE OF LUMP*

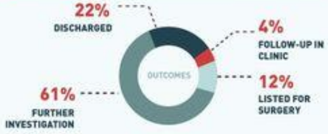


* 14 out of the 63 patients in the study cohort presented with NO LUMPS

REFERRAL SOURCE



OUTCOME FOLLOWING FIRST CONSULTATION



TIMELINES

44 DAYS	54 DAYS	63 DAYS
Average waiting time from receipt of referral letter to first clinic consultation	Average time to obtain imaging results	Average time to obtain histology results

DIAGNOSES (OF 39 HEAD AND NECK LUMPS)

21% were salivary gland pathologies

13% were misc./ non-ENT diagnoses

46% had either a reactive lymphadenopathy or no abnormality

18% were lumps in or related to the thyroid

2% were lymph node metastases

DISCUSSION & CONCLUSION

Waiting times for patients to be seen (average 44 days) and to obtain routine investigations is unacceptable (the NICE guidelines on cancer services "Improving Outcomes in Head and Neck Cancers" recommends that all cancer referrals be seen within 2 weeks[1]). There is evidence in the literature[2] that the 'one-stop neck lump assessment clinic' model (in a broadly similar fashion to one-stop triple assessment breast clinics) offers the opportunity to eliminate many of the delays along the diagnostic pathway as seen in this audit, hence the implementation of such is worth considering resources permitting. The **malignancy pick-up rate of 3%**, which is significantly lower than in comparable studies[3,4] may be partially explained by a high number of inappropriate 'urgent' referrals, the extent of which will need further investigation and addressing; however more encouragingly this could also allude to the team's clinical acumen in discerning worrying clinical presentations that show up through alternative admission pathways e.g. other routine ENT clinics or A&E referrals.

Posterfolk

University Hospital in order aid the speedy diagnosis of malignancy in patients with Head & Neck Cancer. This is the first clinic of its kind for Head & Neck Cancer in Ireland. The aim of this audit was to evaluate the clinic's output and analyse new referrals to the clinic in a 6-month period with considerations for patients' timelines and outcomes.

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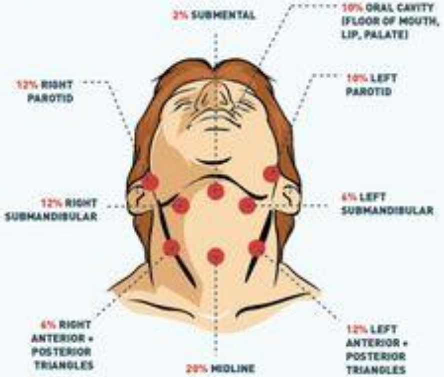

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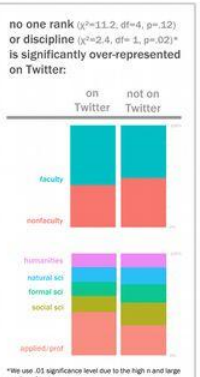
prevalence and use of Twitter among scholars

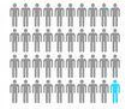
by @jasonpriem, @k8lin, @silent_d
from @uncsils

no one rank (χ^2=11.2, df=4, p=.12) or discipline (χ^2=2.4, df= 1, p=.02)* is significantly over-represented on Twitter:



*We use .01 significance level due to the high n and large number of tests.

1 in 40
scholars active on Twitter



5 tweets per week

method

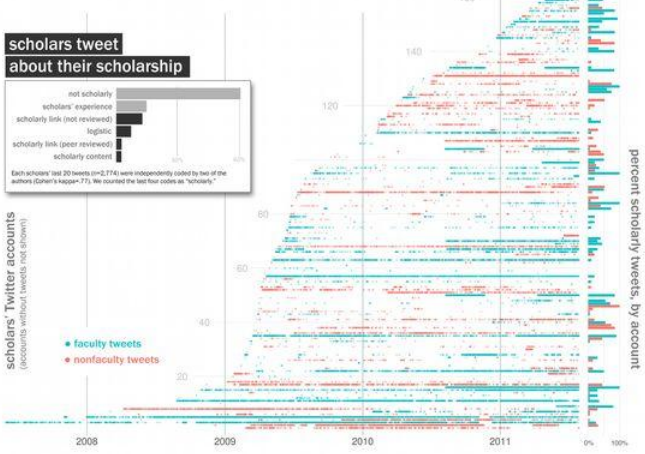
We selected five diverse, representative US and UK universities. Using manual searches of department web pages, we compiled a list of all the scholars (defined as fulltime faculty, postdocs, or doctoral students) at each one, yeilding a sample of 8,826.

We then used the Twitter user/search API to find Twitter user profiles that matched our scholars' names. 3,019 scholars returned more that 20 potential name matches; this "common-name group" was removed from the sample. The remaining scholars returned 17,177 Twitter accounts; around half of these had no identifying information and were discarded. For the remaining 8,038 accounts, we we used a combination of automatic scripts and manual inspection to make positive matches between scholars and accounts, considering evidence from departmental webpages and the Twitter profile fields for name, location, description, URL, username, and picture.

This gave us a list of 230 scholars with confirmed Twitter accounts; this number is certainly an undercount, since many accounts did not have enough information for a positive ID. We then returned to the Twitter API to gather all the public tweets for these users.

percent of tweets that are scholarly:
nonfaculty: **15%**
faculty: **30%**

scholarly Twitter use is growing



scholars tweet about their scholarship

Each scholars' last 20 tweets (n=2,774) were independently coded by two of the authors (Cohen's kappa=.77). We counted the last four codes as "scholarly."

code + details available at https://github.com/jasonpriem/5uni-Twitter-study

presented at Metrics 2011 Symposium on Informetric and Scientometric Research

no one rank (χ^2=11.2, df=4, p=.12) or discipline (χ^2=2.4, df= 1, p=.02)* is significantly over-represented on Twitter:

on Twitter
not on Twitter
faculty
nonfaculty
humanities
natural sci
formal sci
social sci
applied/prof

*We use .01 significance level due to the high n and large number of tests.

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scholarly Twitter use is growing

scholars tweet about their scholarship

not scholarly
scholars' experience
scholarly link (not reviewed)
logistic
scholarly link (peer reviewed)
scholarly content

Each scholars' last 20 tweets (n=2,774) were independently coded by two of the

The Effects of Chronic Stress on CNTF/UCN3 in the pBNST and Hypothalamic PVN in Mice

Nausheen Siddiqui, Theodoor Hagg, Cuihong Jia
Department of Biomedical Sciences, East Tennessee State University

QUILLEN COLLEGE of MEDICINE
EAST TENNESSEE STATE UNIVERSITY

ETSU

Introduction

Post-traumatic Stress Disorder (PTSD) is characterized by fear extinction deficit; chronic stress worsens this deficit. Using a Chronic Unpredictable Stress (CUS) model, we previously found that CUS increased fear extinction deficit in female mice and knockout of Ciliary Neurotrophic Factor (CNTF) attenuated it. The amygdala, specifically the medial amygdala, is strongly associated with fear conditioning and extinction. CUS increased CNTF and reduced Urocortin 3 (UCN3) in the medial amygdala, suggesting CNTF-mediated UCN3 inhibition may be involved in CUS-induced deficit of fear extinction. The medial amygdala connects to the hypothalamic paraventricular nucleus (PVN) via posterior bed nucleus of stria terminalis (pBNST) and mediates the stress response (Fig. 1). The objective of this project is to determine whether CUS affects CNTF, UCN3, and CNTF-related cytokine leukemia inhibitory factor (LIF) and interleukin-6 (IL-6) in the pBNST and hypothalamic PVN. Hippocampal CNTF expression was also examined as a brain region outside of the medial amygdala-pBNST-hypothalamic PVN circuitry.

Methods

Animal: adult female CNTF+/+ and CNTF-/- mice,
Experimental design: 4 groups with 5 mice/group. CNTF+/+ and CNTF-/- mice were treated with 4 weeks of CUS or control handling. At the end, fresh brain were collected. The hypothalamic PVN, pBNST and hippocampus were punched out from 600-700 um croystat frozen sections.
CUS:CUS was applied for 4 weeks. It includes 7 pairs of environmental and social stressors without food and water deprivation with one pair per day: 1 h on an orbital shaker (100 rpm)+12 h damp bedding on day 1; 30 min immobilization in 50 ml Falcon tube+12h in a tilted cage (45º) on day 2; 1 h exposure to overcrowding by placing four mice in a plastic box (10x10x5cm) with ventilation holes+1 h cage shaking on day 3; 30 min immobilization+12 h tilted cage on day 4; 1 h exposure to overcrowding+12 h damp bedding on day 5; 1 h cage shaking+12 h tilted cage on day 6, and 30 min immobilization+24 h light on (no dark period) on day 7. The control mice will be handled daily for 4 weeks.
RNA extraction and RT-qPCR: RNA was extracted from tissue using QIANGEN Rneasy mini kit.
Western blotting: BCA assay was performed to analyze protein concentration. 10% SDS gel was used to run the protein samples. UCN3 (Santa Cruz, SC-517449), Actin (Cell Signaling, 4970), and HPR-conjugated 2nd antibodies (Cell Signaling, 7074, 7076).
Statistical analysis: one-way ANOVA followed by Bonferroni multiple comparison or 2-tailed T test. $p<0.05$ was defined as significant difference.

The medial amygdala-pBNST-hypothalamic PVN circuitry

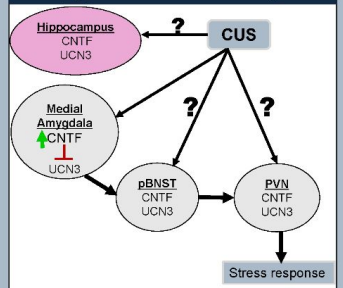

Figure 1. The brain circuitry for stress response. This project focuses on CNTF and UCN3 in the pBNST and PVN. Hippocampus served as a negative control.

pBNST mRNA

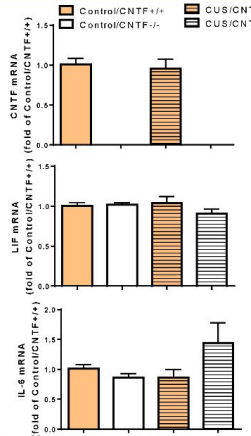

Figure 2. CUS did not affect CNTF, LIF and IL-6 mRNA expression in the pBNST. N=5,5,5,4 mice/group.

pBNST UCN3 mRNA and protein

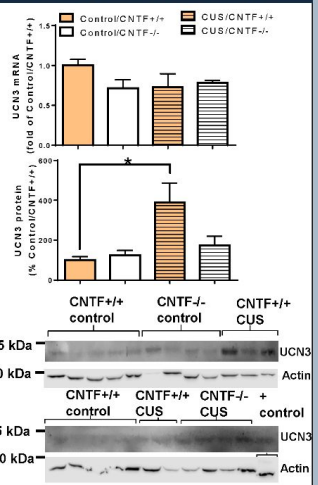

Figure 3. CUS increased UCN3 protein expression in the PBNST. N=5,5,5,4 mice. $p<0.05$

Conclusion

- In the pBNST, CUS did not affect CNTF and UCN3 mRNA expression. However, UCN3 protein was upregulated by CUS in CNTF+/+ but not CNTF-/- mice, suggesting CNTF inhibits UCN3 expression, possibly through post-transcriptional mechanism.
- CUS did not alter LIF and IL-3 in the pBNST.
- CUS did not alter CNTF mRNA expression in the PVN. Further study will measure UCN3 mRNA and protein in the PVN.
- NO CUS effect on CNTF, LIF and IL-6 mRNA in the hippocampus.

Acknowledgements

I want to thank Dr. Cuihong Jia for her supervision and support. Special thanks to Chiharu Lovins, Donald Lovins, Shantaya Jones, Dr. Matt Keasey and Dr. Theo Hagg for their guidance and encouragement. Finally, I would like to thank the ETSU Biomedical Science Department for the wonderful opportunity.

Hypothalamic PVN mRNA

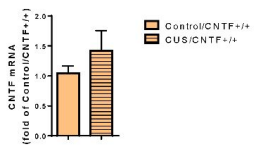

Figure 4. CUS did not affect CNTF mRNA expression in the hypothalamic PVN. N= 5 mice/group.

Hippocampus mRNA

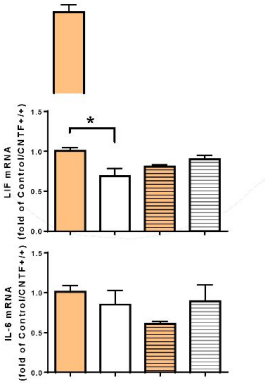

Figure 5. CUS did not affect CNTF, LIF and IL-6 mRNA expression in the hippocampus. N= 5 mice/group. $p<0.05$

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IsoMIF: detection of molecular interaction field similarities. Online interface and applications.

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Introduction

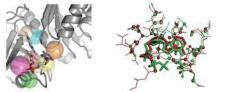
Two proteins **with no sequence or structural similarities** can bind identical ligands.

In red, Sex-Hormone Binding Globulin (PDB 1LHU) and in green, Estrogen Nuclear Receptor (PDB 1QKT) both bound to estradiol.

This dual **molecular function** can result from **convergent evolution** and allows the complexity of biological processes with minimal biological elements. Multiple targets able to bind one molecule can be a problem when a drug binds unintended targets and cause **adverse side effects**. This promiscuity can also be harnessed in **polypharmacological strategies**.

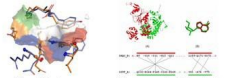
How can we detect similarities responsible for the recognition of identical ligands regardless of sequence or fold?

Binding site similarities



Micro-Environments **PocketFEATURE**[1]

Binding site atoms **IsoCleft**[2]

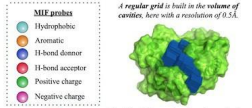


PseudoCenters + surface patches **CavBase**[3]

Sequence order independant Cα alignments **SOIPPA**[4]

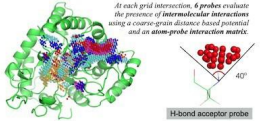
The IsoMIF Method

We developed IsoMIF[5], that calculates Molecular Interaction Fields (MIFs) **in the volume of protein cavities** and can then compare two MIFs to find similarities: **intermolecular interactions in geometrically equivalent positions**.



*A **regular grid** is built in the **volume of cavities**, here with a resolution of 0.5Å.*

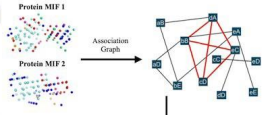
*At each grid intersection, **6 probes** evaluate the presence of **intermolecular interactions** using a coarse-grain distance based potential and an **atom-probe interaction matrix**.*



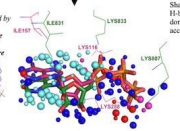
Molecular Interaction Fields **IsoMIF**[5]

The directionality of interactions is considered for H-bonds and aromatic interactions.

IsoMIF can find similarities regardless of sequence or fold



The protein structures and bound ligands are **superimposed based on the MIF similarities found**. Residues underlying the similarities can be identified using PyMOL.



*Similarities are represented by colored spheres (different chemical types). Each **large sphere** (first protein) was matched to a **smaller sphere** (second protein).*

Validation

How well can IsoMIF find as more similar proteins bound to same ligands than others bound to different ligands?

We **evaluated the performance** of IsoMIF[5] accross different datasets. This was evaluated with ROC curves accross 4 datasets used to benchmark other similar methods.

AUC averaged across 4 datasets for similar methods			
IsoMIF	eMatchSite	SiteEngine	PocketMatch
0.82 ± 0.04	0.80 ± 0.15	0.73 ± 0.16	0.60 ± 0.10

To **control** for similarities that emerged from **divergent evolution**, we measured AUCs using **increasingly stringent local sequence identity thresholds** to **remove trivial cases** on larger datasets.

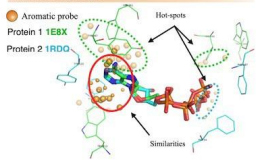
	IsoMIF		Sequence		Nb. of entries	
Sequence redundancy threshold	PDBbind	scPDB	PDBbind	scPDB	PDBbind	scPDB
100 %	0.93	0.87	0.81	0.68	1415	3809
35 %	0.86	0.82	0.63	0.58	773	3038
25 %	0.84	0.82	0.59	0.56	599	2699
15 %	0.79	0.79	0.51	0.50	414	2292

Limitations exist with our approach:

- **Availability of protein structures** and their conformations.
- **True-positive definition** used: bound to same ligand is simplistic.
- One ligand can bind with **different binding modes**.

Applications

1. Rational drug design.

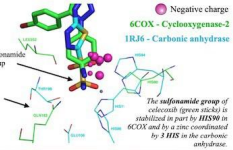


*MIF **similarities** (circled red - opaque spheres) and **hot-spots** (dashed circles - semi-transparent spheres) can be identified at scale for multiple targets and guide the design of more **selective inhibitors**.*

2. Drug repurposing.

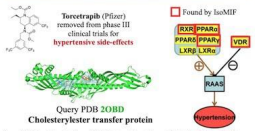
Cyclooxygenase-2 (**6COX**) bound to **celecoxib** an approved drug (Celebrex) — compared to — 400 binding sites

Carbonic anhydrase **1RJ6** was found as 5th top hit (z-score: 1.82). Celecoxib was reported to be a **potent carbonic anhydrase inhibitor** and proposed as a treatment for glaucoma[6].



*The **sulfonamide group** of celecoxib (green sticks) is stabilized in part by **HIS90** in 6COX and by a zinc coordinated by **3 HIS** in the carbonic anhydrase.*

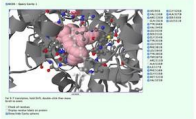
3. Prevention of side-effects



*From 8077 entries in the scPDB dataset, 4 entries within the 20 top hits (z-score between 3.07 and 3.44) were found by IsoMIF and also predicted by Xie et al.[7] as potential off-targets of torcetrapib that **could explain hypertensive side-effects** through **RAAS modulation**.*

Online Interface

IsoMIF Finder[8] is an online interface **developped for non-technical users**. It allows the comparison of user defined query cavities to 4 ensembles of pre-calculated MIFs or to user defined cavities.



*The screenshot shows how the **user can crop the cavities** found for the query protein. This allows MIFs to be calculated in regions of interest and increase relevance of the results.*

Perspectives

400 binding sites bound to drugs — compared to — PDB PROTEIN DATA BANK

A comparison of 400 binding sites bound to small molecules mapped in drugbank to a non-redundant dataset of the PDB (14082 cavities) will help identify potential new **drug repurposing avenues** or clues for the **mechanism of observed drug side effects**.

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6. Weber *et al.* (2004). *Journal of Medicinal Chemistry*, 47(3), 550–557
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Inteligência Artificial

...me commentary in snack-sized mouthfuls

"I want AI to do my laundry and dishes so that I can do art and writing, not for AI to do my art and writing so that I can do my laundry and dishes."

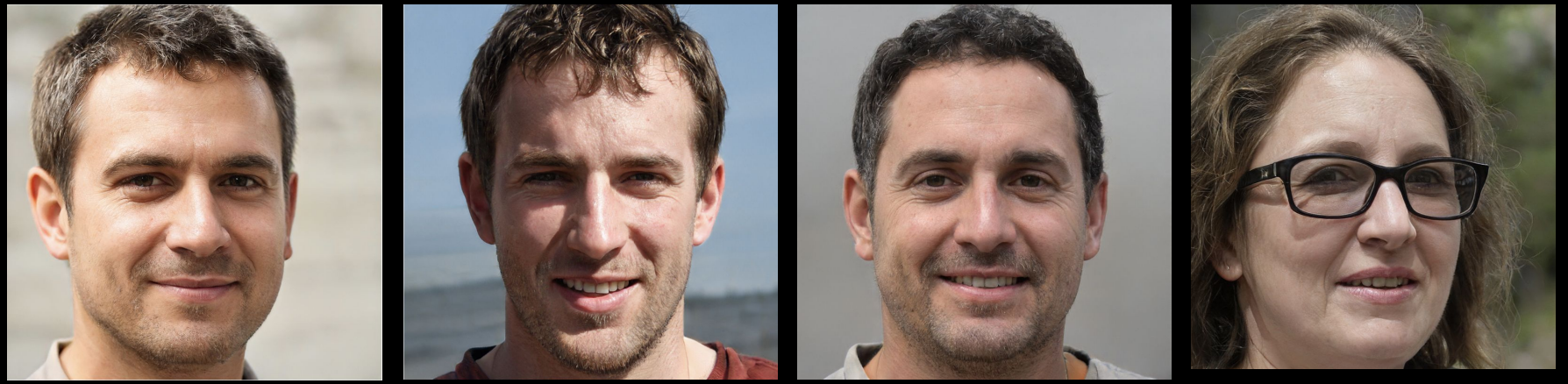
Author and videogame enthusiast **Joanna Maciejewska** nails it (although bathroom cleaning goes ahead of laundry and dishes)

"I'm sure I deserve
a lot of critici

Imagem gerada por IA de uma série de stills #aicinema chamada "Vinyl Vengeance" de Julie Wieland (criada usando o Midjourney)

Test Yourself:
Which faces were made by A.I.?

New York Times, by Stuart A. Thompson - Jan. 19, 2024



https://www.nytimes.com/interactive/2024/01/19/technology/artificial-intelligence-image-generators-faces-quiz.html

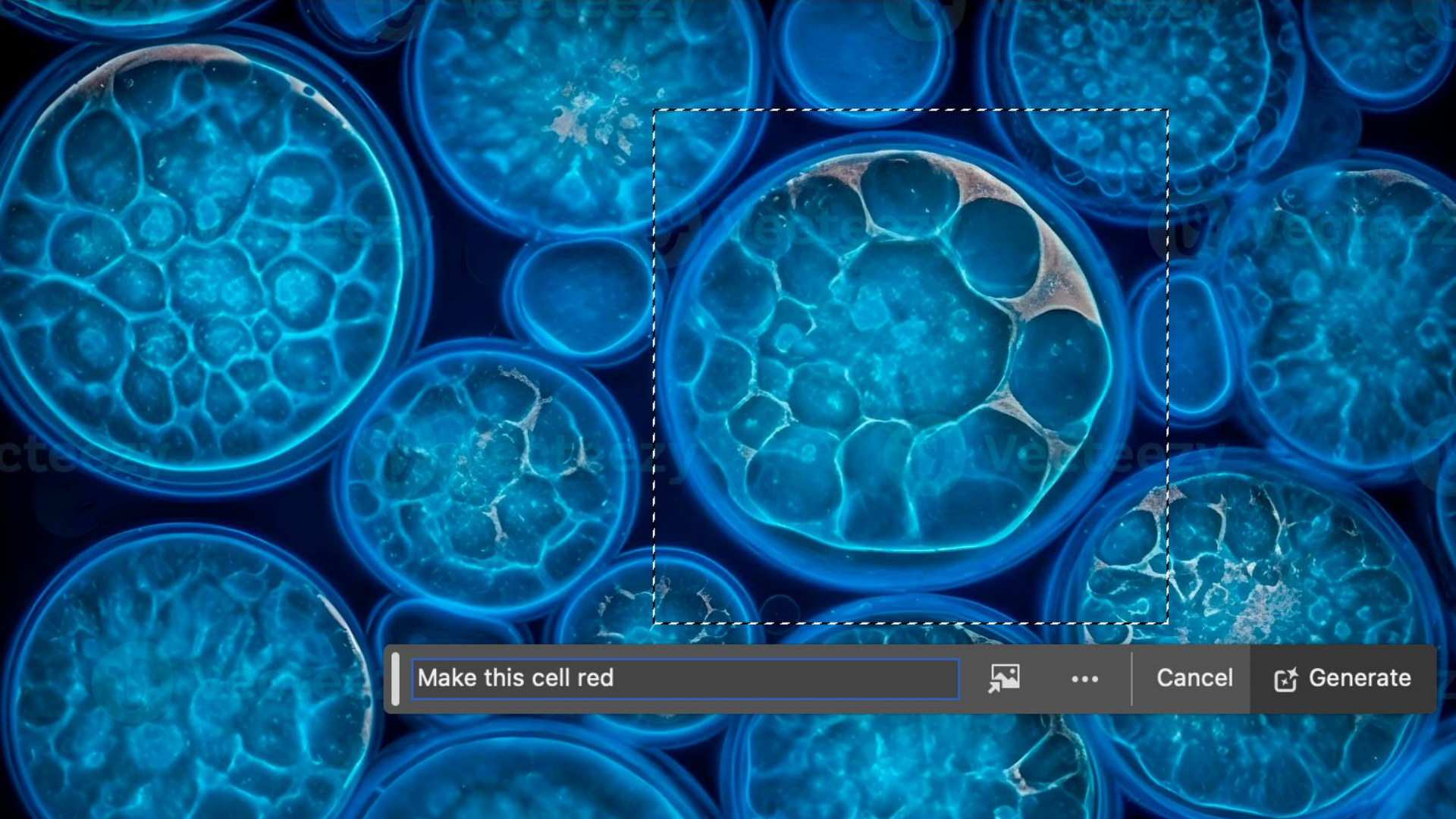
Top photos identified as “real” in the study

✖ A.I.	✖ A.I.	✖ A.I.	✔ Real	✖ A.I.
93% got it wrong	92% got it wrong	90% got it wrong	90% got it right	89% got it wrong

Top photos identified as “A.I.” in the study

✖ Real	✖ Real	✖ Real	✔ A.I.	✖ Real
90% got it wrong	86% got it wrong	84% got it wrong	82% got it right	79% got it wrong

Células ao microscópio. Rede neural gerada por IA através de Pro Photo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Cancel
Generate


Make this cell red
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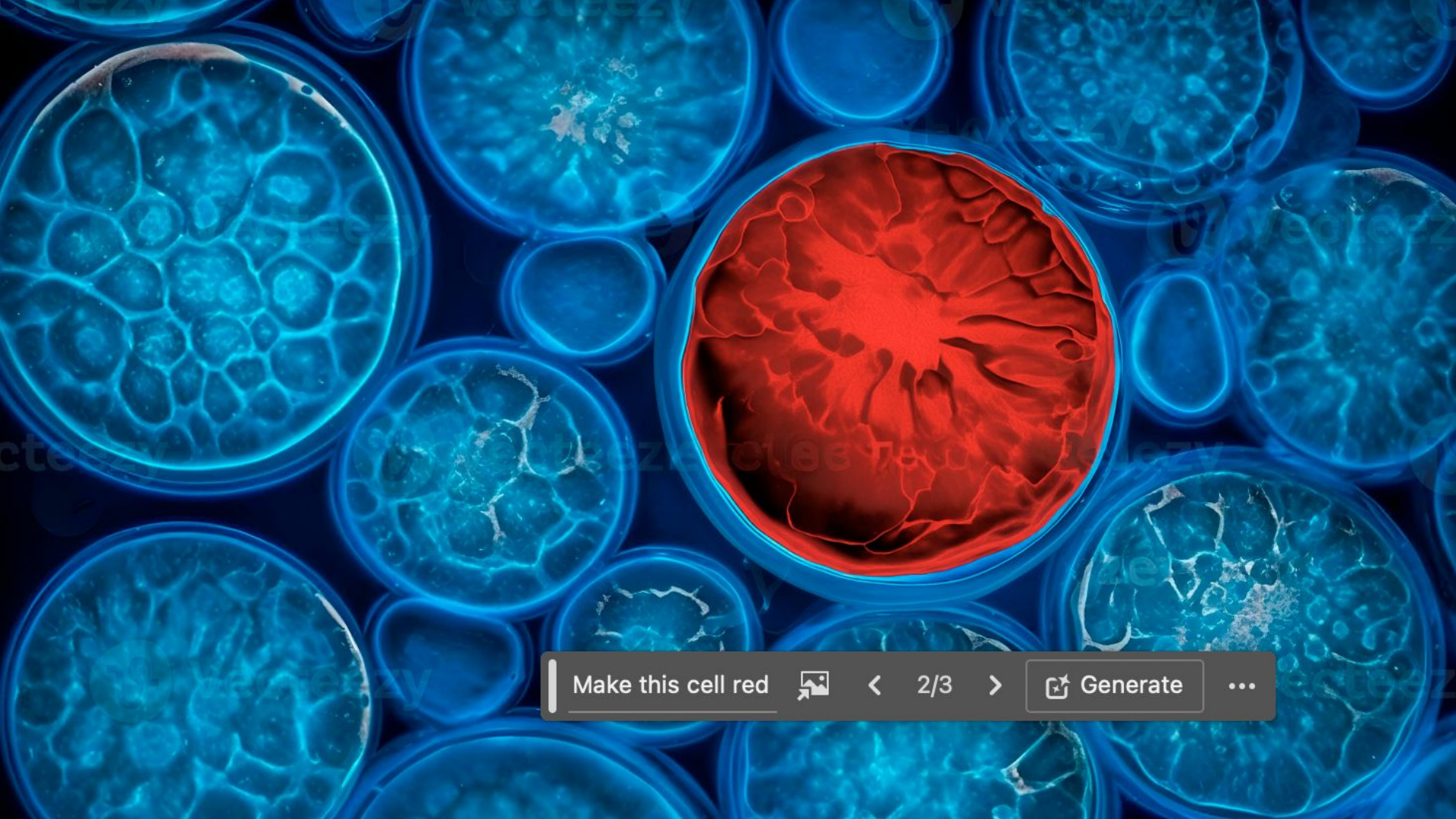
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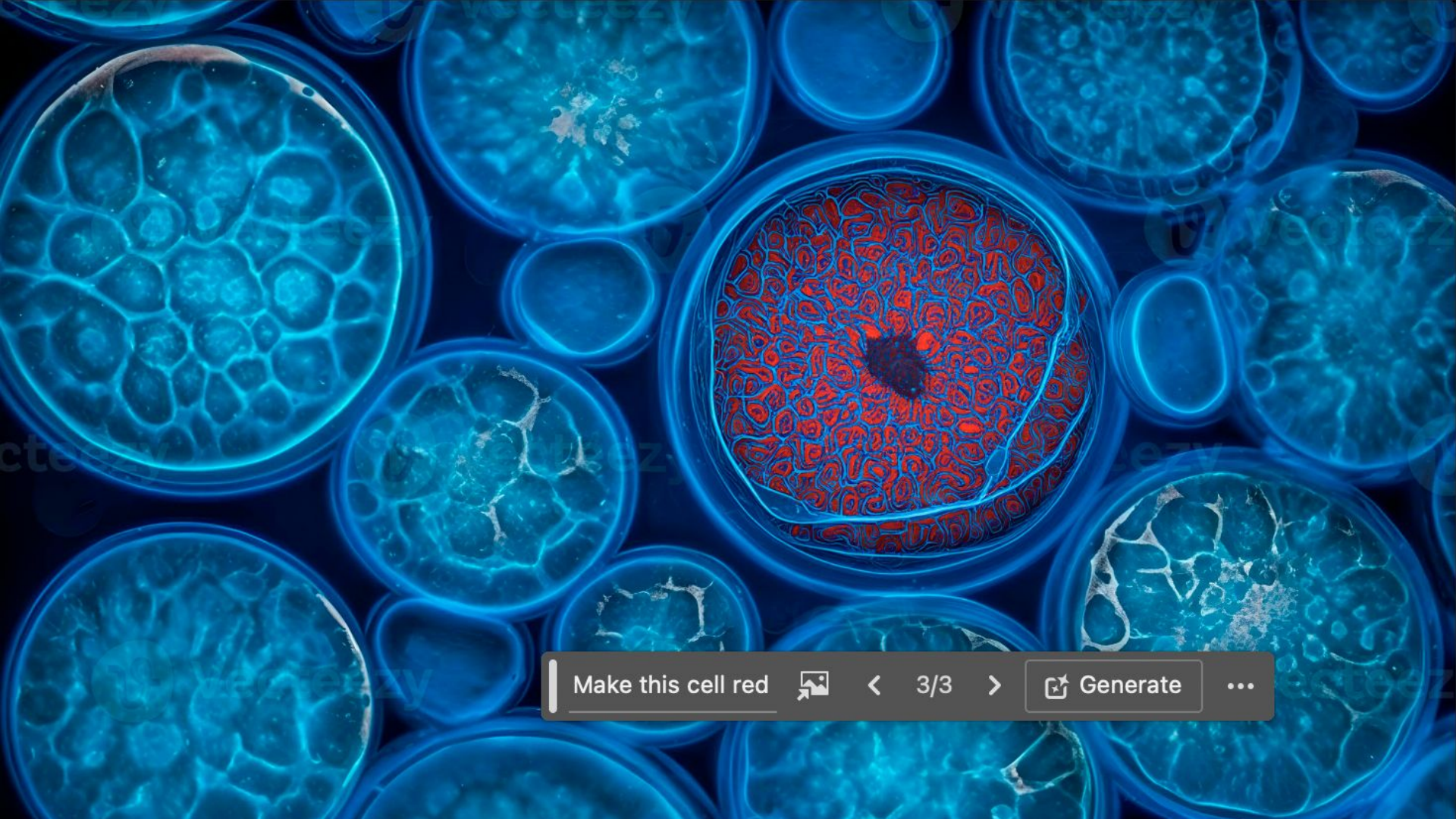
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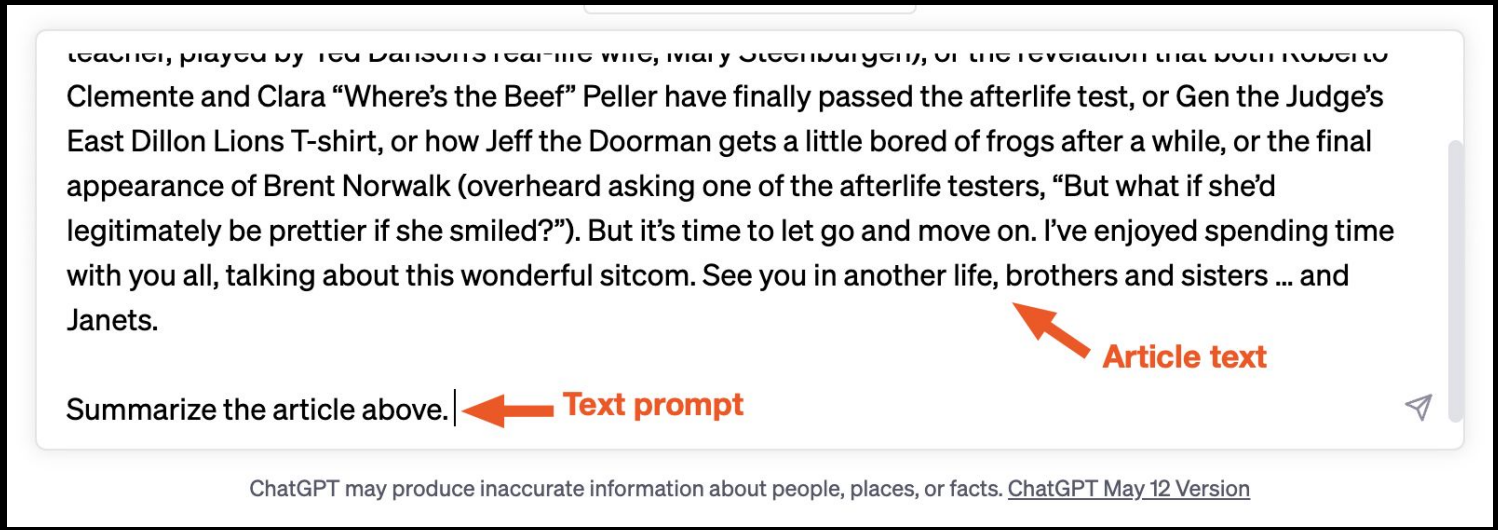
Concept Design

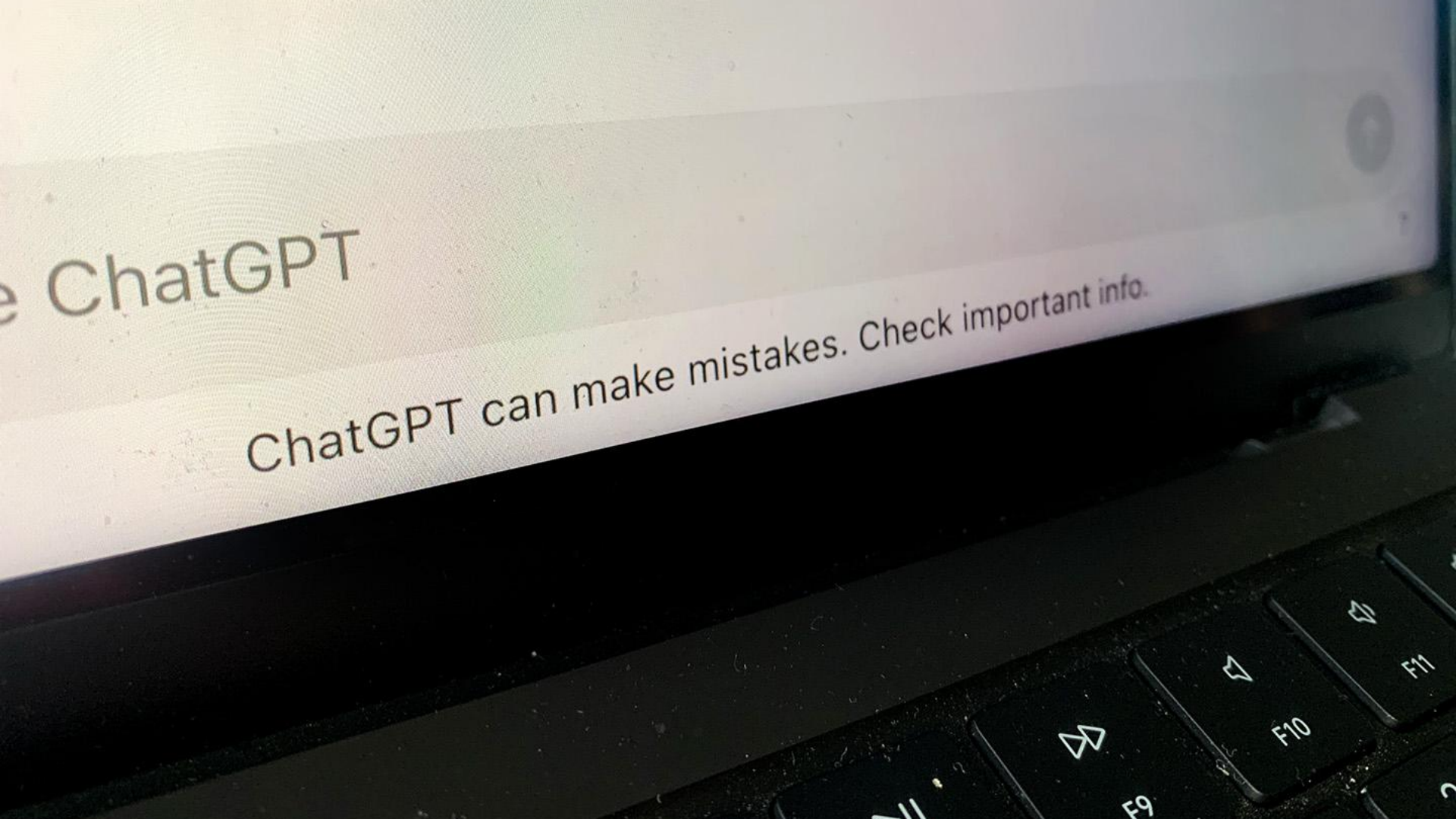
Aplicação de imagem gerada por IA para apresentação de Concept Design na Arquitetura, aplicando conceitos de sustentabilidade e Ambiente.

Imagem gerada usando Midjourney

Resumir texto

A IA é uma excelente ferramenta para resumir texto e assim torná-lo mais "apetecível" de ler




e ChatGPT
ChatGPT can make mistakes. Check important info.
F10
F11

Obrigado