

These slides serve as a visual aid for the lecture, not as a comprehensive document or script.

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For any comments or feedback, please contact n.meseth@hs-osnabrueck.de.



Scientific Writing & AI

What's the best tool for writing?

what you are probably using...



what you are probably using...

pros

familiarity

common

intuitive (?)

often good enough



what you are probably using...

pros

familiarity
common
intuitive (?)
often good enough



cons

format + text
layout hell
not reproducible
binary format
mediocre formulas

what I suggest you try...



typst

what I suggest you try...



text files
separate content and format
great support for math
source is the truth
100% reproducible
version controllable
simple citation support
open source

typst

what I suggest you try...



supports PDF, HTML,
DOCX, PPTX ...

integrates with R, Python,
Julia, and Observable

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very fast
simple syntax
flexible

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very fast

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flexible

native AI support

our first quarto document



YAML

callouts

presentations

markdown

cross references

links

formulas

images

code execution

sections and numbering

figures

PDF/HTML

inline code

citations

parameters

tables

templates

our first typst document

typst

using templates

typst

[Published templates for Typst](#)

```
typst init @preview/arkheion:0.1.0
```



```
quarto use template mikemahoney218/quarto-arxiv
```

AI likes TEXT



LLMs process text



Large Language Models process text (input/output)

Binary files like `.docx`, `.pptx` or `.xlsx` are not easily accessible for AI

Every interaction with `.docx` & co. requires **extra tools/programs** to be run

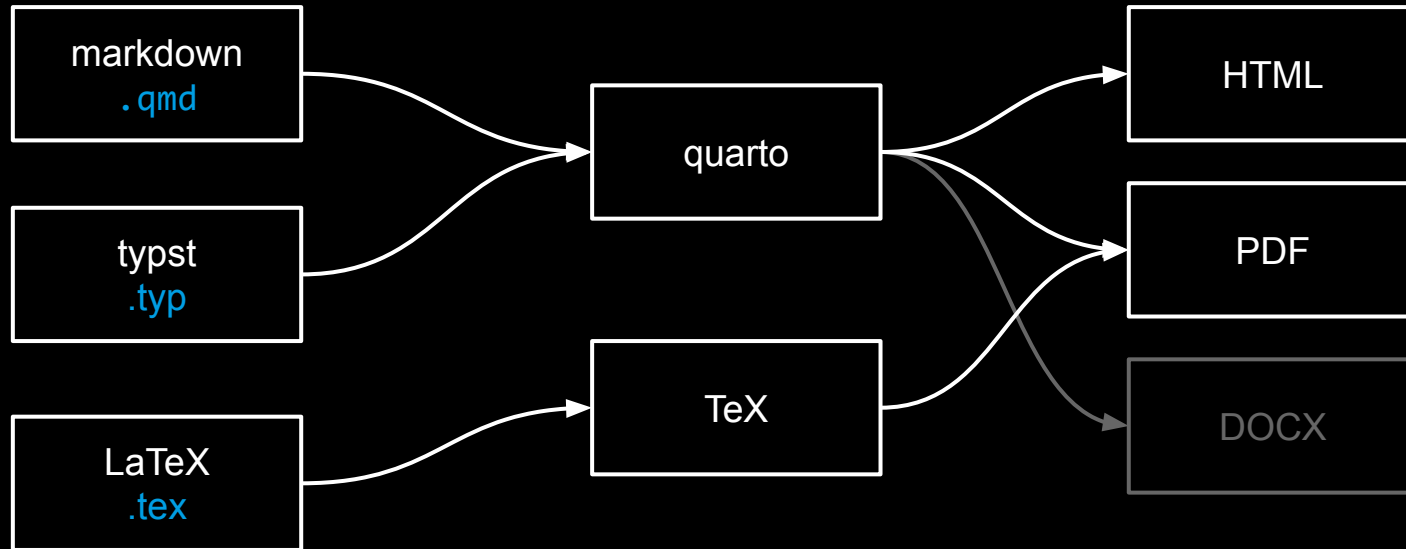
→ Use text files for anything you want AI to help you with

so what to use?

text-based authoring

rendering engine

any target format



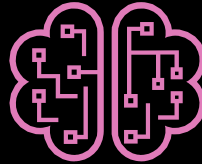
AI agents

goal

"Make my thesis error-free"

AI agents

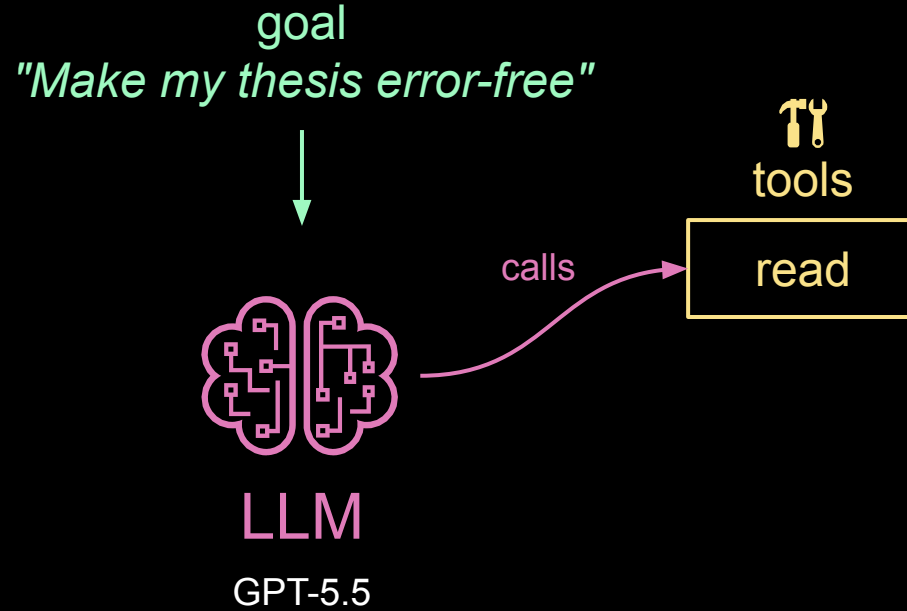
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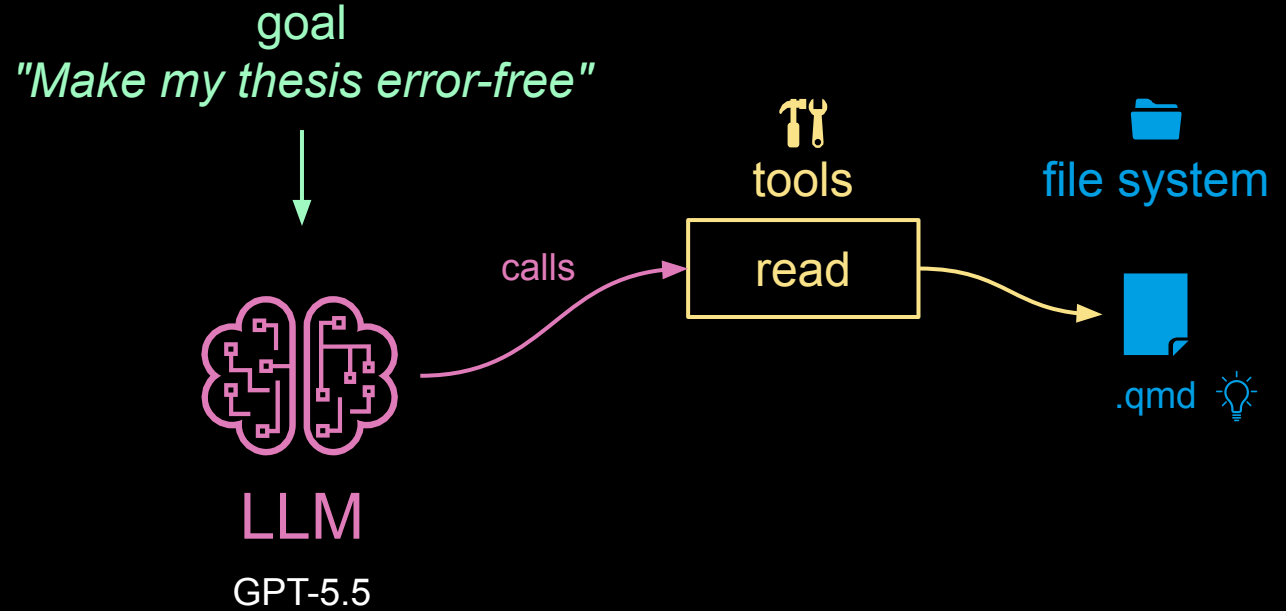
LLM

GPT-5.5

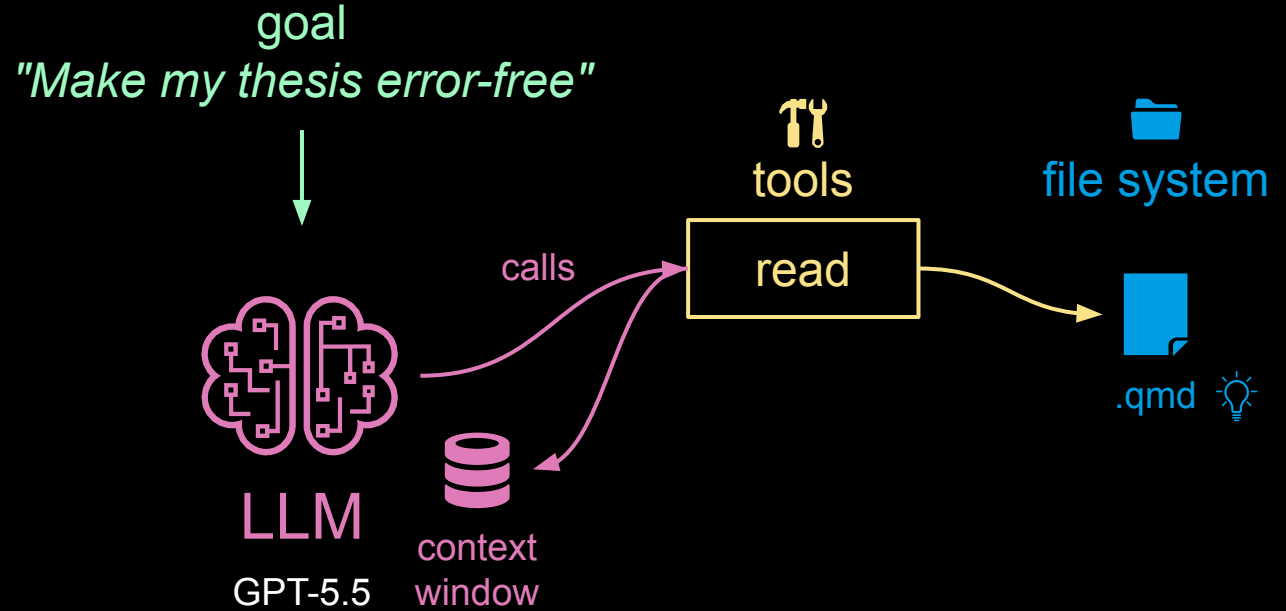
AI agents



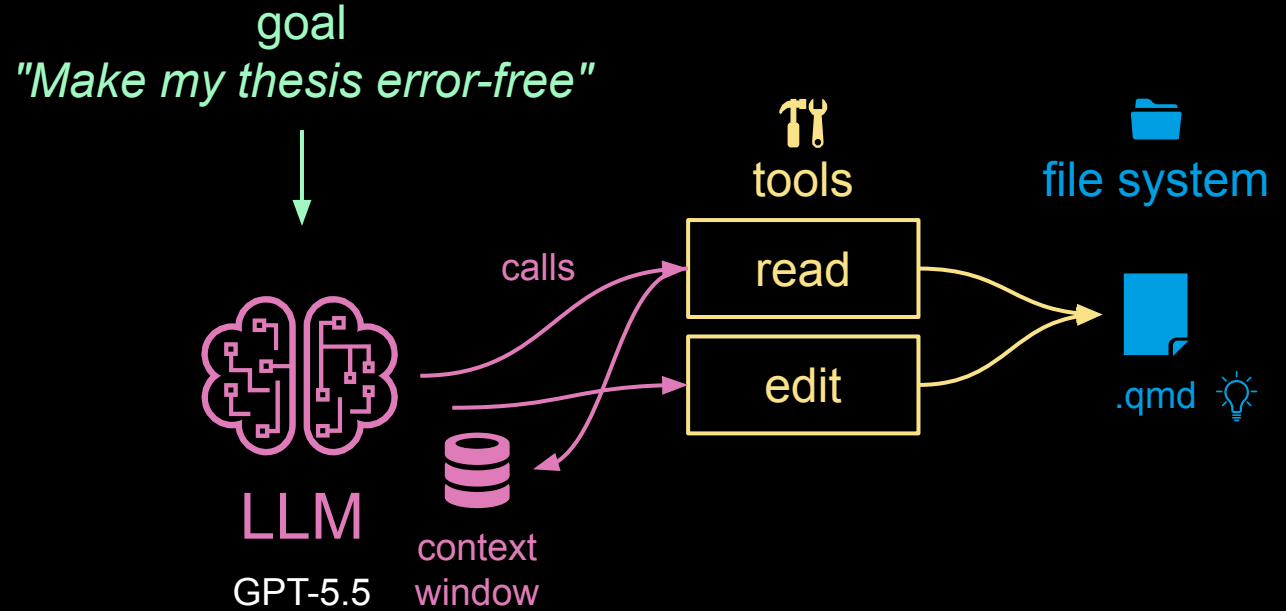
AI agents



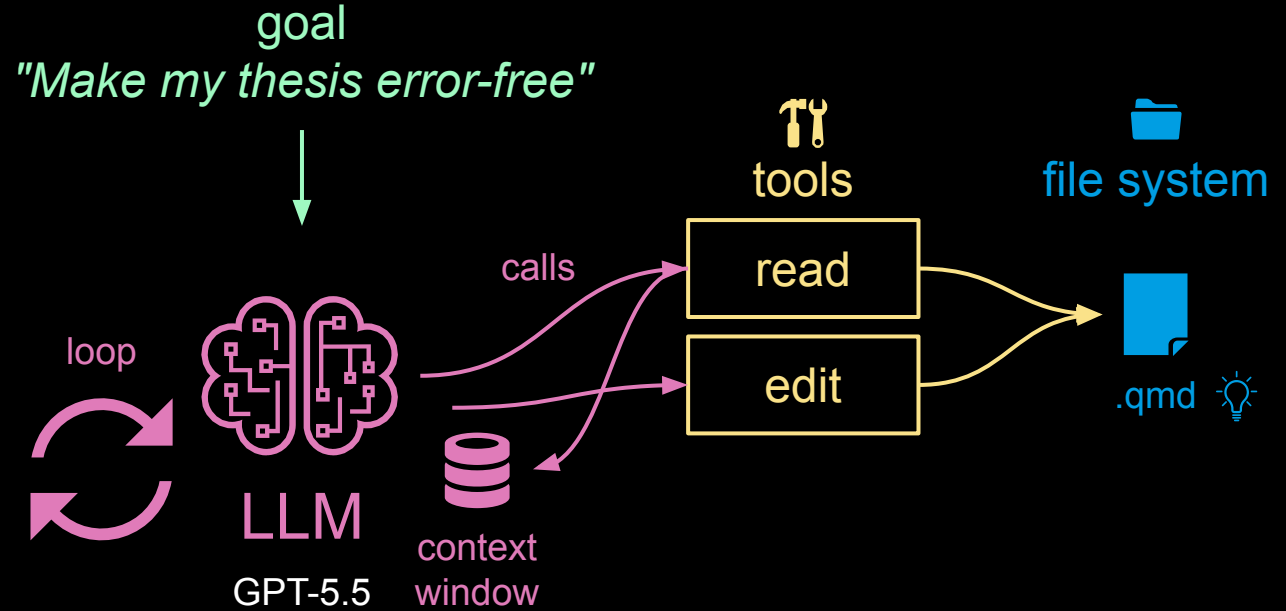
AI agents



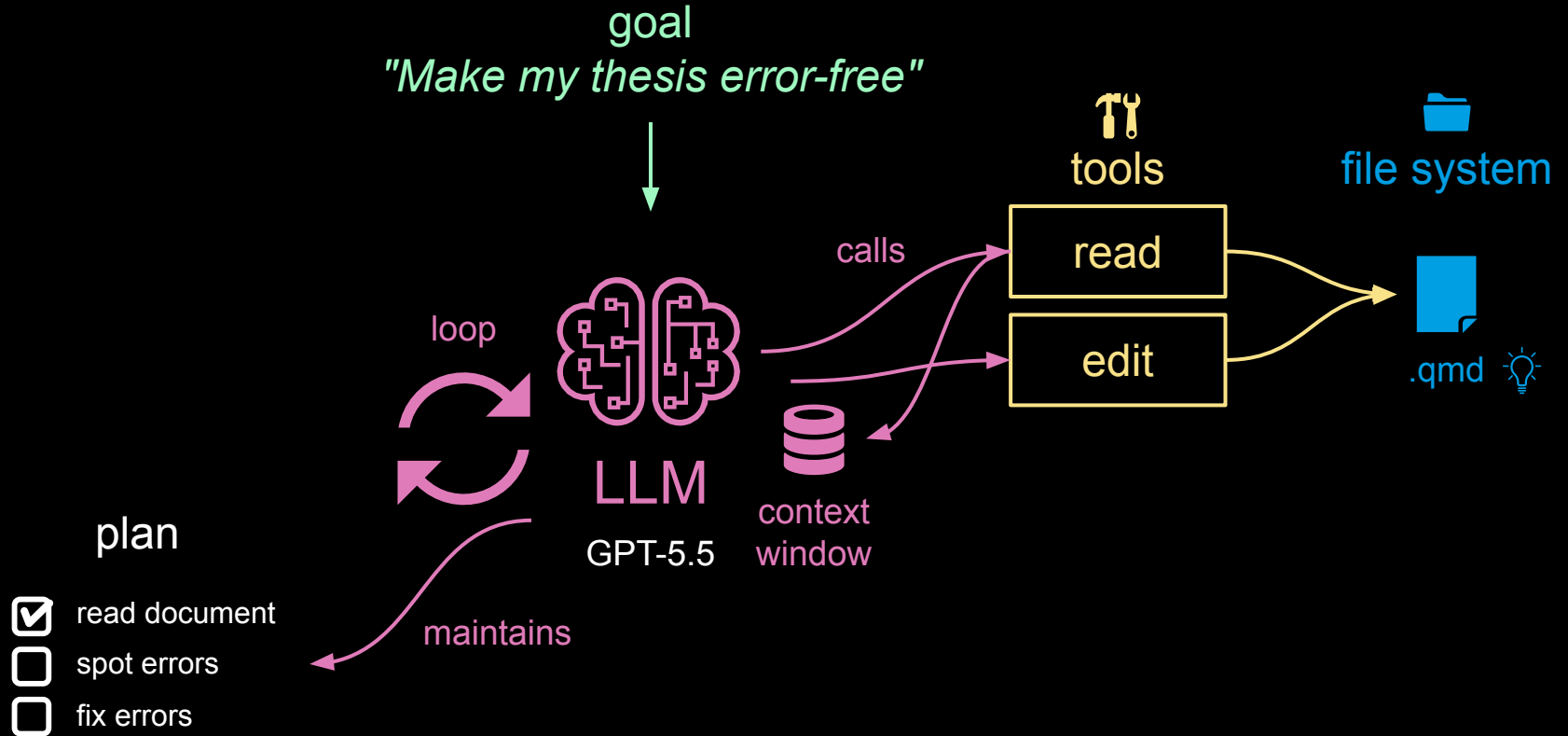
AI agents



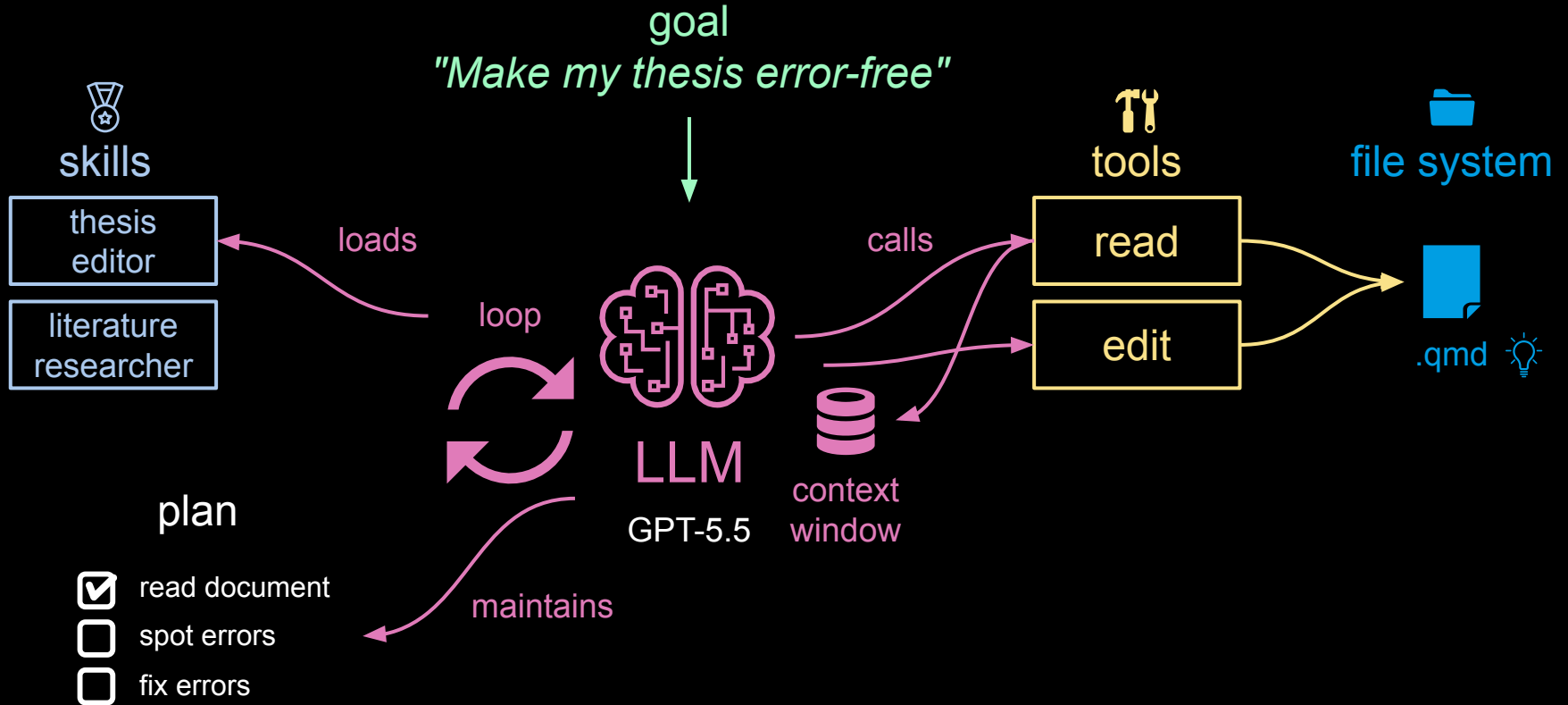
AI agents



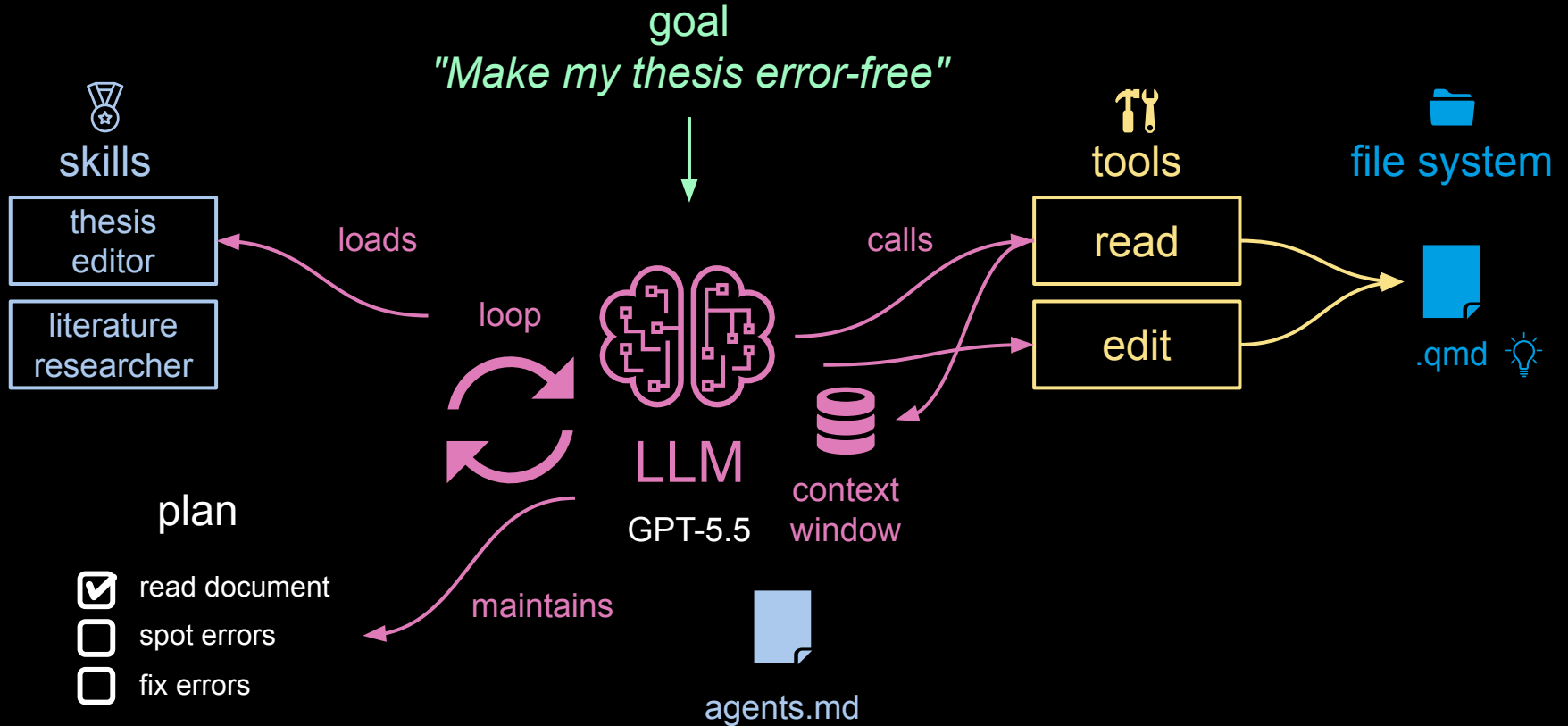
AI agents



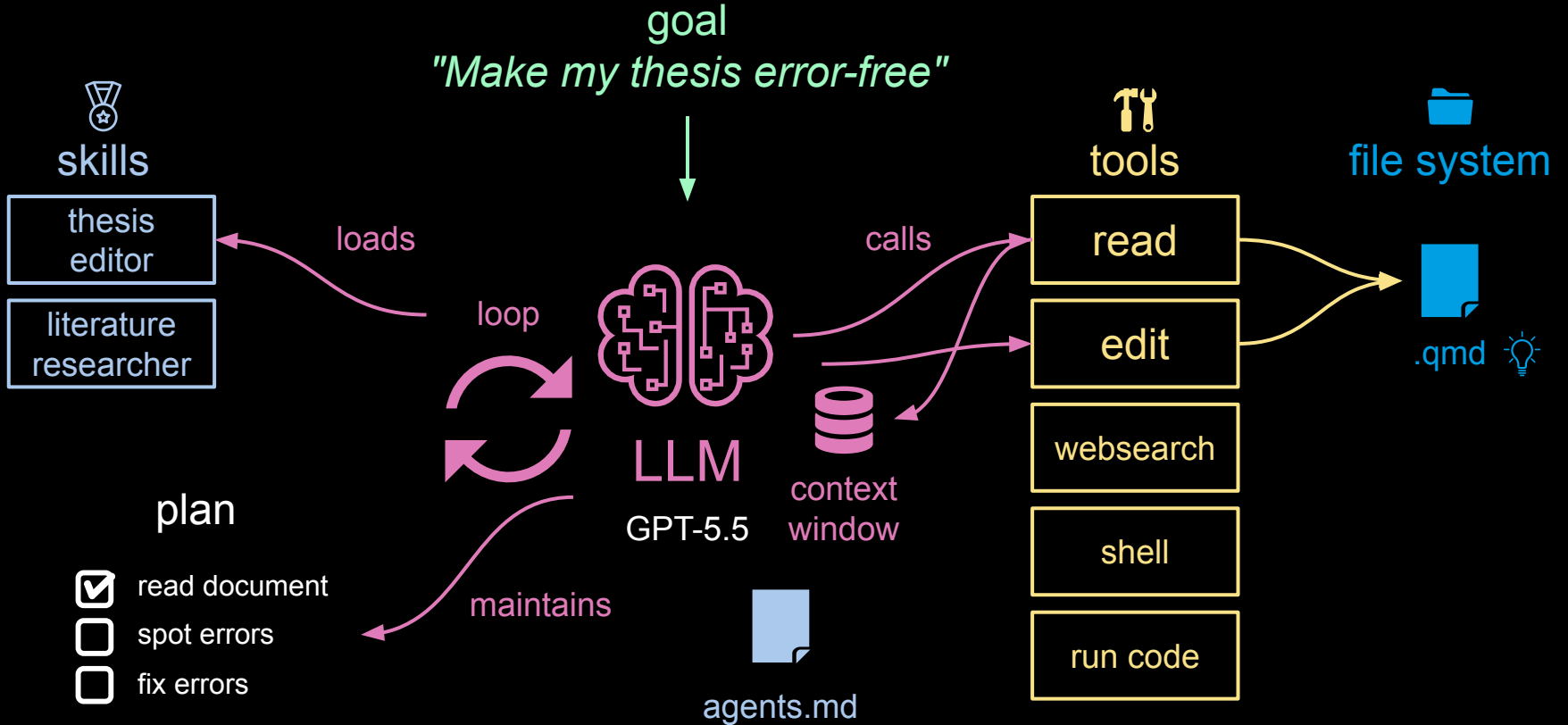
AI agents



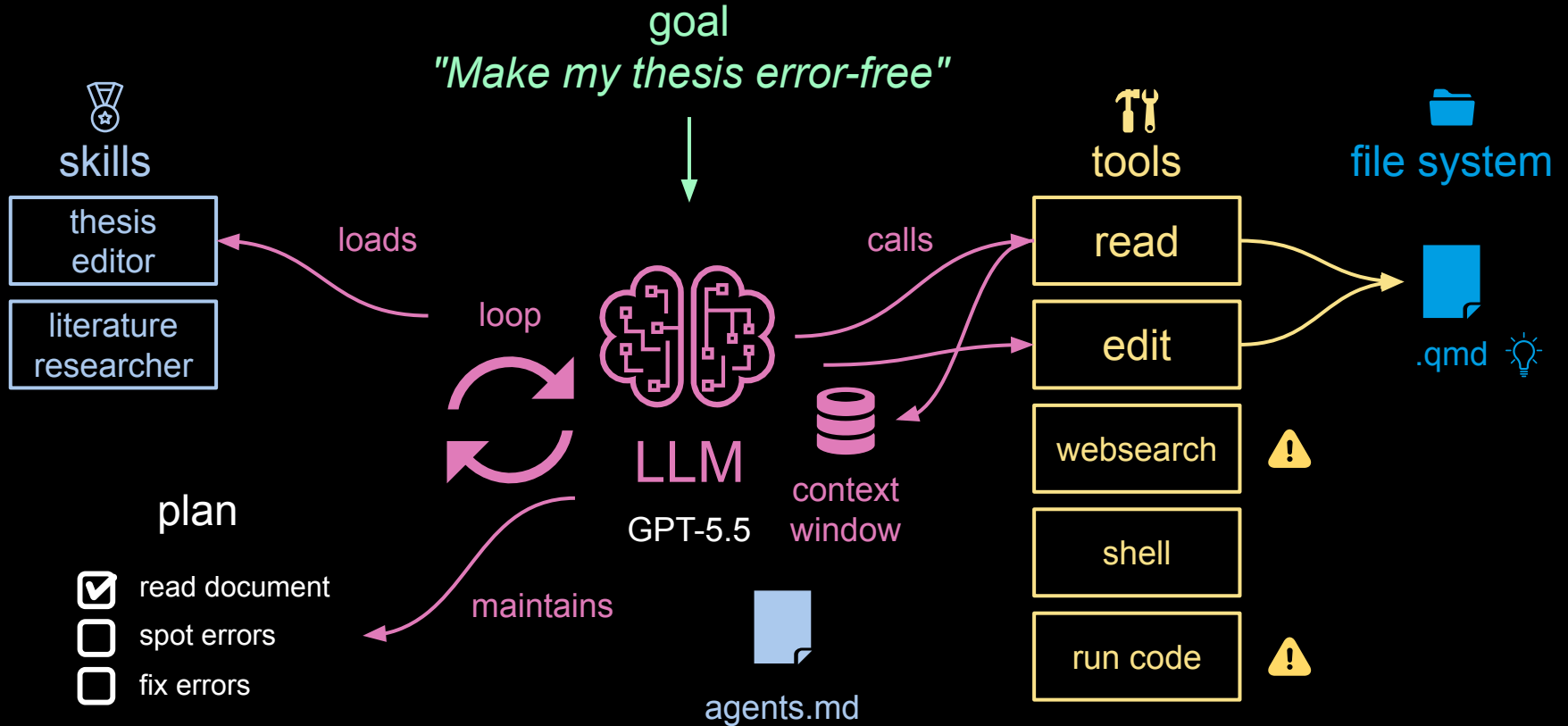
AI agents



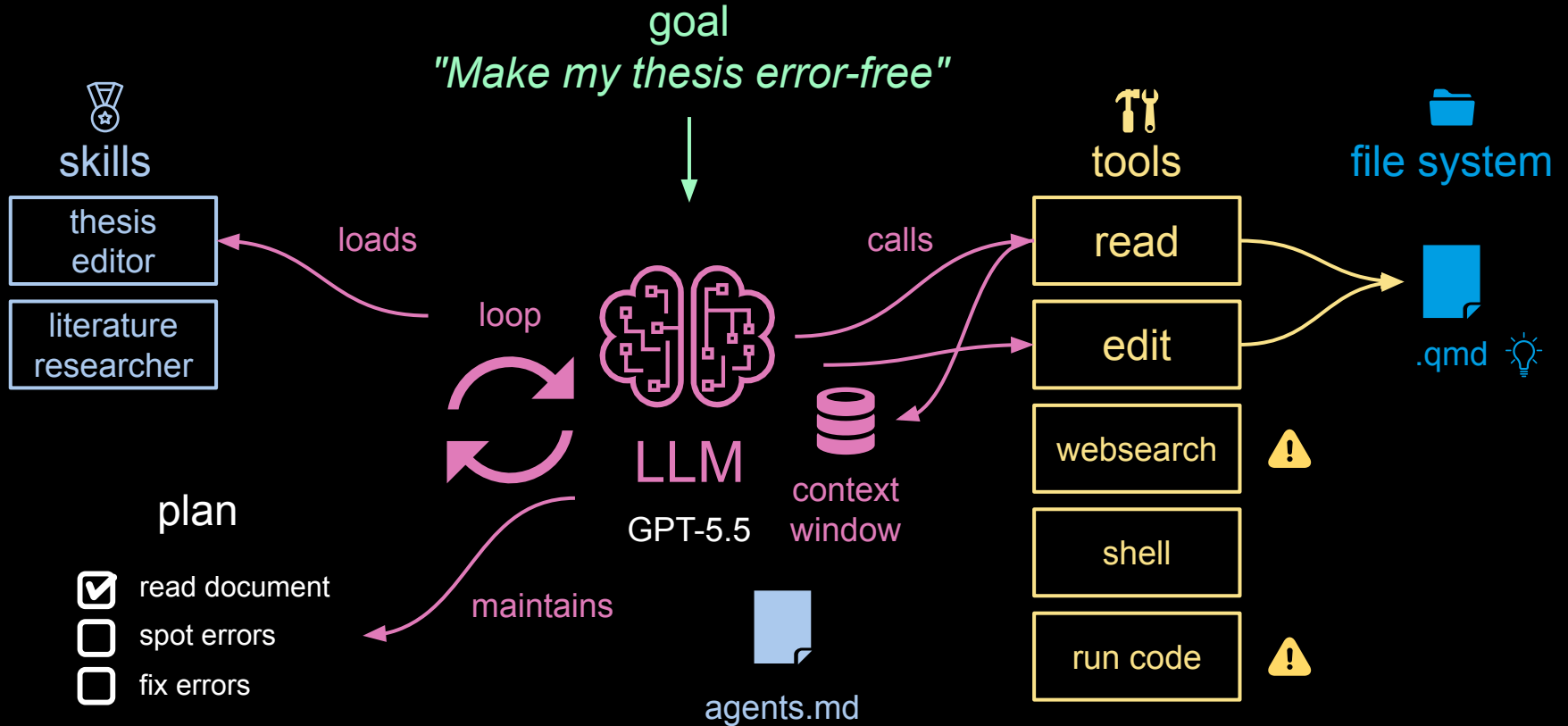
AI agents



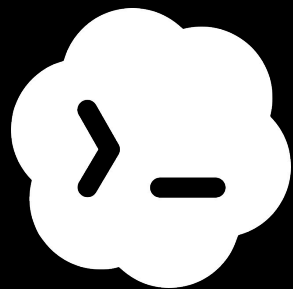
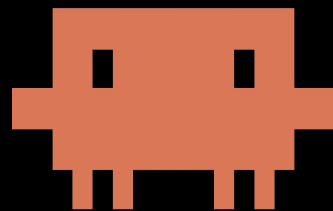
AI agents



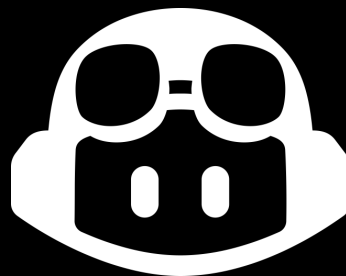
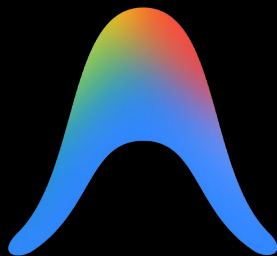
AI agents



open|code



who is who?



opencode

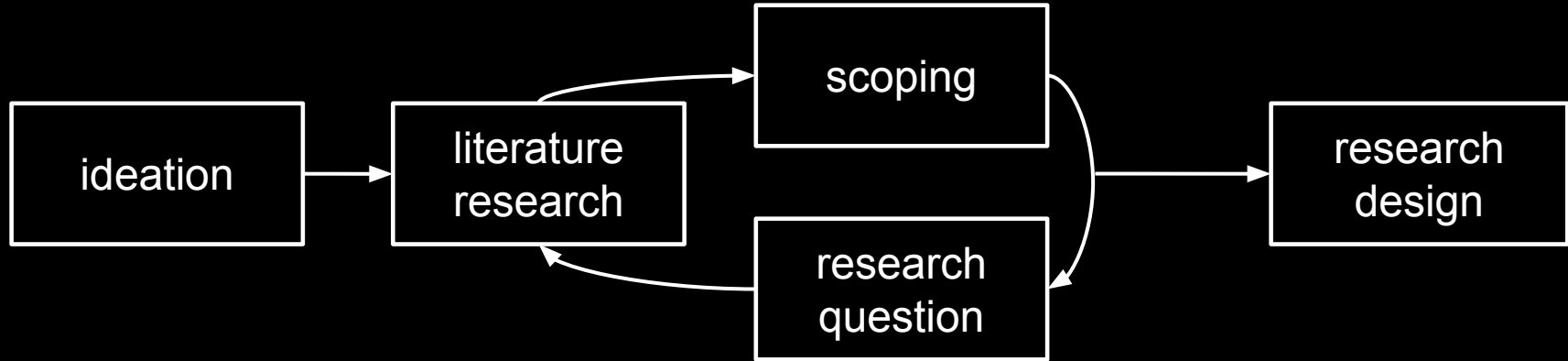
AI agent in action

AI as a copilot in scientific work

AI as a copilot

housekeeping

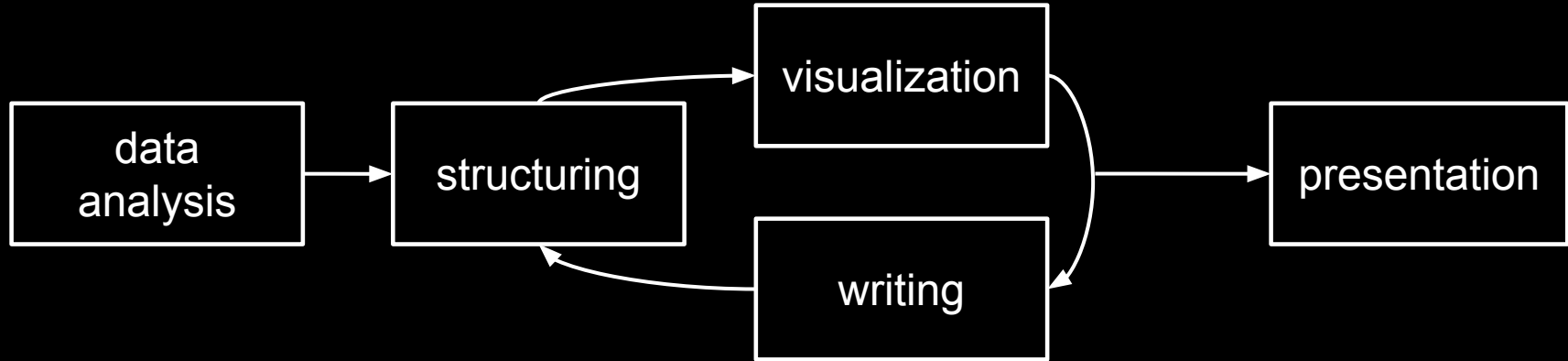
plan the research



AI as a copilot

housekeeping

analyze data and write the paper



ideation

literature research

research question

research design

data analysis

structuring

visualization

writing

presentation