

# GenAI VOOR ONDERZOEKSDOELEINDEN (BACHELOR- EN MASTERPROEF)

Jasper Degraeuwe – 30 oktober 2025

GenAI @ VTC

# ABOUT ME

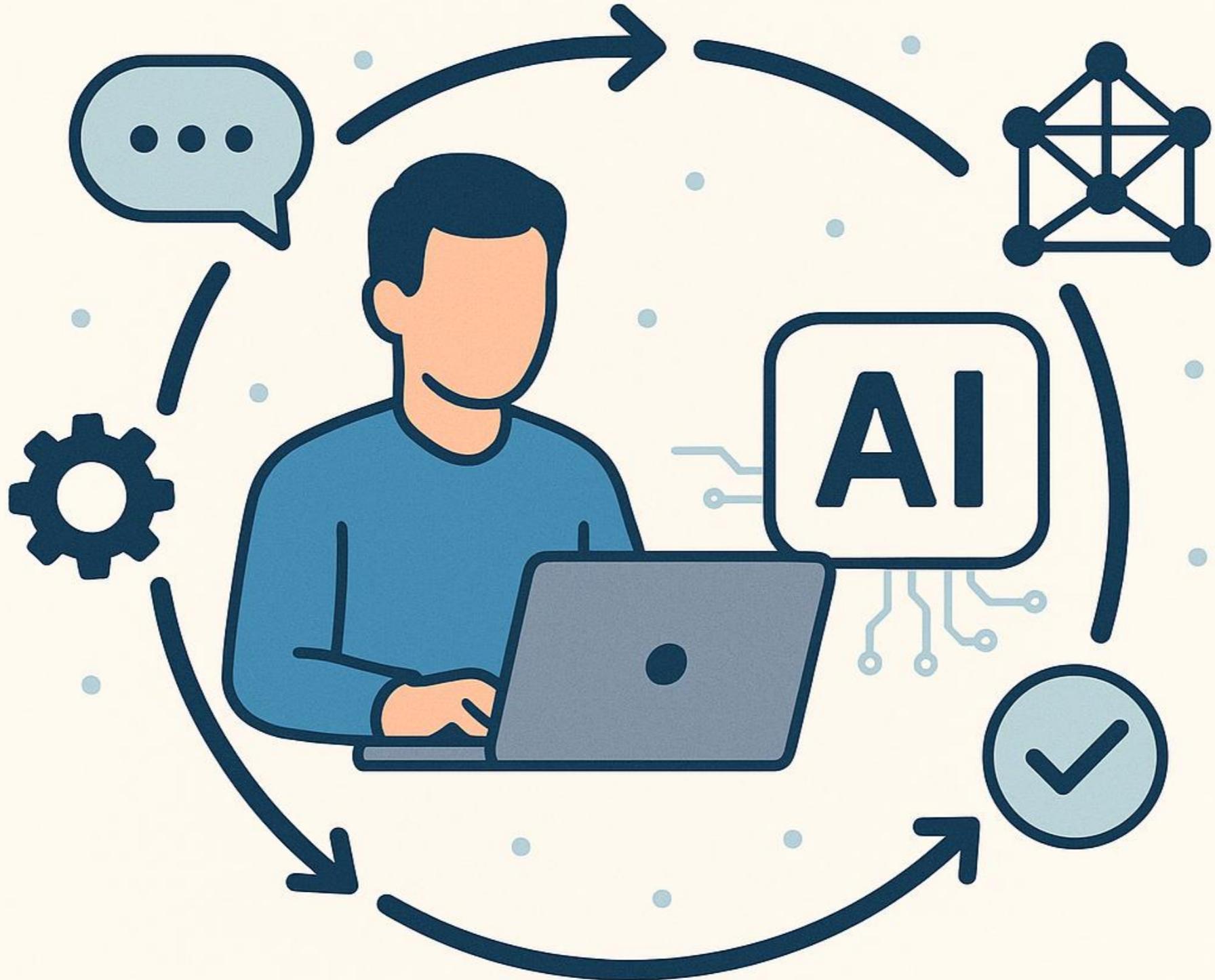
- Department of Translation, Interpreting and Communication
- PhD on **Intelligent Computer-Assisted Language Learning (ICALL)**  
ICALL ≈ CALL + AI and NLP
- Postdoctoral researcher on **educational technologies and AI for language learning**

# PUBLIC SERVICE ANNOUNCEMENT

# INTERESTED IN SUPPORT?

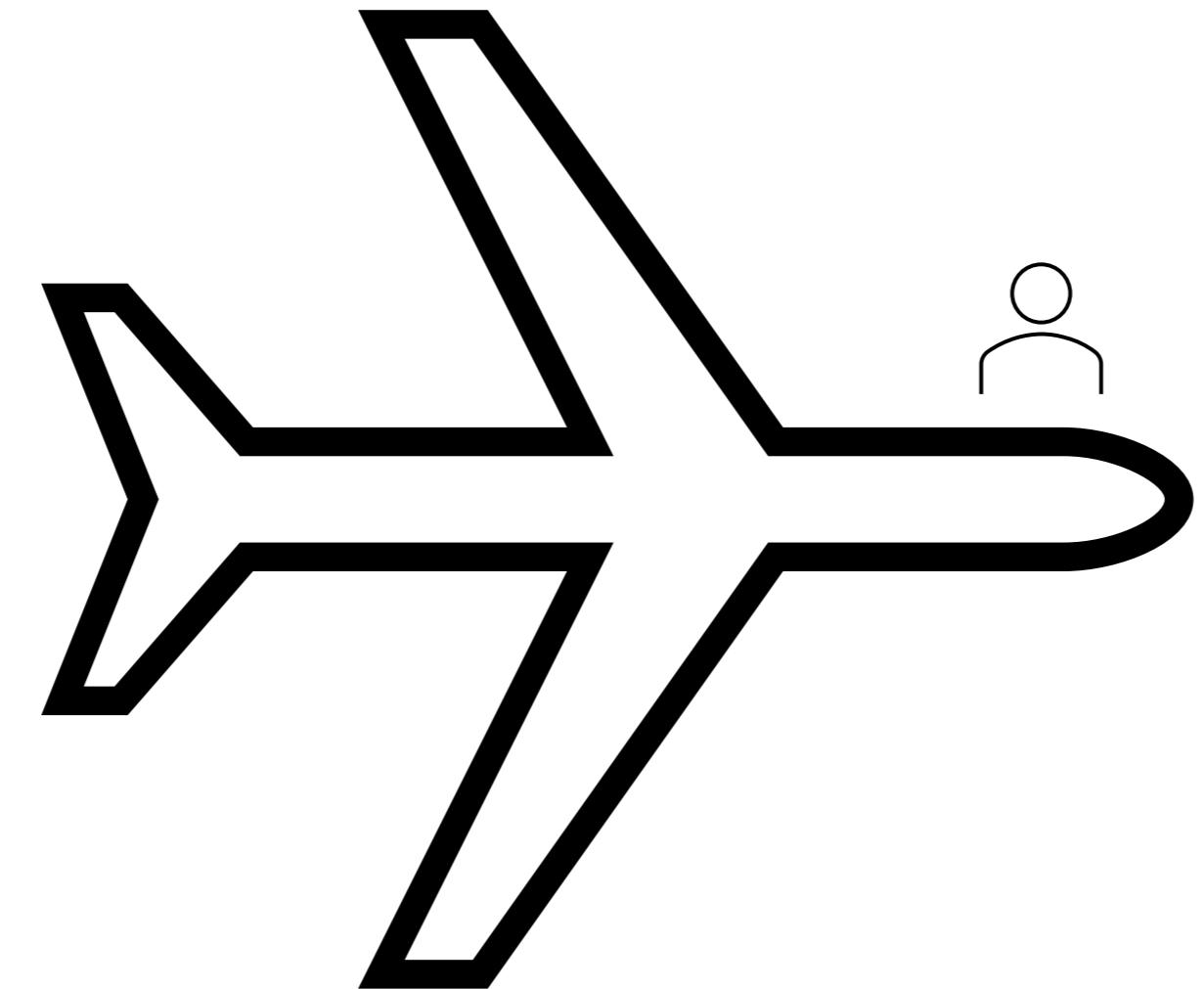
- Send email to [vtc.aisupport@ugent.be](mailto:vtc.aisupport@ugent.be)
- Include
  - Topic of bachelor paper / master's thesis
  - Short description of envisaged research
  - In what part of research planning to use GenAI and what type of support needed?
- **Before Friday 14 November 2025**

# DISCLAIMERS



**HUMAN IN THE LOOP**

# HUMAN IN THE COCKPIT



# COGNITIVE COST OF BLIND AI USE

As the educational impact of LLM use only begins to settle with the general population, in this preliminary study we demonstrate the pressing matter to explore further any potential changes in learning skills based on the results of our study. The use of LLM had a measurable impact on our participants, and while the benefits were initially apparent, as we demonstrated over the course of 4 sessions, which took place over 4 months, the LLM group's participants performed worse than their counterparts in the Brain-only group at all levels: neural, linguistic, scoring.

# Bacon ice cream and nugget overload sees misfiring McDonald's AI withdrawn

18 June 2024

Share  Save 

**Tom Gerken** Technology reporter



Getty Images

# Taco Bell rethinks AI drive-through after man orders 18,000 waters

29 August 2025

Share  Save 

**Shiona McCallum** Senior Tech Reporter



Getty Images

# Meta investigated over AI having 'sensual' chats with children

18 August 2025

Share  Save 

**Charlotte Edwards** Technology reporter, BBC News



Getty Images

# ADDED VALUE OF AI “AUTOPilot”?

- Starting point: is use of AI necessary / beneficial?
- “Don’t ask ChatGPT how much  $2+2$  is” mindset
- Creating graphic in Excel versus creating graphic with AI-driven tool
- Talking to supervisor versus talking to general-purpose chatbot

# GUIDELINES ON GENERATIVE AI

# GHENT UNIVERSITY

- Overarching guidelines → “responsible” use is allowed
  - University: <https://www.ugent.be/genai>
  - Faculty: Ufora “[INFOSITE Faculteit Letteren en Wijsbegeerte](#)”
- ***Leerpad for teachers and for students (updated!)***
- Onderzoeks- en onderwijsstips (more *ad hoc*)
- Other workshops/courses (e.g., on UTOP)

## Generatieve AI aan de UGent

De UGent kiest voor een verantwoord gebruik van generatieve AI. Onder verantwoord gebruik verstaaan we de volgende kernwaarden:

- **Verantwoordelijkheid en onafhankelijk handelen** – je bent en blijft verantwoordelijk voor wat je doet met de tools,
- **Eerlijkheid en kritische houding** – je checkt de betrouwbaarheid en de bron van de output van de tools, in het kader van auteursrechten, en je bent, waar nodig, eerlijk over het gebruik van de tools,
- **Respectvol gebruik** – je bent je bewust van mogelijke vooroordelen en bias in de output van de tools,
- **Zorgvuldig en duurzaam gebruik** – je zet mogelijke efficiëntie door AI-gebruik af tegenover het energieverbruik.
- **Veilig en vertrouwelijk omgaan met informatie** – je uploadt geen confidentiële en vertrouwelijke data,
- **Voorbeeldgedrag** – je leeft bovenstaande kernwaarden na en wordt zo een voorbeeld voor anderen.

Meer informatie over verantwoord gebruik vind je in het [Universiteitsbrede richtkader voor het verantwoord gebruik van AI aan de UGent](#).

# FACULTY L&W

- Mandatory report for writing tasks
- Template and guidelines available on Ufora info site



# OVERVIEW

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1. A word on prompting
2. GenAI in pre-research phase
3. GenAI as part of research method itself
4. GenAI for data visualisation
5. Important observations / pitfalls

→ Hands-on and interactive!

# OVERVIEW

3. GenAI as part of research method itself
  - A. “LLM as a judge”
  - B. GenAI as object of study
  - C. Synthetic data
  - D. Questionnaires

# @TEACHERS

- GenAI for educational purposes
  - Class preparation
  - Fine-tuning course materials
  - ...

→ Register for faculty workshop or send email to  
[vtc.aisupport@ugent.be](mailto:vtc.aisupport@ugent.be)

# 1. A WORD ON PROMPTING

# PROMPTING TECHNIQUES

- Zero-shot prompting (= ask question without giving any additional context)

# PROMPTING TECHNIQUES

- Zero-shot prompting (= ask question without giving any additional context)
- **Few-shot prompting** (= add series of examples to question)

# EXAMPLES



You

Give me three example sentences of no longer than 20 words that clarify the meaning and usage of the word "ubiquitous".



ChatGPT

1. Smartphones are now ubiquitous, found everywhere from bustling cities to remote villages.
2. The internet has made information ubiquitous, accessible to anyone with a connection.
3. Coffee shops are ubiquitous in urban areas, appearing on nearly every street corner.



# EXAMPLES

JA

## You

ubiquitous → Sentence 1: "Smartphones are now ubiquitous, found everywhere from bustling cities to remote villages." | Sentence 2: "The internet has made information ubiquitous, accessible to anyone with a connection." | Sentence 3: "Coffee shops are ubiquitous in urban areas, appearing on nearly every street corner."

nonplussed →

ChatGPT

Sentence 1: "Despite her best efforts, Jane was nonplussed by the unexpected turn of events, unsure of how to react." | Sentence 2: "The politician remained nonplussed by the reporter's probing questions, maintaining a calm demeanor throughout the interview." | Sentence 3: "His nonplussed expression betrayed his confusion at the complex instructions given by his boss."



## 2. GenAI IN PRE- RESEARCH PHASE

# LITERATURE REVIEW

- Elicit
- SciSpace
- Perplexity with “Academic (Search academic papers)” functionality toggled on
- Copilot / ChatGPT / ... with “web search” and “deep research” functionalities toggled on

**! ONLY OPEN-ACCESS PUBLICATIONS**

# LITERATURE REVIEW: HUMAN IN THE COCKPIT

- Search Web of Science, Google Scholar, ...
- (Quick)read papers and look up relevant cited papers
- Meet up with supervisor
- Guidelines and tips & tricks offered during BAP / MAP courses
- You are **responsible** for content of final product and are expected to **understand that content**

# FORMULATE RESEARCH QUESTION

= GenAI as idea generator

- Ask for summary of state of the art
- Ask for research gaps
- The more concrete the starting point, the better

# 3. GenAI AS PART OF RESEARCH METHOD

## A. LLM AS A JUDGE

## A. LLM AS A JUDGE

- LLM = large language model
- Core principle = using an LLM to evaluate data instances by scoring or labelling these instances
- Typically refers to judging quality of AI-generated content, but essentially applicable to any target setting

## EXAMPLE (AI-GENERATED CONTENT)

- **Question:** *Who is the president of the United States?*
- **Answers generated by LLM\_1**
  - A: Donald Trump
  - B: Donald Duck
  - C: A white-haired, orange-faced, old American citizen
- **Prompt to LLM\_2** (= the “judge”): *What is the best answer to the question and what is the worst answer to the question?*
- **Evaluation generated by LLM\_2:** best=A | worst=B

# EXAMPLE (RESEARCH DATA)

- Research data instances
  - A: Jasper and graphic design, a match made in hell
  - B: Jasper and graphic design, room for improvement
  - C: Simply the best: Jasper revolutionises world of graphic design
- Prompt to LLM (= the “judge”): *What headline has the most positive sentiment towards the subject’s graphic design skills and what headline has the most negative sentiment?*
- Evaluation generated by LLM\_2: best=C | worst=A

# WHEN POTENTIALLY USEFUL?

- Large digital dataset (text, images, audio, video) to which you want to apply time-consuming and/or labour-intensive analysis
- AI can analyse huge amounts of data in very little time  
→ enables you to analyse more data

## TYPE OF DATA TO WHICH POTENTIALLY APPLICABLE

- “Raw” corpora (diachronic, subtitles, transcriptions, student essays, ...)
- Large collection of instances including a particular linguistic phenomenon
  - Sentences with particular syntactic structure
  - Sentences containing lexically ambiguous word

## TYPE OF DATA TO WHICH POTENTIALLY APPLICABLE

- Parallel corpus containing source-target translation pairs
- Word lists
- Questionnaire responses

# “JUDGING” METHODS: COMPARATIVE

- Best-worst scaling (see example presented earlier)
- Pairwise comparison without reference
  - *Which of the following two utterances is the most gender-inclusive?*
- Pairwise comparison with reference
  - *Consider the following sentence: [...] Which of the following two sentences is most similar to this reference sentence?*

# “JUDGING” METHODS: LABELLING

- Binary
  - *Is the meaning of the original text preserved in the translation? → YES or NO*
- Categorical
  - *Does this utterance express a positive, neutral, or negative sentiment?*
  - *Which sense of bank is intended in this sentence? Choose between [...]*
- Numerical
  - *Rate the following paragraph in terms of inclusive language on a 1 to 5 scale.*

# ALSO QUALITATIVE ANALYSIS!

- Content analysis (e.g., of interview transcripts)
- Procedure of the analysis (e.g., extracting specific type of information, applying coding scheme, critical discourse analysis) is included as part of prompt
- **NOTE:** if data not protected by model provider → **remove personal and sensitive data**

# STRUCTURE OF PROMPT FOR QUALITATIVE ANALYSIS

## – System prompt

*You are a researcher, specialised in [...]. You will be asked to perform a qualitative analysis on an interview transcript. Your task is to extract [...] from the transcript / label the transcript based on the following coding scheme [...] / ...*

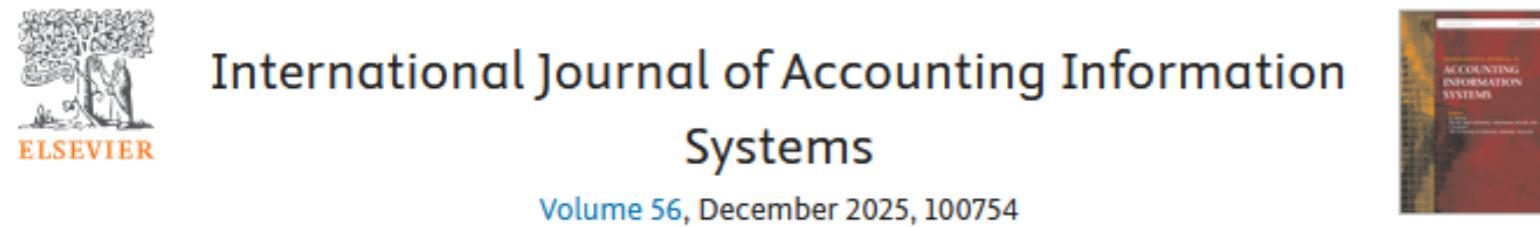
## – User prompt

*Interview transcript to be analysed: [...]*

*Required output format: [...]*

*Example of required output format: [...]*

# QUALITATIVE CODING: DEMO



## A practical guide to implementing ChatGPT as a secondary coder in qualitative research ☆

Eva Blondeel , Patricia Everaert, Evelien Opdecam

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<https://doi.org/10.1016/j.accinf.2025.100754>

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The use of GenAI as a secondary coder in qualitative research

Eva Blondeel (UGent)

The use of GenAI as a secondary coder in qualitative research

Watch on YouTube

PEERS & PROMPTS  
AI-inspiratie voor het hoger onderwijs

<https://www.sciencedirect.com/science/article/abs/pii/S1467089525000302>  
<https://www.vaia.be/nl/opleidingen/ai-inspiratie-oktober-2025>  
[https://www.youtube.com/watch?v=sK\\_sV0dn6q4](https://www.youtube.com/watch?v=sK_sV0dn6q4)

# ALSO DATA PROCESSING / FILTERING!

1. Raw corpus (e.g., parallel corpus of dialogues linked to their subtitles)
2. Only interested in utterances containing **particular phenomenon** that cannot be identified with **simple rules** (e.g., humour) → GenAI-driven labelling
3. Filtered dataset containing data instances you were looking for

# LIVE DEMO

- Categorical labelling
- If time at end of the session: more demos available  
(best-worst scaling and pairwise comparison)

# PROMPTING TECHNIQUES

- Zero-shot prompting (= ask question without giving any additional context)

# PROMPTING TECHNIQUES

- Zero-shot prompting (= ask question without giving any additional context)
- **Few-shot prompting** (= add series of examples to question)

# WHERE IS THE HUMAN IN THE LOOP?

- Take subset from the dataset and apply same type of analysis but now with human participants
- Calculate correlation / overlap between human and AI judgements
- Negative results: also valuable!

# B. GenAI AS STUDY

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# OBJECT

# DIFFERENT TYPE OF STUDY

≠ Using GenAI to analyse data

= Studying how well GenAI performs at given task / how it is perceived by a given group of users / ...

- Comparative analysis human translation – neural machine translation – GenAI-driven translation
- Perceptions of secondary / higher education students towards GenAI
- Compare human-human with human-chatbot interactions in given target setting

# REQUIREMENTS

- Make well-informed decision on which GenAI tool(s) to use in the study (general-purpose versus specialised)
- Deep understanding of the GenAI tool(s) being studied
- Efficient way to access the GenAI tool(s)

## C. SYNTHETIC DATA

# WHEN POTENTIALLY USEFUL?

- You need more data than you can gather / than is available
- AI tool can take over part of data collection process by **generating data that is similar to reference data or data that complies with series of criteria included in prompt**
- Typically for training or testing (machine learning) models

# PROMPTING TECHNIQUES

- Zero-shot prompting (= ask question without giving any additional context)
- **Few-shot prompting** (= add series of examples to question)

## EXAMPLE AT VTC

- Automatically create suitable practice speeches for conference interpreting training programmes

## D. QUESTIONNAIRES

# WHEN POTENTIALLY USEFUL?

## STEP 1

- Look for existing (validated) instruments / questionnaires
- Approach (see also section on literature overview):  
combination between manual search and prompting GenAI  
model (“*Give me five existing, recent instruments on [...],  
describe how frequently they are used, and list their pros  
and cons.*”)

# WHEN POTENTIALLY USEFUL?

## STEP 2

- Generate first draft of survey questions based on your research objectives, target population, and key variables (“*Create a 10-question survey about ...*”)
- Suggest question types (yes/no, Likert, open text, ...)
- Rephrase questions
- Check if questionnaire meets regulatory requirements (e.g., GDPR)

# ALL-IN-ONE FORMULA

- Qualtrics (survey tool for which UGent bought a license) is introducing AI functionalities

# 4. DATA VISUALISATION

# WHEN POTENTIALLY USEFUL?

- Complex spreadsheet data
- Infographics / visuals
- Assistant while making slideshow presentation

# WHEN OVERKILL?

- Basic pie/bar charts based on spreadsheet data
- When you can tell your story with existing icons and/or images

# (NON-EXHAUSTIVE) OVERVIEW OF TOOLS

## SPREADSHEET DATA

- All-purpose AI assistants (Copilot, Perplexity, Le Chat, Claude, ChatGPT, ...)
- [Julius AI](#)
- [ChartGPT](#)
- [Tableau](#) (mainly for businesses)

# (NON-EXHAUSTIVE) OVERVIEW OF TOOLS

## INFOGRAPHICS

- All-purpose AI assistants
- [Canva AI](#)
- [NotebookLM](#) (also known for creating podcasts)
- [Piktochart](#) (also for [educators](#))
- [Venngage](#)

# ONE STEP FURTHER

- If you have some programming knowledge
- Create single graphics / complete notebooks
- Start from your own code and ask GenAI model (e.g., Claude) to refine it or change it for other type of graph
- Ask GenAI model to write code from scratch based on detailed prompt
- **Not necessary to share actual dataset!**

# 5. IMPORTANT OBSERVATIONS / PITFALLS

# IMPORTANT OBSERVATIONS

- Write clear instructions and always provide examples
- **Provide your data to model in most structured way possible (CSV, JSON, ...)** and **ask model to return output in equally structured way**
- Be careful when introducing personal data into AI-tools  
→ **always anonymise / pseudonymise**

# PITFALLS

- Bias in models (e.g., gender bias)
- Concept of “authentic data” from online sources

# PITFALLS

+ Rusland injecteert zijn propaganda in westerse AI-bots zoals ChatGPT



Een billboard in Moskou met daarop een Russische soldaat en het opschrift 'Pride of Russia'. © getty

Source: De Standaard

# IMPORTANT OBSERVATIONS

- Human-in-the-cockpit metaphor
  - You are responsible for arriving safely at final destination (i.e. final text of BAP / MAP)
  - You can choose if and when you activate autopilot and how to use it responsibly (i.e. responsible use of tools such as GenAI models)
  - At all times, you are expected to know your plane and how to fly it (i.e. you should **understand** what you are writing about and be able to **explain** it)

# WHAT'S NEXT?

# UPCOMING SESSIONS

- Sessions on other phases of research
  - Research integrity
  - Data analysis (almost full)
- Registration
  - <https://event.ugent.be/registration/OndersteuningGenAILesgevers>
  - <https://event.ugent.be/registration/OndersteuningGenAIStudenten>

# RELEVANT SOURCES

- UGent page on GenAI
- Ufora info sites and *leerpaden*
- Website on AI-driven tools and resources for (language) education: <https://vakgroep-vtc-universiteit-gent.github.io/>

# JOUW STEM IS BELANGRIJK

- Wat vond je van deze workshop?
- @Studenten: Wie wil deelnemen aan panelgesprek over GenAI? Inspiratienamiddag voor facultaire onderwijsondersteuners op donderdag 27 november ([Nele.Kellens@UGent.be](mailto:Nele.Kellens@UGent.be))
- Getuigenissen en concrete ervaringen gezocht om anoniem te delen ([Jasper.Degraeuwe@UGent.be](mailto:Jasper.Degraeuwe@UGent.be))

**AI is like teenage sex:**  
*“Everyone talks about it,  
nobody really knows how to do it,  
everyone thinks everyone else is  
doing it, so everyone claims they  
are doing it.”*

Credit: Dan Ariely

# Jasper Degraeuwe

Postdoctoral researcher

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