



AI Tools for Researchers

Olga Kononykhina
SODA AI Lab LMU,
MCML LMU

Olga Kononykhina

I've worked/studied in Russia, Syria, the USA, South Africa, and Germany

I have two degrees in Applied Mathematics and Computer Science, and Sociology.
Now, I'm on a journey towards a PhD in Statistics at LMU.

For 15 years, I've been out in the research world, working at the intersection of data science and social science; frequently answering question like "how to measure X and compare it across Y?"

- X was civil society, governance, culture, conventions, social sustainability, networks, policies, programs etc.
- Y were countries, companies, networks, NGOs

Academically, I work on the intersection of AI and social sciences, exploring how AI can help with collecting data, and if our current available data is good enough and unbiased to be processed by AI, or used for training.

Summary

- 1 Introduction
- 2 Research questions
- 3 Finding relevant research articles
- 4 Finding connected papers
- 5 Reading papers
- 6 Analysis
- 7 Proofreading/feedback
- 8 Presentation
- 9 Motivation
- 10 Other research tasks

AI/LLMs

AI is a statistical generalisation of an enormous amount of data

The "devil" is always in the data it was trained on and humans who fine tuned it

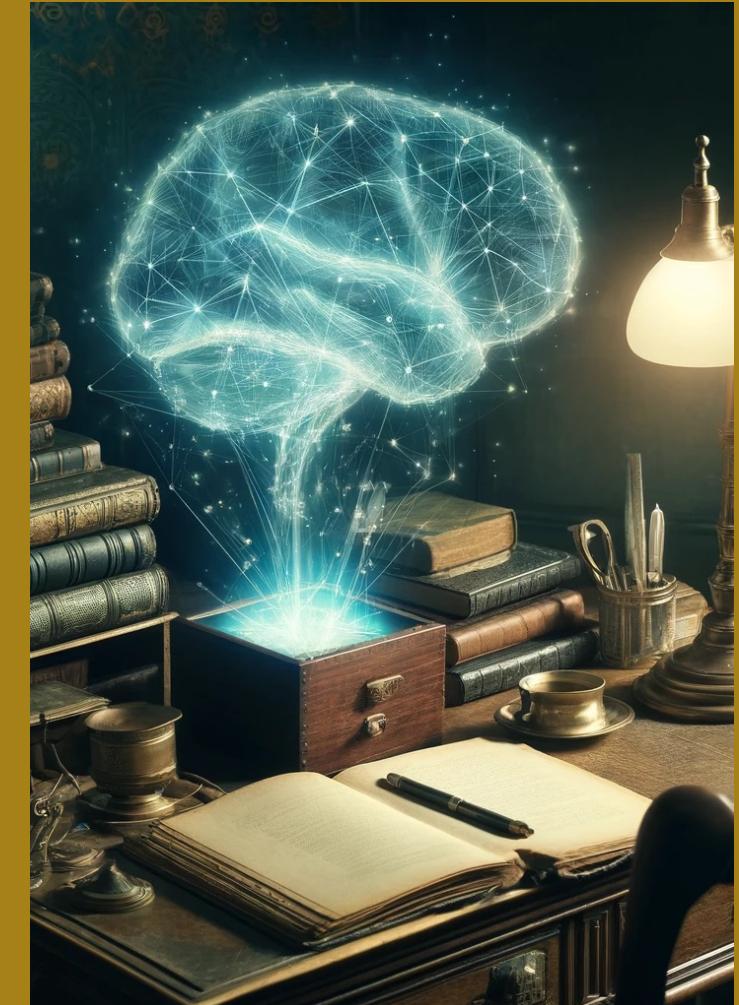
AI is implicitly designed to please you more than to provide facts

It will easily create a false but convincing story in order to make you happy

AI is a master of a "cold reading" and Barnum effects like reading a horoscope, seems amazingly personal and correct, unless you realise how vague it actually is

AI sounds like an expert, especially when we ask something we know nothing about

AI is really good in some tasks
Answering emails constructively (especially negative ones)
Explaining the same concept to a 10 year old, to a high schooler, to a CEO etc
Generating multiple versions of the same message



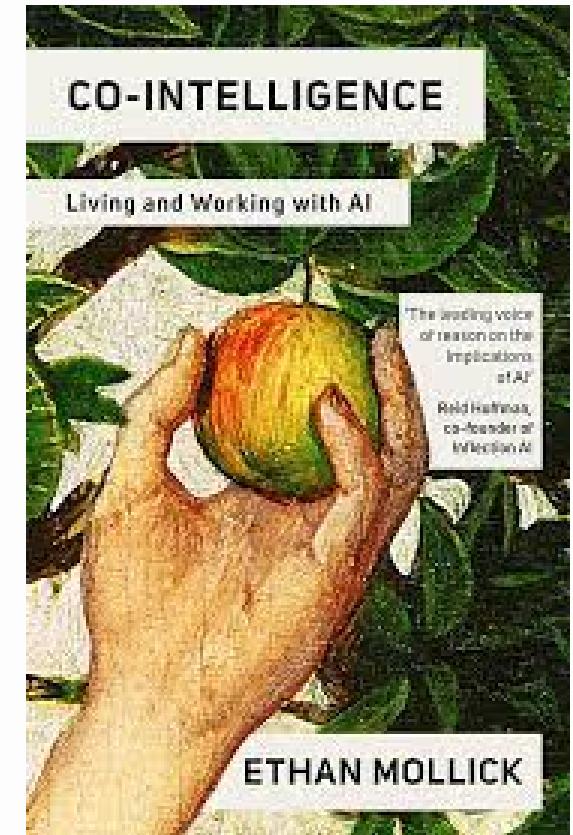
AI/LLMs

1. Always invite AI to the table

2. Be the human in the loop

3. Treat Ai like a person, but tell it what kind of person it is

4. Assume this is the worst AI you will ever use



Tools for research questions

Research question



Research Kick

(<https://app.researchkick.com/>)

1. Based on your initial general inquiry, the app offers a range of possible research questions.
2. Helps to find out if the questions were answered before
3. No free version

Tools for finding relevant research articles

Finding relevant research articles



<https://consensus.app>

1. Very good at summarising yes/no research questions
2. Has a visualization that helps to understand if a scientific community has reached a consensus.
3. Allows you to see what kind of studies it references (observational, meta analysis, highly cited etc); and use it for filtering
4. Has a free version
5. Exports into RIS,CSV



<https://elicit.com/>

1. Searches through papers
2. Helps to find list of concepts
3. Summarises findings
4. Can search a certain aspect across multiple papers (for example methodology)
5. Does not have a free version
6. Exports results into CSV, RIS, BIB



<https://typeset.io/>

1. Searches through paper
2. Has a copilot to talk to every paper it finds
3. Finds unusual and interesting papers & finds many irrelevant papers
4. Can search a certain aspect across multiple papers (for example methodology)
5. Does not have a free version
6. Exports into CSV, RIS, BIB etc.

Tools for finding
connected papers

Finding connected papers



Research Rabbit

<https://researchrabbitapp.com/>

1. Helps to enrich already existing pool of papers
2. Helps to give structure to your pool of papers
3. Helps to find similar papers
4. Free to use

Tools for reading papers

Reading papers



scholarcy.com

1. Summarises papers according to multiple criteria
2. Creates synopsis and scholarly highlights
3. Creates paper flashcards
4. Extracts comparative analysis
5. Has limited free version



<https://www.humata.ai>

1. My favorite tool
2. Copilot and the actual paper as positioned sidebyside
3. You can always see which part of the paper was used to write a summary
4. Can work through multiple papers simultaneously
5. Paid version
6. Does not have a free version

Working with data, analysis

Ask chatgpt to rename your variables, clusters, topic models to something more intuitive

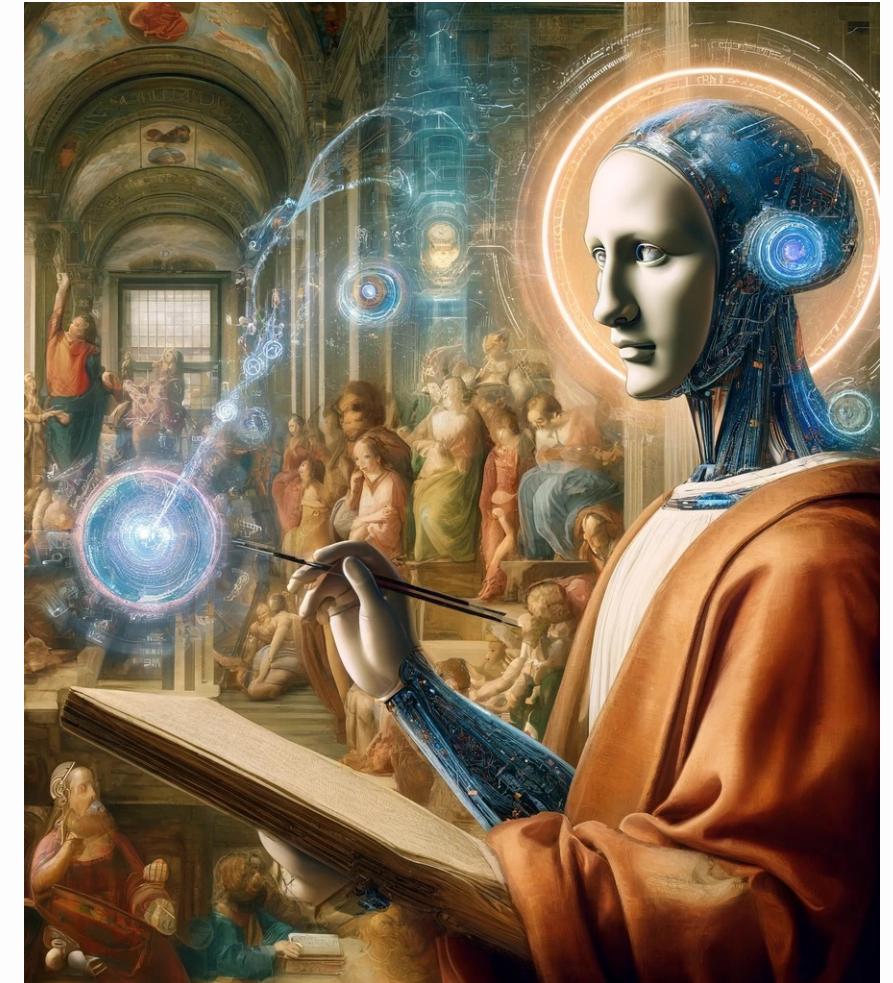
Be careful about feeding raw data to chatgpt (especially open-ended answers)

Ask chatgpt to help you with color palettes for your visualisation

Ask chatgpt to rewrite your code as functions (for faster work)
But watch out, because it gets creative and selective sometimes

Ask chatgpt to write you the code by giving it a snippet of your data

Ask chatgpt to offer you titles for figures and tables

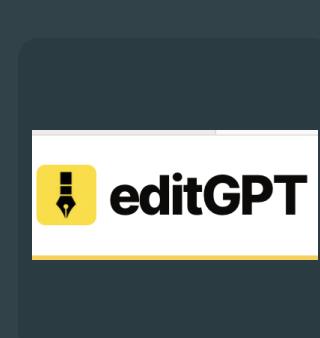


Tools for proofreading/feedback

Proofreading/editing



hes by conducting a web-survey experiment in Germany. The experiment ran was
nancies. Half of the respondents were asked to name their occupations using a job t
hile the other half were asked about their job tasks (berufliche Tätigkeit). We first
y measuring the length of the answers and item non-response. Secondly, we meas
spondents that who had to name a job title versus those who had to name a
ces, as well as the ratio of identical answers. Thirdly, we ran the answers through
able for the German language - CASCOT and OccuCoDE - and compared the produ
his will provide evidence on which of the two occupational questions generates high
g of a question affects the quality of the automatic coding.



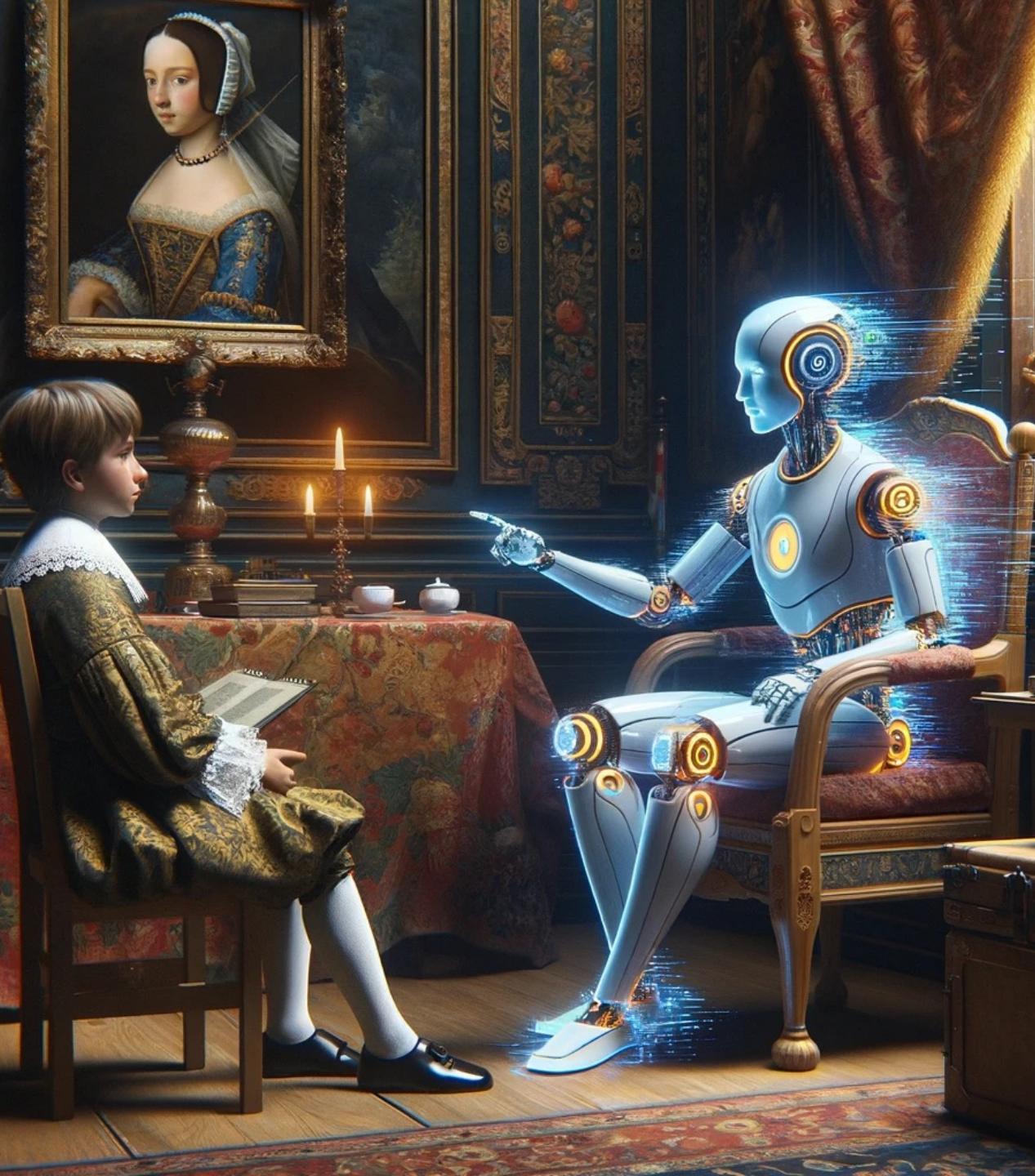
<https://editgpt.app>

Proofreads your text like a human editor would do

Edits your writing in different styles

You can approve/reject every change

Has a limited free version



Feedback

- ✓ Ask chatgpt to be your critical reviewer
Ask it to review your paper/part of a paper and give you feedback with points on the scale from 0 to 20
- ✓ Ask chatgpt to be the reviewer who evaluated your paper as 5/10 out of 20
Ask it to explain why they gave such a low feedback score
- ✗ Don't upload your manuscript if you are not using a private gpt mode

Tools for presentation

beautiful.ai

the tool this presentation is made in

Offers a free full access account to students/people in education for one year

Dynamically balances content on the slides

Can be exported into pdf, power point, images or viewed right from the app



Tools for Motivation

Low quality writing anxiety

Prompt: "I have a deadline to submit an outline, but i am very anxious about the quality and feedback i will get, so i am postponing to start writing and being blocked. can you address my anxiety with a short message (inspired by the Kara Lowenthal thoughtwork) that i can hold on to and repeat to myself to accomplish my assignment? "

Answer: "My anxiety is a sign of my commitment to excellence. Each word I write is a step towards mastery, not a test of my worth."



Expecting difficult feedback

Prompt: "I have a feedback session with my PhD supervisor and i am expecting they will be very disappointed with my progress. Can you reframe my expectations in style inspired by Brene Brown work and give me a short message that can help me to avoid assuming i'm a failure and they regret working with me?"

Answer: "This feedback is not about my worth or identity; it's about my work and my growth. My supervisor's investment in giving me feedback is a testament to their belief in my potential, not a measure of my failures."



Guilt/Shame

Prompt: "**I have a goal to submit my paper in 30 days, and i promised myself to write daily to achieve it. Today i haven't written anything. Give me a short message in line with Adam's Grant work help me to find evidence that i can still reach my goal even if i tell myself i am failing my writing commitment.**"

Answer: "**No one performs at 100% all the time. Missing one day of writing doesn't derail my progress; it's a reminder to adapt and move forward.**"



Talk to your paper as if it's your peer, not your master

Prompt: "It's 2 am in the morning. I have been working on my paper nonstop for days. I haven't had a decent weekend or done things I love in a while. And yet, my paper is nowhere near ready, and I don't even believe anymore that the results are interesting enough to spend even more time trying to publish it. Can you use the work of Esther Perel to help me overcome this mental dead-end by allowing me to have a conversation with my paper?"

- 1 **Express Your Feelings:** "I've spent a lot of time with you, and I'm feeling exhausted and disconnected from the passion that brought us together. I'm struggling because I feel like we're not progressing as I had hoped."
- 2 **Ask Your Paper Questions:** ""What do you need from me to become complete? Are there specific areas where you feel we could improve together? What can I do to make our results more compelling or our arguments stronger?"
- 3 **Listen for Answers:** Listen to the thoughts that come up in response. These are often your subconscious insights bubbling to the surface. You might realize there are specific sections that need reworking, or perhaps a different angle you hadn't considered before
- 4 **Negotiate Your Needs:** ""I will give you two more weeks of focused effort, but in return, I need some time this weekend to recharge and do things I enjoy."

when you try to use ChatGPT as a motivator, give it a room to motivate you

Prompt: "i was thinking of writing a book about AI but i am very busy and don't think i want to make such a large commitment. can you reframe my failure to write a book as a huge loss rather than default option? make the framing vivid" *

*Taken from the Co-Intelligence: Living and Working with AI

Answer: "The decision to not write is like a star that never reaches its supernova phase, quietly fading without revealing its brilliant potential to the universe."



Other tasks related to working in research

- 1 Instruct student assistants
- 2 Generate logos for your research projects
- 3 Develop communication strategy for events like Datafest
- 4 Add emojis to your tweets/linkedin posts
- 5 Brainstorm project abbreviations
- 6 Generate images to accompany your social media posts

Moment to reflect

- 1 Introduction
- 2 Research questions
- 3 Finding relevant research articles
- 4 Finding connected papers
- 5 Reading papers
- 6 Analysis
- 7 Proofreading/feedback
- 8 Presentation
- 9 Motivation
- 10 Other research tasks

Now let's discuss

Open the floor to feedback and discussion.



Olga Kononykhina

PhD Researcher | Specialising in
Data Quality for AI and ML |
Applying Insights to occupations
-ing, privacy, official statisti
-q fun data stories 🎉

You can always find me on LinkedIn or
write to me:
olga@bettermeasured.world

