

# Pedagogical use of Generative AIs

Workshop @Fayol Day


Guillaume MULLER & Karine RICHOUE & Julien MORICE

Feb 01 2024, Saint-Étienne

- 1 Presentations
- 2 Gen AI Ecosystem
- 3 Functioning
- 4 Use(s) of ChatGPT
- 5 Art of Prompt / Prompt Engineering
- 6 Pratical Exercise
- 7 GenAI uses @MinesSE
- 8 Limits & dangers of Generative AIs
- 9 And next?

Guillaume MULLER




- Assistant Professor
- AI, Cyber-Security
- 



Karine RICHOU





- Pedagogic Engineer
- 



Julien MORICE



- Pedagogic Engineer
- In charge of PracTice
-  



Wooclap (code: QUIZAI)



- 1 Presentations
- 2 Gen AI Ecosystem**
- 3 Functioning
- 4 Use(s) of ChatGPT
- 5 Art of Prompt / Prompt Engineering
- 6 Pratical Exercise
- 7 GenAI uses @MinesSE
- 8 Limits & dangers of Generative AIs
- 9 And next?

**Maths**



**Text**

**Code**

...

[Wolfram- \$\alpha\$](#)  [may.09]

[DeepL](#) [aug.17]

[CoPilot](#) [oct.21]  

[ChatGPT](#) [dec.22] OpenAI

[TabNine](#)

[BingChat](#)  [fev.23]

[Bard](#)  [mar.23]

[LLAMA/Alpaca](#)  [fev.23]

[ChatSonic](#)

[Perplexity](#)

- Texte : générer, résumer, traduire, reformuler, poser/répondre aux questions...

... **Image**

**Sound**

**Video**

[Dall-E](#) [jan.21] OpenAI

[Stable Diffusion](#) [dec.22]

[MidJourney](#)  [jul.22]

[InstantART](#) [apr.23]

[MuBERT](#)   [dec.22]

[Music LM](#) [jan.23] 

[D-ID](#)  [sept.22]

## Single tools → Integration

- Web Conference ([GoogleMeet](#), Teams...): transcripts, room beautification
- Operating Systems (Cortana → Copilot...)
- MOOCs (content + audio + video)

## Updated & Search-able lists

### There's an AI for that

The screenshot shows the homepage of 'THERE'S AN AI FOR THAT'. The header features the site title and a search bar. Below the header, there are two main sections: 'Just Launched' and 'Featured'. The 'Just Launched' section displays a grid of AI tool cards, each with a logo, name, and a brief description. The 'Featured' section highlights specific AI tools with larger cards. The interface is clean and modern, with a dark theme.

### Future Tools

The screenshot shows the homepage of 'Future Tools'. The header includes the site logo and navigation links. The main content area features a large headline: '"FutureTools Collects & Organizes All The Best AI Tools So YOU Too Can Become Superhuman!"'. Below this, there is a search bar and a grid of AI tool cards. The interface is dark-themed and includes a 'Join The Free Newsletter' button.



- 1 Presentations
- 2 Gen AI Ecosystem
- 3 Functioning**
- 4 Use(s) of ChatGPT
- 5 Art of Prompt / Prompt Engineering
- 6 Practical Exercise
- 7 GenAI uses @MinesSE
- 8 Limits & dangers of Generative AIs
- 9 And next?

## Functioning GPT: **trained to predict the next element of a sequence**

- **Attention** mechanism

The FBI is chasing a criminal on the run .  
The FBI is chasing a criminal on the run .  
The FBI is chasing a criminal on the run .  
The FBI is chasing a criminal on the run .  
The FBI is chasing a criminal on the run .  
The FBI is chasing a criminal on the run .  
The FBI is chasing a criminal on the run .  
The FBI is chasing a criminal on the run .  
The FBI is chasing a criminal on the run .  
The FBI is chasing a criminal on the run .

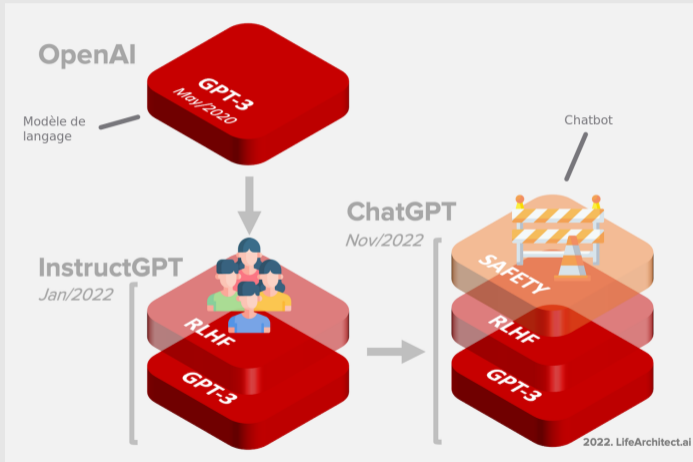
## Functioning GPT: **trained to predict the next element of a sequence**

- **Attention** mechanism

The FBI is chasing a criminal on the run .  
The FBI is chasing a criminal on the run .  
The FBI is chasing a criminal on the run .  
The FBI is chasing a criminal on the run .  
The FBI is chasing a criminal on the run .  
The FBI is chasing a criminal on the run .  
The FBI is chasing a criminal on the run .  
The FBI is chasing a criminal on the run .  
The FBI is chasing a criminal on the run .  
The FBI is chasing a criminal on the run .

**Answering a question is a side effect**

## “Tuning” as a ChatBot



## Simple question

> What is the best impact for climate change: eat less meat or eat local?

- **meat 70%** / local 30%

## Simple question

> What is the best impact for climate change: eat less meat or eat local?

- **meat 70%** / local 30%

## Adding context

> I am an animal breeder. ...

## Simple question

> What is the best impact for climate change: eat less meat or eat local?

- **meat 70%** / local 30%

## Adding context

> I am an animal breeder. ...

- meat 47% / **local 52%** / ...

## Simple question

> What is the best impact for climate change: eat less meat or eat local?

- **meat 70%** / local 30%

## Adding context

> I am an **animal breeder**. ...

- meat 47% / **local 52%** / ...

> I am a **biodynamic farmer**. ...

- meat 17% / **local 82%** / ...

> I am **antispecist**. ...

- **meat 94%** / local 5% / ...



## Simple question

> What is the best impact for climate change: eat less meat or eat local?

- **meat 70%** / local 30%

## Adding context

> I am an animal breeder. ...

- meat 47% / **local 52%** / ...

> I am a biodynamic farmer. ...

- meat 17% / **local 82%** / ...

> I am antispecist. ...

- **meat 94%** / local 5% / ...

## “Yes Man”/“Baratineur”

- Does **NOT** know/seek the truth
- Gives most probable answer **in a context...**
  - ... that **you** provide
- = Answer that **satisfies you** the most

- 1 Presentations
- 2 Gen AI Ecosystem
- 3 Functioning
- 4 Use(s) of ChatGPT**
- 5 Art of Prompt / Prompt Engineering
- 6 Practical Exercise
- 7 GenAI uses @MinesSE
- 8 Limits & dangers of Generative AIs
- 9 And next?

# 2 modes: ChatGPT as a Plug-In vs. PlugIn in ChatGPT ?

ChatGPT  $\subset$  Existing App

Bing Search Engine

Whimsical (MindMaps)

QuizWizard (Quizzes)

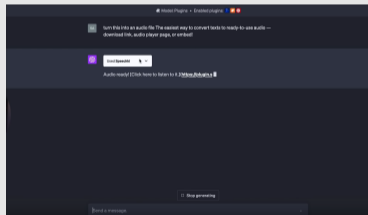
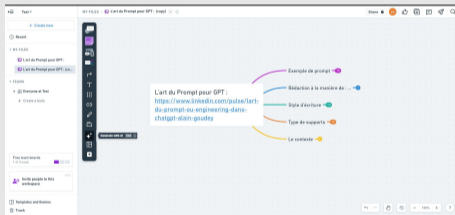
Office 365 (ChatGPT/Copilot)

ChatGPT  $\supset$  Existing App

Access the Internet

Analyze a data file

Modify an image



# 2 modes: ChatGPT as a Plug-In vs. PlugIn in ChatGPT ?

ChatGPT  $\subset$  Existing App

Bing Search Engine

Whimsical (MindMaps)

QuizWizard (Quizzes)

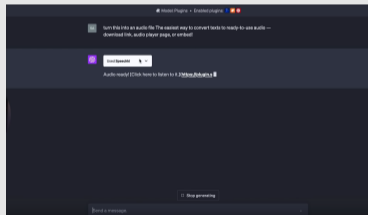
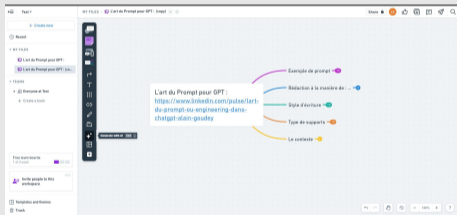
Office 365 (ChatGPT/Copilot)

ChatGPT  $\supset$  Existing App

Access the Internet

Analyze a data file

Modify an image



! References: BingChat/Copilot  $\oplus$  vs. ChatGPT  $\ominus$

## GPT-4 Turbo additions

- More recent data (**2023**)
- Context > **128k tokens** (books!)
- 2-way speech (TTS + STT)
- **Reproducible** results
- **GPTs** (no-code!)

# Examples

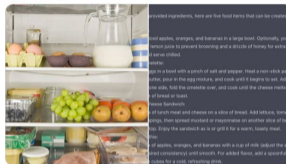
## GPT-4 Turbo additions

- More recent data (**2023**)
- Context > **128k tokens** (books!)
- 2-way speech (TTS + STT)
- **Reproducible** results
- **GPTs** (no-code!)

## Examples

- **Picture fridge** → **recipe**
- Describe a video
- **Validate (US) attorney exam**
- Code a « Pong » game

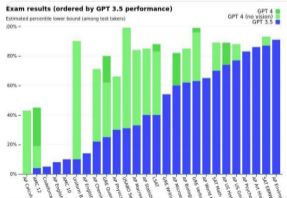
Here's how I gave GPT-4 a photo of a refrigerator and asked it to come up with food recipes in under 60 seconds.



La nouvelle version 4 de Chat-GPT passe l'examen d'admission pour devenir avocat (US) avec 90% de succès contre 10% auparavant (la fameuse version révolutionnaire du mois de novembre).

Progrès exponentiel et vertigineux de l'intelligence artificielle!

[Translate Tweet](#)



## Microsoft + OpenAI partnership

⇒ BingChat/Copilot, integrated to:

- Bing (Search Engine)
- Office 365
- Teams
- Windows
- VSCode

- 1 Presentations
- 2 Gen AI Ecosystem
- 3 Functioning
- 4 Use(s) of ChatGPT
- 5 Art of Prompt / Prompt Engineering**
- 6 Pratical Exercise
- 7 GenAI uses @MinesSE
- 8 Limits & dangers of Generative AIs
- 9 And next?



## Principles

- Provide context
- Play a role  
Game/Personas

## Resources

- [ChatGPT Prompt Book](#)
- [Alain GOUDEY](#)
- [ChatGPT Pour Les Nuls \(Y. SALMANDJEE, 2023\) \\$](#)
- [ChatGPT, 55 prompts pour les enseignants \(P. SEGALA 2023\) \\$](#)

Matthieu




Matthieu

## Prompt ChatGPT

### Le Pense-bête Ultime

Agis comme... [RÔLE]	Tu dois... [ACTION]	Ton style... [TONALITÉ]	Sous forme... [FORMAT]
Consultant	Email de vente 🔥	Créatif 🔥	Liste
Entrepreneur 🔥	Publicité	Professionnel	Tableau 🔥
Journaliste	Fiche produit 🔥	Passionné 🔥	Mindmap
Prompt engineer	Mots-clés SEO	Direct	Slides
Copywriter 🔥	Résumé exécutif	Empathique	Code 🔥
Project manager	Article de blog	Formel	Gantt
Comptable	Réseaux sociaux	Optimiste 🔥	SWOT
Publicitaire 🔥	Analyse	Indirect	HTML 🔥


  
Matthieu | outilia.fr

Matthieu

## Prompt ChatGPT

### Le Pense-bête Ultime

Agis comme... [RÔLE]	Tu dois... [ACTION]	Ton style... [TONALITÉ]	Sous forme... [FORMAT]
Consultant	Email de vente 🔥	Créatif 🔥	Liste
Entrepreneur 🔥	Publicité	Professionnel	Tableau 🔥
Journaliste	Fiche produit 🔥	Passionné 🔥	Mindmap
Prompt engineer	Mots-clés SEO	Direct	Slides
Copywriter 🔥	Résumé exécutif	Empathique	Code 🔥
Project manager	Article de blog	Formel	Gantt
Comptable	Réseaux sociaux	Optimiste 🔥	SWOT
Publicitaire 🔥	Analyse	Indirect	HTML 🔥

  
Matthieu | outilia.fr

## Tips

- Start simple
- Iterate depending on answers

## Prompts written by others

- [PromptVine](#)
- [FlowGPT](#)
- [PromptDen](#)
- [PromptPal](#)
- [CrowdGPT](#)
- [And a list...](#)

## Prompts written by others

- [PromptVine](#)
- [FlowGPT](#)
- [PromptDen](#)
- [PromptPal](#)
- [CrowdGPT](#)
- [And a list...](#)

## Integration & “Inception”

- Plugins: tool directly integrated
- ChatGPT itself will help you

- 1 Presentations
- 2 Gen AI Ecosystem
- 3 Functioning
- 4 Use(s) of ChatGPT
- 5 Art of Prompt / Prompt Engineering
- 6 Practical Exercise**
- 7 GenAI uses @MinesSE
- 8 Limits & dangers of Generative AIs
- 9 And next?

# Workshop outline

## 1. Select a Course/Topic

- (1-)2-all mode



# Workshop outline

## 1. Select a Course/Topic

- (1-)2-all mode

## 2. Imagine prompts so the AI helps you build the course

BingChat/Copilot accounts (⚠ DO NOT REUSE ⚠)

<https://copilot.microsoft.com>  
User: testbingchat00[1-5]@altrans.fr.nf  
Pass: ChatGPTTest00[1-5]!

# Workshop outline

## 1. Select a Course/Topic

- (1-)2-all mode

## 2. Imagine prompts so the AI helps you build the course

	Resources
Topic	...
Objectives	<a href="#">Bloom's Taxonomy</a> <a href="#">"Dale's Pyramid"</a>
Practical Content	<a href="#">"Livret du Participant" MEDIANE 2023 (p.53)</a>
Evaluations	<a href="#">"Livret du Participant" MEDIANE 2023 (p.59)</a>

BingChat/Copilot accounts (⚠ DO NOT REUSE ⚠)

<https://copilot.microsoft.com>  
User: testbingchat00[1-5]@altrans.fr.nf  
Pass: ChatGPTTest00[1-5]!

- 1 Presentations
- 2 Gen AI Ecosystem
- 3 Functioning
- 4 Use(s) of ChatGPT
- 5 Art of Prompt / Prompt Engineering
- 6 Pratical Exercise
- 7 GenAI uses @MinesSE**
- 8 Limits & dangers of Generative AIs
- 9 And next?

## Basics

- Generate ideas
- Illustrate a course
- Create a trailer
- Generate the syllabus

## Basics

- Generate ideas
- Illustrate a course
- Create a trailer
- Generate the syllabus

## Formation & Evaluation

- Create quizzes
- Prepare a sequence
- Generate specialized material (disabilities, uniqueness)
- Propose an evaluation grid


## Basics

- Generate ideas
- Illustrate a course
- Create a trailer
- Generate the syllabus

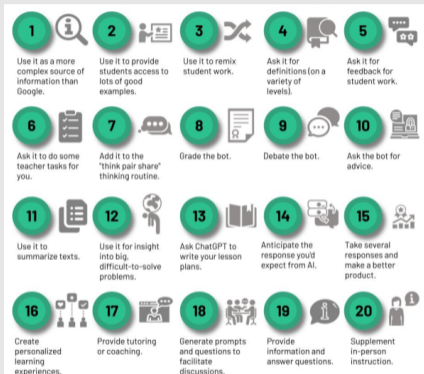
## Formation & Evaluation

- Create quizzes
- Prepare a sequence
- Generate specialized material (disabilities, uniqueness)
- Propose an evaluation grid

## Learning activities

- FlashCards for home study
- Create Serious Game 
- Develop Critical Thinking

## AI in the classroom



## 80 ways to use ChatGPT in Classroom (\$)

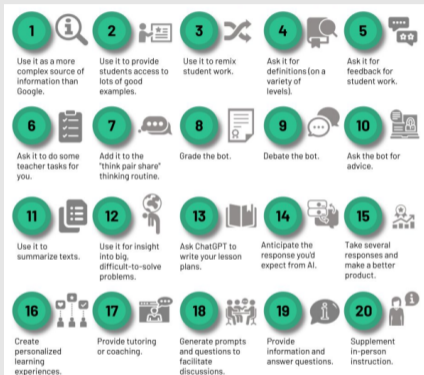
### 80 Ways to Use ChatGPT in the Classroom

Using AI to Enhance Teaching and Learning

Stan Skrabut, Ed.D.

# Pedagogical uses of ChatGPT – Resources

## AI in the classroom



## 80 ways to use ChatGPT in Classroom (\$)

### 80 Ways to Use ChatGPT in the Classroom

Using AI to Enhance Teaching and Learning

Stan Skrabut, Ed.D.

## IMT Resources

- [Ayden & Ariane](#)



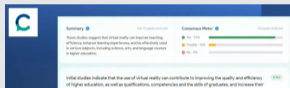
There are tools...

- GPTZero
- DetectGPT
- Originality.ai (\$)
- Compilatio

**BUT**

- ChatGPT comes from Machine **Learning**
  - Trained to minimize a metric
  - Detector can be  $\subset$  metric  $\Rightarrow$  **re-train**

## Consensus: compare opinions



## Elicit: find papers from (semantic) query

The screenshot shows the Elicit interface with a search query: 'How effective is feedback for enhancing learning in a classroom?'. The results are displayed in a table with columns: 'Abstracts', 'Number of participants', 'Position', 'Abstract', and 'Quality'. There are four rows of results.

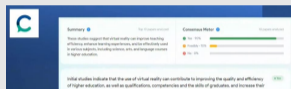
Abstracts	Number of participants	Position	Abstract	Quality
17	284	2020-10-01-01	Effectiveness of formative assessment with feedback for learning	4.5/5
20	28	2020-10-01-01	Effectiveness of formative assessment with feedback for learning	4.5/5
24	23	2020-10-01-01	Effectiveness of formative assessment with feedback for learning	4.5/5
12	18	2020-10-01-01	Effectiveness of formative assessment with feedback for learning	4.5/5

## ResearchRabbit : (semantic) papers recommendation



# For research

**Consensus:** compare opinions



**Elicit:** find papers from (semantic) query

The screenshot shows the Elicit app interface with a search query 'How effective is feedback for enhancing learning in a classroom?'. The results are displayed in a table with columns for 'Abstracts', 'Number of participants', 'Position', 'Title', 'Year', and 'Abstracts'. The table contains four rows of results.

Abstracts	Number of participants	Position	Title	Year	Abstracts
17	284	2020	Effectiveness of peer-to-peer feedback with formative assessment for learning	2020	
25	26	2020	Effectiveness of peer-to-peer feedback with formative assessment for learning	2020	
24	23	2020	Effectiveness of peer-to-peer feedback with formative assessment for learning	2020	
12	18	2020	Effectiveness of peer-to-peer feedback with formative assessment for learning	2020	

**ResearchRabbit :** (semantic) papers recommendation



ChatGPT to write a **PhD**?

# For research

**Consensus:** compare opinions



**Elicit:** find papers from (semantic) query

The screenshot shows the Elicit app interface with a search query: 'How effective is feedback for enhancing learning in a classroom?'. The results are displayed in a table with columns for 'Options', 'Number of participants', 'Position', 'Relevance', 'Date', and 'Quality'. There are also 'Add links' and 'Add notes' buttons on the right side of the table.

Options	Number of participants	Position	Relevance	Date	Quality
1	24	2020-10-10	0.9	2020-10-10	4.5
2	24	2020-10-10	0.9	2020-10-10	4.5
3	24	2020-10-10	0.9	2020-10-10	4.5
4	24	2020-10-10	0.9	2020-10-10	4.5
5	24	2020-10-10	0.9	2020-10-10	4.5

**ResearchRabbit :** (semantic) papers recommendation



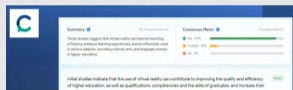
ChatGPT to write a **PhD**?

(Talk2)ArXiv: “discuss” with papers!



# For research

**Consensus:** compare opinions



**Elicit:** find papers from (semantic) query

The screenshot shows the Elicit search results page. The search query is 'How effective is feedback for enhancing learning in a classroom?'. The results are displayed in a table with columns for 'Options', 'Number of participants', 'Position', 'Relevance', 'Date', and 'Quality'. There are five rows of results, each with a paper title and a 'Quality' score.

Options	Number of participants	Position	Relevance	Date	Quality
1	10	1st position	High	2023-01-15	95
2	10	2nd position	Medium	2023-01-15	85
3	10	3rd position	Low	2023-01-15	75
4	10	4th position	Very Low	2023-01-15	65
5	10	5th position	None	2023-01-15	55

**ResearchRabbit :** (semantic) papers recommendation



ChatGPT to write a **PhD**?

(Talk2)ArXiv: “discuss” with papers!



! Guides from Publishers !

- ACM
- IEEE

- arXiv
- Elsevier

- 1 Presentations
- 2 Gen AI Ecosystem
- 3 Functioning
- 4 Use(s) of ChatGPT
- 5 Art of Prompt / Prompt Engineering
- 6 Pratical Exercise
- 7 GenAI uses @MinesSE
- 8 Limits & dangers of Generative AIs**
- 9 And next?

## Societal point-of-view – 1

- Sovereignty (G a f apple windows)
- Privacy
  - during training (Licences)
  - during usage (Privacy)
- Jobs (⊖ Workers, UK, Devs/UN ⊕)
  - Job “Creation”: Kenya (2\$/day, dirtiest content)
  - Job “Destruction”: writing, translation, design...
- ...

🇫🇷 Mistral



## Societal point-of-view – 2

- ...
- Cyber-security
  - Fake news / Phising / Social Engineering / President scam
  - Virus/Malware
- Information
  - Information bubble
  - Targeted disinformation
  - Manipulation (Brexit/Trump)
  - Attention-jacking (🎵) W





## Education

- Students that do no work
- Evaluations are more difficult to design
- Inequalities w.r.t. service prices

## Research

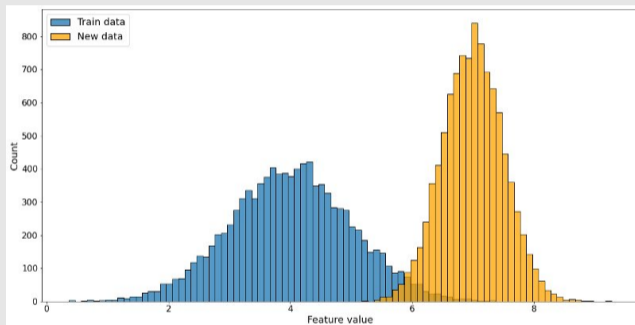
- Fake data
- Fake contents
- ChatGPT = co-author?

## Environment

- Training: 205 flights Paris ↔ NY
- Usage: 1-10 Wh vs.  $10^{-4}$  Wh ?

## Model Decay

- Distribution Drift

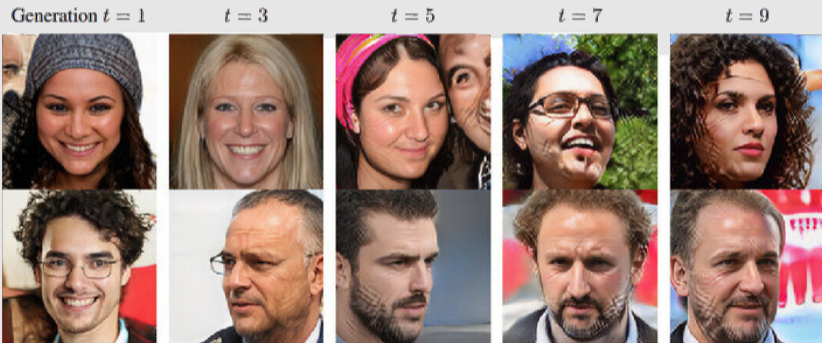


# Intrinsic problems

## Model Decay

- Distribution Drift

### ⚠️ Consanguinity (training in closed loop) ⚠️



- 1 Presentations
- 2 Gen AI Ecosystem
- 3 Functioning
- 4 Use(s) of ChatGPT
- 5 Art of Prompt / Prompt Engineering
- 6 Pratical Exercise
- 7 GenAI uses @MinesSE
- 8 Limits & dangers of Generative AIs
- 9 **And next?**

## To subscribe

- Send an email with “**subscribe**” as Subject to :  
[chagtgpt-pedagogie-request@framagroupes.org](mailto:chagtgpt-pedagogie-request@framagroupes.org)

- GPTFrance: News
- Plagiat & IA Générative?

## A Teacher's Prompt Guide to ChatGPT

### Guide de l'enseignant L'usage de ChatGPT « ce qui marche le mieux »

*Écrit par Andrew Herft  
Traduit et adapté par Alexandre Gagné*

## IA for teacher – An open manual

