An introductory guide to an ethical use of Gen AI in Business with practical examples.

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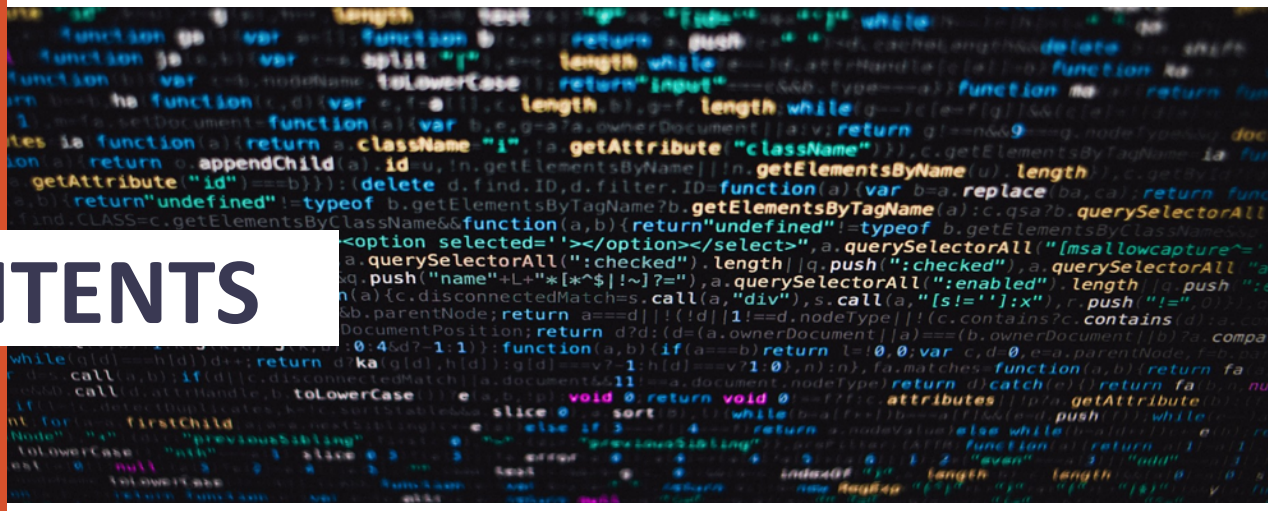

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01 Abstract

Type of OER (Case study, Simulation, Scenario exercise, …)

This Open Educational Resource is a guide about ethical use of Generative Artificial Intelligence in Business with practical examples.

Goal or Purpose

This guide offers an introduction to the concept of Generative Artificial Intelligence, which underpins widely used models today, such as ChatGPT. To understand how these models have come about, we will delve into topics such as Deep Learning, Neural Networks, and Machine Learning.

After examining how modern Generative AI–based systems work and exploring their most common applications, the course will invite you to reflect on both the benefits and risks they present.

Expected Learning Outcomes

- The student will be able to responsibly generate and optimize content using AI tools, ensuring inclusivity in language and imagery.
- The student will be able to identify and mitigate potential biases or inaccuracies in AI-generated content.

Suggested Methodological Approach (Case-Based Learning, Problem-Based Learning...)

Role-Playing Simulation (RPS). We suggest learners taking on specific roles (e.g., marketing specialists, HHRR personnel, business analysts, etc.) to simulate interactions with Generative AI platforms and see possible ethical dilemmas and how to mitigate them.

Keywords

Generative AI; Responsible AI; AI in Business.

02

Introduction

CONTEXTUALISING GENERATIVE ARTIFICIAL INTELLIGENCE

Artificial Intelligence

Artificial Intelligence (AI) is a discipline of computer science that focuses on the creation of systems capable of performing tasks that, when performed by humans, require intelligence. These tasks include speech recognition, learning, planning, problem solving, or understanding natural language (the one we humans speak).

Machine Learning

Machine learning is a branch of AI that focuses on developing algorithms and techniques that allow machines to learn and improve from experience without being explicitly programmed to perform specific tasks. Machine learning systems identify patterns in large data sets and use those patterns to make predictions or decisions.

Deep Learning

Deep learning is a subcategory of machine learning that uses artificial neural networks with many layers (hence the term "deep") to model and understand complex patterns in large volumes of data. It is particularly effective for tasks such as image recognition, natural language processing, and content generation.

Generative AI

Generative AI is a subfield of machine learning that focuses on generating new data from patterns learned from large amounts of data. For example, a model trained on thousands of landscape photos can generate entirely new landscape images.

APPLICATIONS OF GENERATIVE AI

The applications of Generative AI are multiple, highlighting the following:

- Text Generation: generative text models, such as GPT-3, can write articles, create summaries, answer questions, and have coherent conversations, being useful in applications such as virtual assistants, automatic content writing, and chatbots.
- Image generation: generative models can create realistic images of people, objects, and landscapes that do not exist. These technologies are used in graphic design, fashion, and digital art.
- Music and audio generation: generative models can compose original music and create sound effects, being applied in the entertainment and video game industries.
- Product design: using generative AI, companies can prototype innovative products and optimize designs to improve functionality and aesthetics.

NOTABLE GENERATIVE AI SYSTEMS

ChatGPT

ChatGPT is a conversational bot developed by OpenAI, which has been used in a wide range of applications, from customer support to content generation and educational tutoring. Its ability to have natural conversations and understand complex contexts makes it a valuable tool in numerous sectors:

- Customer Support: implemented on websites and apps to provide 24/7 support.
- Education: assist students with explanations of concepts, problem solving, and generation of study materials.
- Content Generation: create articles, blog and social media posts, and other written content.

Copilot

Microsoft Copilot refers to a family of AI-powered assistant features and tools created by Microsoft to enhance user productivity and creativity across various platforms and services. While the most widely known example was originally GitHub Copilot—an AI "pair programmer" integrated into development environments—Microsoft has since extended the "Copilot" branding to other products, including Microsoft 365 Copilot for Word, Excel, PowerPoint, Outlook, and Teams, as well as Dynamics 365 Copilot and Power Platform Copilot.

Here are a few key points about the different Copilot offerings:

- GitHub Copilot: helps developers write code by suggesting lines, functions, or entire blocks of code based on context.
- Microsoft 365 Copilot: assists users within apps like Word, Excel, PowerPoint, Outlook, and Teams to draft documents, analyze data, create presentations, and manage emails using AI-generated insights and content.
- Dynamics 365 Copilot: aims to support business processes like sales, customer service, and marketing by providing AI-driven suggestions and automation.

Gemini

Gemini is an advanced model that combines natural language processing capabilities with multimodal integration, enabling the handling of text, images, and audio. Gemini is designed to provide detailed and accurate answers in a variety of contexts, from informational searches to conversational assistance. Its main applications are:

- Personal Assistants: integrated into devices and applications to provide real-time information and assistance.
- Research: assist in the search and synthesis of information, providing detailed summaries and analyses.
- Multimodal Interaction: ability to understand and generate content that integrates text, images, and audio.

Stable Diffusion

Stable Diffusion is a generative system that uses deep learning techniques to create images from textual descriptions. This model stands out for its ability to generate high-quality images and visual coherence from detailed text inputs. Its main applications are:

- Digital Art Creation: generate illustrations and artwork based on textual descriptions.
- Graphic Design: helping designers create visual concepts and prototypes quickly and efficiently.

Midjourney

Midjourney is another art generation system that uses AI to create images from textual descriptions. It focuses on the creation of artistic and stylized images, offering a powerful tool for artists and content creators. Frequent uses in:

- Concept Art: create visual concepts for films, video games, and other creative media.
- Image Styling: apply unique artistic styles to existing images.

DALL-E

Developed by OpenAI, DALL-E is a generative model that can create images from textual descriptions. It uses an architecture similar to GPT-3 but adapted for image generation, allowing the creation of complex and detailed illustrations. It is especially used for:

- Illustrations and Design: generate images and graphics based on specific textual descriptions.
- Rapid Prototyping: create visual prototypes for products and design concepts quickly.

03

The Guidelines

GENERATIVE AI IN BUSINESS

Generative artificial intelligence offers a wide range of applications in the business world. These models can transform various business functions, improving efficiency, personalization, and decision-making. Below are several ways in which Generative AI applications can be used in a business environment.

Customer Service

Generative AI can be used to significantly improve customer service, providing quick and accurate responses to customer queries.

- Chatbots and Virtual Assistants: implement chatbots powered by language models to interact with customers in real-time, solving common queries, providing information about products and services, and assisting in problem solving.
- Automated Technical Support: offer 24/7 technical support, helping customers solve technical problems without the need for human intervention.

Marketing & Sales

Text generation capabilities can be leveraged to create personalized marketing content and improve sales strategies.

- Content Generation: create blog articles, social media posts, newsletters, and other marketing content in an automated and personalized manner.
- Email Marketing Campaigns: write personalized emails for different customer segments, improving the open and conversion rate.
- Market Analysis: analyze large volumes of market data, identify trends, and generate detailed reports that inform marketing and sales strategies.

Human resources

Large language models can optimize various HR functions, from hiring to talent management.

- Recruiting Automation: write job descriptions, analyze resumes and cover letters, and shortlist candidates by evaluating their answers to open-ended questions.
- Internal Communication: generate internal newsletters, communications and company policies, ensuring consistency and clarity in communication with employees.
- Training and Development: create personalized training materials and learning guides, providing educational resources tailored to each employee's needs.

Finance and Accounting

Generative AI tools can assist in automating financial and accounting tasks, as well as analyzing financial data.

- Financial Reporting: automate the writing of periodic financial reports, performance summaries, and profitability analysis.

- Financial Data Analysis: analyze financial data to spot patterns, forecast trends, and provide strategic recommendations.
- Budget Preparation Assistance: assist in the creation of detailed budgets and financial forecasts based on historical data and future projections.

Project Management

Generative AI can facilitate project management, improving planning, communication, and task tracking.

- Project Planning: assist in drafting detailed project plans, timelines, and resource allocation.
- Tracking and Reporting: generate project progress reports, meeting summaries, and status updates automatically.
- Team Communication: provide summaries and minutes of meetings, ensuring that all team members are aligned and up to date.

Innovation and Product Development

Generative AI can be a valuable tool in the process of innovation and development of new products.

- Idea Generation: brainstorming new product ideas and features based on market trends and customer needs.
- Technical Documentation: write technical documentation, user manuals and product installation guides.
- Feedback Analysis: analyze customer feedback to identify areas for improvement and opportunities for new product development.

Customer Service

In addition to real-time customer support, large language models can improve customer service in a number of ways.

- Generating FAQs: create and update FAQ sections based on the most common customer queries.
- Sentiment Analysis: evaluate the sentiment of customer comments and reviews to identify areas for improvement in products and services.
- Complaint Management: assist in the drafting of responses to complaints and support requests, ensuring that the responses are adequate and satisfactory.

Legal & Compliance

Generative AI applications can also assist in legal and regulatory compliance functions, ensuring that the company adheres to relevant laws and regulations.

- Legal Document Drafting: assist in drafting contracts, confidentiality agreements, and other legal documents.
- Regulatory Analysis: provide summaries and analysis of new regulations and their impact on the business.
- Risk Management: identify and assess legal and regulatory risks by analyzing data and generating detailed reports.

| PROMPT ENGINEERING

What is a prompt?

A "prompt" is the input you provide to a language model to generate a response. It can be a question, an instruction, a statement, or any other type of text that guides the model in generating an answer.

Prompt engineering is the process of designing and optimizing these prompts to maximize the effectiveness of the responses generated by language models. The way a prompt is worded can significantly influence the quality and relevance of the model's response.

Best practices for prompt generation

It is important to apply some best practices to get the most out of interacting with Generative AI tools. Some of these good practices are listed below:

- Clarity and specificity: clear and direct prompts tend to generate more precise responses. Avoid ambiguity and vague language.

  Vague example: "Write a report on the current state of the tech industry."

  Clear example: "Write a report on the current state of the technology industry**, including an analysis of key trends, challenges, and opportunities.**"

- Relevant context: Including enough context in the prompt can help the model better understand the question or task.

  Example with context: "Write a report on the current state of the technology industry, including an analysis of key trends, challenges, and opportunities. **The report should be aimed at an audience of potential investors.**"

- Use appropriate formats: depending on the expected response, structure the prompt so that the model understands the desired format.

  Example format: "Write a **5-page** report on the current state of the technology industry, including an analysis of key trends, challenges, and opportunities. The report should be aimed at an audience of potential investors."

- Using Meta-prompts: include instructions within the prompt that guide the model on how it should behave.

  Example: "**You're an expert in technology.** Write a 5-page report on the current state of the technology industry, including an analysis of key trends, challenges, and opportunities. The report should be aimed at an audience of potential investors. "

- Iteration and refinement: Testing multiple versions of a prompt and adjusting based on the answers obtained can help find the optimal formulation.

Iteration 1: "Write a 5-page report on the current state of the technology industry, including an analysis of key trends, challenges, and opportunities. The report should be aimed at an audience of potential investors."

Iteration 2: "Write a 5-page report on the current state of the technology industry, including an analysis of key trends, challenges, and opportunities. **List maximum 5 examples of each.** The report should be aimed at an audience of potential investors."

- Evaluation Tools: Use tools and metrics to evaluate the quality of the responses generated and adjust prompts accordingly. For example, A/B Testing: testing different versions of a prompt to determine which one produces the best responses.

| RECOMMENDATIONS FOR RISKS MITIGATION OF GENERATIVE AI

Despite its numerous benefits, generative AI also faces significant challenges that must be addressed to ensure its development and responsible use.

Copyright and academic integrity

Generative AI systems like ChatGPT produce new text by processing and learning from vast datasets, which raises critical questions around copyright and academic integrity. Because these systems are trained on existing content, it can be difficult to ensure that output does not inadvertently infringe upon copyrighted material.

Recommendations:

- Ask the system to provide the list of references used to generate the result.
- Disclosing and citing any assistance from such tools to maintain transparency and avoid plagiarism.

Privacy

Our prompts are used by Generative AI models to continuously retrain themselves, this means that the data we send as input to the system will be stored in the platforms' servers.

Recommendations:

- You must ensure that the prompts do not include sensitive or personal information that could compromise the user's privacy.
- Remove personal data from the prompt (names, email addresses, postal addressed, telephone numbers…).
- Remove sensitive data from the prompt (i.e.: data from your company).
- Do not attach files with sensitive or private data.

Biased Data

One of the main challenges is the risk of bias in the data. Generative models learn from large volumes of data, and if this data contains biases, the models can perpetuate or even amplify them. This can result in the generation of

content that reinforces negative stereotypes or discriminates against certain groups of people.

Recommendation: try to identify the biases and refine the prompt if needed to obtain unbiased results.

Hallucinations

In the context of artificial intelligence and language models, the term *hallucinations* refers to situations in which the model generates answers that are incorrect, irrelevant, or completely fabricated. These hallucinations can be problematic because language models often produce text that seems plausible and convincing, even if it is not based on actual facts or accurate information.

Recommendation: always contrast the information obtained.

Misinformation

Generative AI's ability to create realistic content poses risks of misuse, such as the creation of fake news, deepfakes, or spoofing. These technologies can be used to misinform or manipulate public opinion, which can have serious consequences for society.

Recommendation: It is essential to develop control and verification mechanisms to ensure the authenticity of AI-generated content.

Transparency

Generative models are often considered "black boxes" because their internal processes are difficult to interpret. This makes it difficult to understand how decisions are made and responses are generated, which can be problematic in applications where accountability and explanation are crucial, such as in medical diagnosis or legal decisions.

Recommendation: improving the transparency and interpretability of these models is a key task for researchers.

Intensive use of computational resources

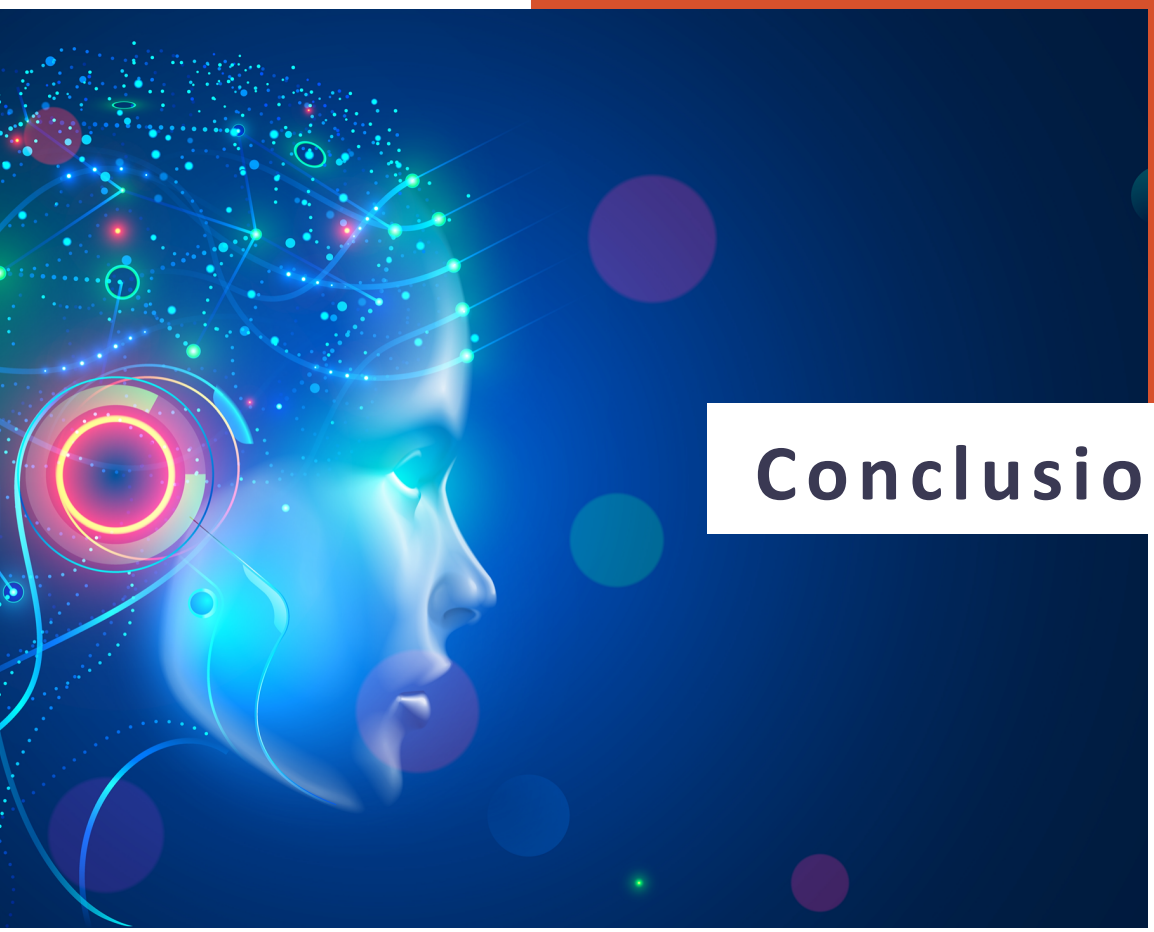
Training large generative models requires huge amounts of data and computational power, leading to high economic costs and considerable environmental impact. This raises questions about the sustainability and accessibility of the technology, as not all organizations can afford these resources. The energy consumption of a ChatGPT query can be equivalent to keeping an LED bulb on for 10 to 30 hours.

Recommendation: moderate the use of generative AI platforms and avoid loading heavy attachments.

Regulation and governance

Given the rapid advancement of generative AI, laws and regulations often lag behind, creating a loophole in the legal framework that can be exploited.

Recommendation: develop policies and regulations that protect users and ensure ethical use of technology, without stifling innovation.



Conclusions

CONCLUSIONS

The responsible use of Generative Artificial Intelligence (AI) in business requires a comprehensive understanding of both its capabilities and potential risks.

This guide has introduced key concepts such as Deep Learning, Neural Networks, and Machine Learning to provide the basics for understanding the technology behind popular models like ChatGPT.

Through practical examples, learners have been encouraged to adopt a hands-on approach to identify real-world ethical dilemmas and develop strategies to address them. By stepping into roles such as marketing specialists, HR personnel, or business analysts, participants gain insights into how Generative AI can both enhance and challenge decision-making processes in professional environments.

The key takeaways from this guide emphasize the importance of:

- Inclusive and fair content generation: ensuring that language, imagery, and outputs reflect diversity and avoid reinforcing harmful stereotypes.
- Bias identification and mitigation: recognizing that Generative AI systems are susceptible to inaccuracies and imbalances, making human oversight essential to uphold fairness and accuracy.
- Ethical decision-making: leveraging AI as a powerful tool for creativity and efficiency while maintaining accountability for its outcomes.

By following the practical recommendations shared in this guide, learners will be better equipped to use Generative AI tools in a manner that is both innovative and ethically sound, ultimately contributing to responsible AI practices in business environments.

05

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