

Software Engineering

The AI Reboot

Annie & Jason Vella | 6 August, 2025

Who is Annie?

Software Engineer | Technical Leader | Self Professed Nerd

Present:

- Distinguished Engineer at Westpac NZ
- Master's of Engineering student at the University of Auckland

Previously:

- 2004 - 2014 - Software Engineer
- 2014 - Present - Technical Leader



Who is Jason?

Software Engineer | Technical Leader | Fixer of Everything

Present:

- Principal Engineer at Westpac NZ

Previously:

- Software Engineer, Architect, VP of Engineering...
- Building software for ~20 years
- Worked for 11 companies across 4 countries
- I've worked with Annie for more years than I haven't



Two sides of the same coin

What's changing
when we build
software
with AI at our side

What's changing
about how we
build software
with AI inside

AI Coding Assistants are Everywhere

StackOverflow 2025 Developer Survey

- May 29 - June 23, 2025
- 49,009 responses
- 166 countries

AI tools in the development process

84% of respondents are using or planning to use AI tools in their development process, an increase over last year (76%). This year we can see 51% of professional developers use AI tools daily.

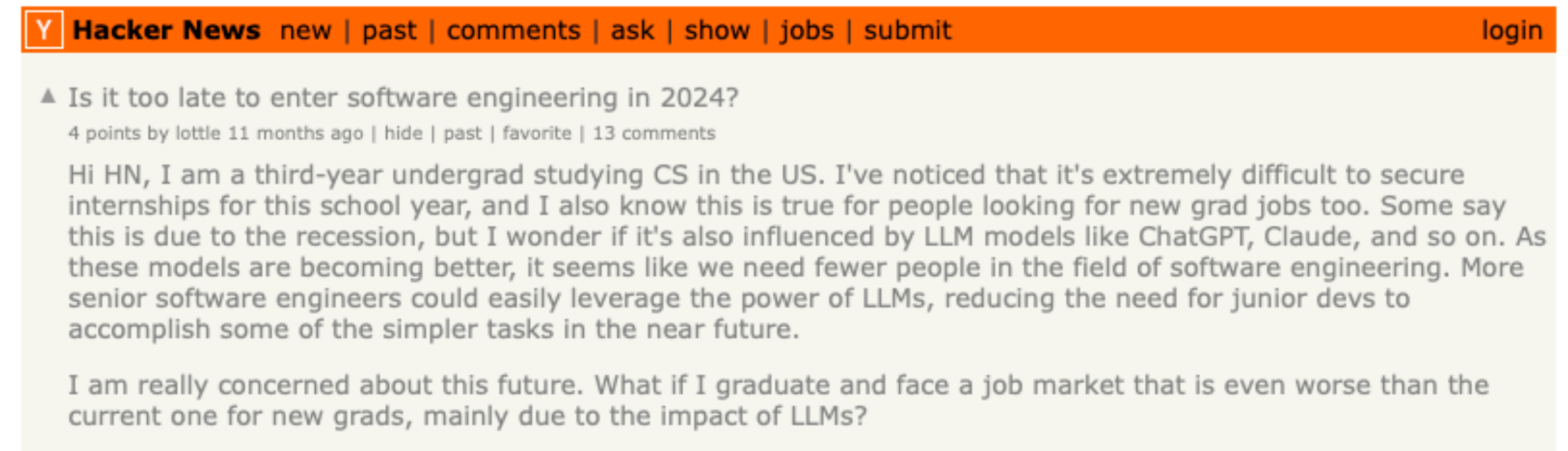
 Do you currently use AI tools in your development process?

<https://survey.stackoverflow.co/2025/ai#sentiment-and-usage>

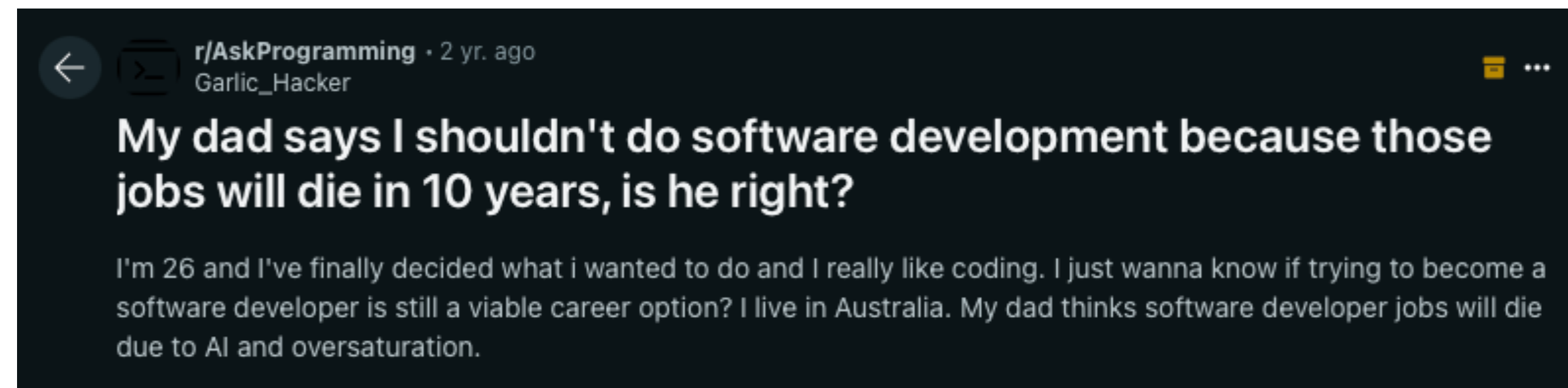
Is This The End of Software Engineering?



https://www.reddit.com/r/WGU/comments/1b89euw/is_software_engineering_dying/



<https://news.ycombinator.com/item?id=39664697>



https://www.reddit.com/r/AskProgramming/comments/yqg0wk/my_dad_says_i_shouldnt_do_software_development/

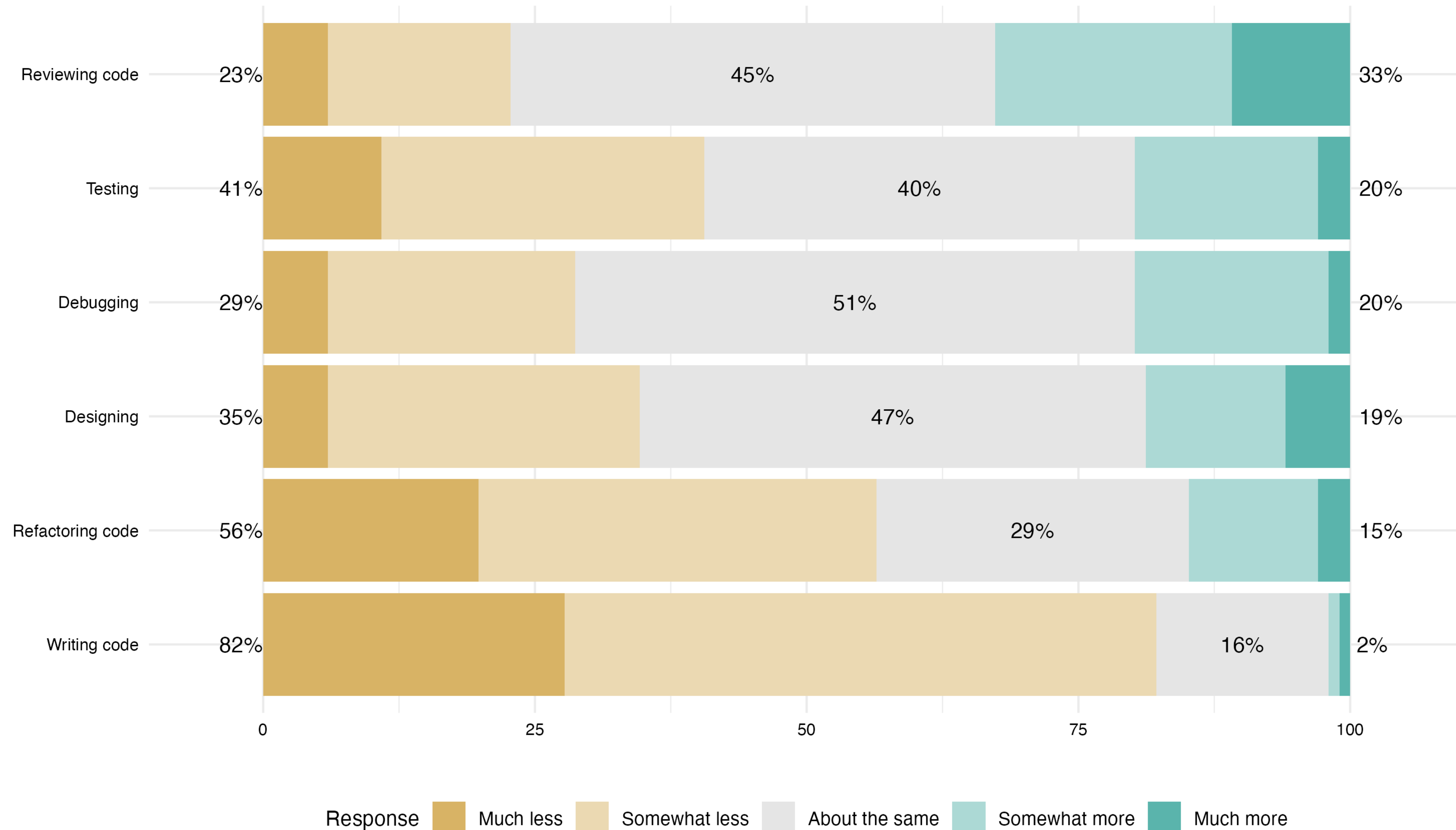
No, But It Is Being Reimagined



What is the impact of AI
on software engineering?

Task Focus Reallocation

We feel like we're
spending a
lot less time
writing code,
and a
little more time
reviewing it



Where Is All That Saved Time Going?



Planning
Prompt Engineering

Validation & Verification
Manual Adjustments

Does the
software
development
lifecycle need to
be updated?

It Feels Like an AI Pair Programmer

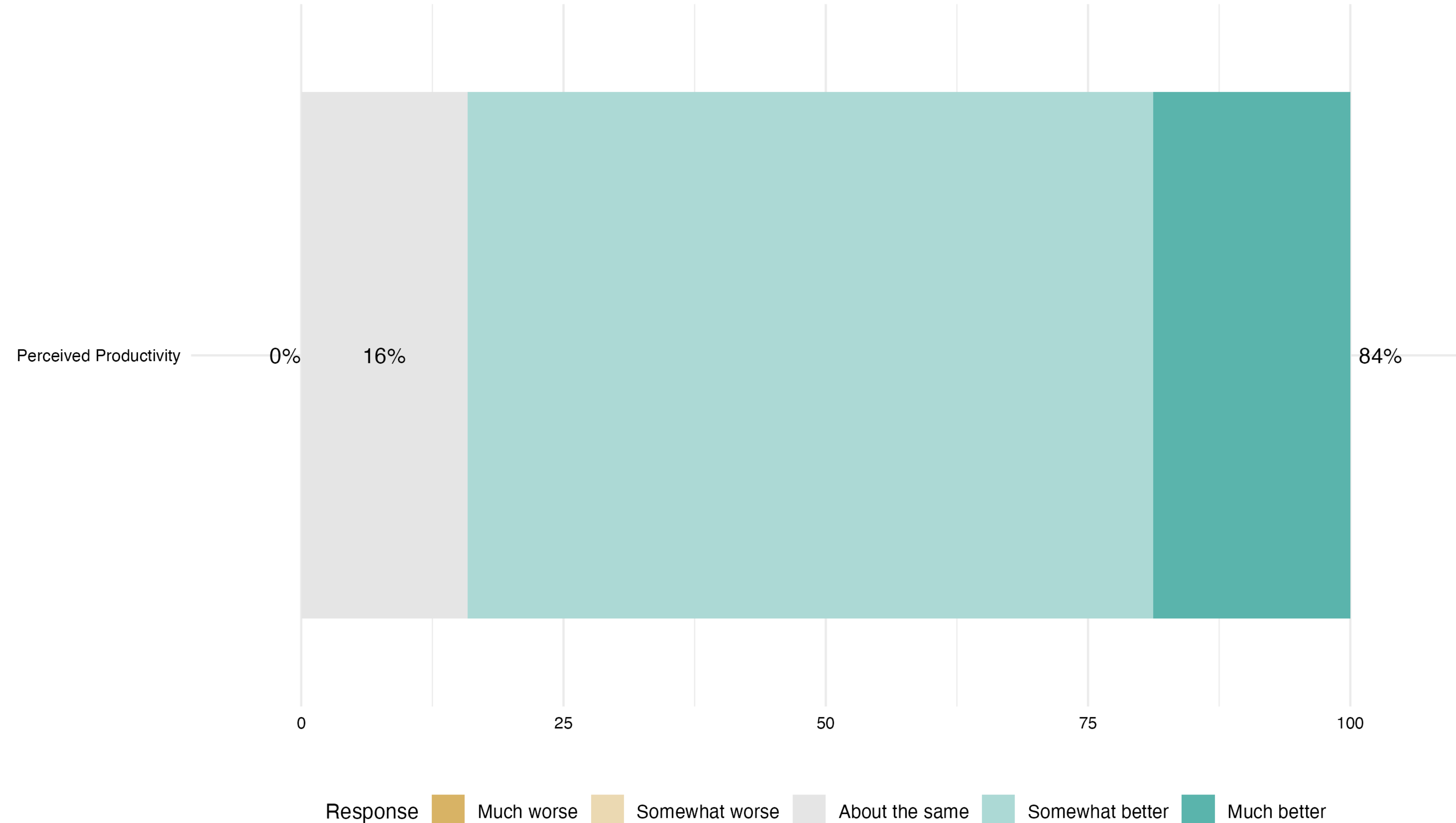
- ✓ Faster boilerplate
- ✓ Great for prototyping
- ✓ Replaces search
- ✓ Accelerated debugging
- ✓ Technical exploration
- ✓ Cognitive support
- ✓ Confidence boost

"Made me much faster
in languages I'm not familiar
with."

"I will just dump error logs
into it and get immediate
clues"

"As a junior dev, it
has allowed me to achieve
things I wouldn't have been
able to."

It Helps Us Feel Much More Productive

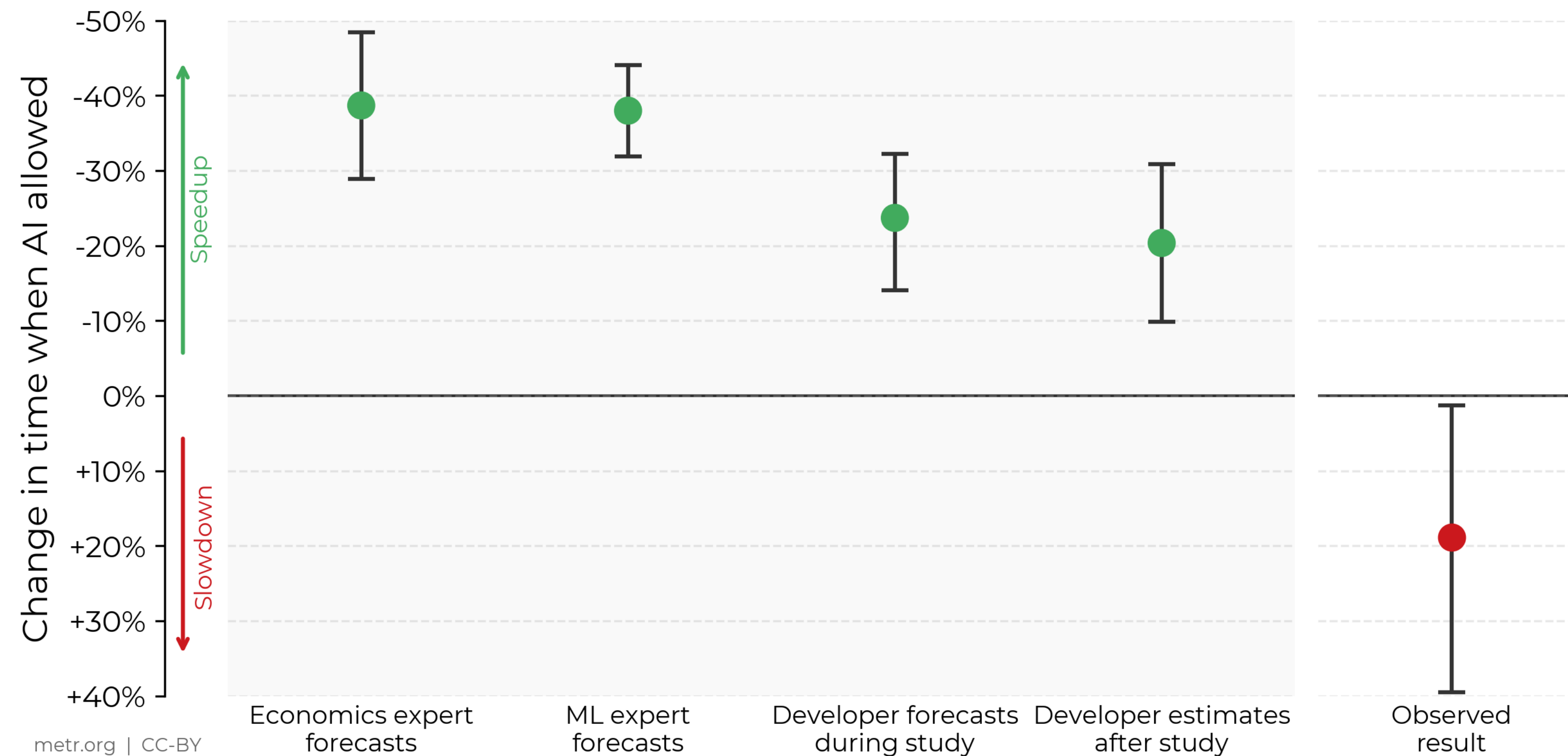


But Not Everyone Agrees

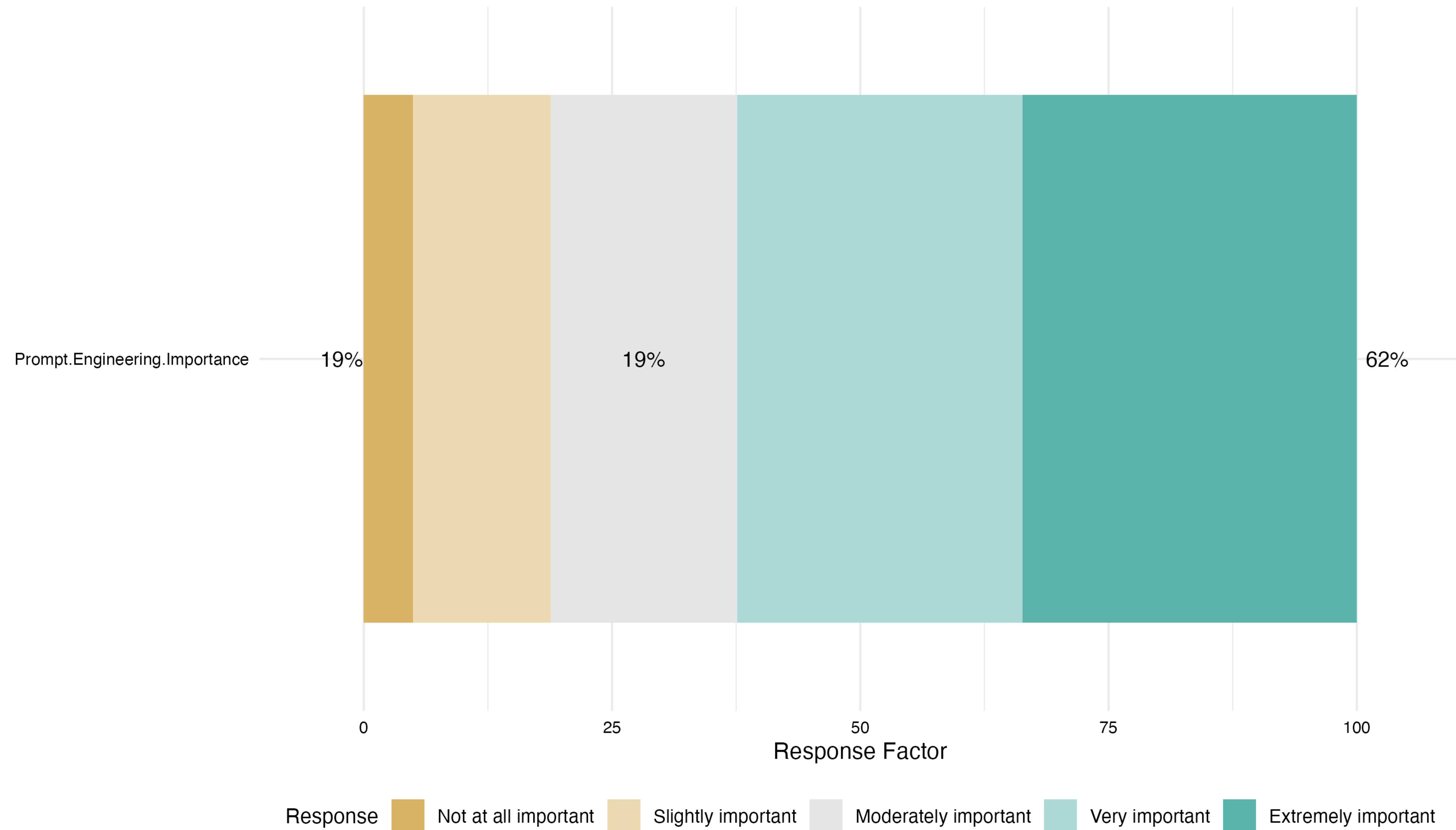
Against Expert Forecasts and Developer Self-Reports, Early-2025 AI Slows Down Experienced Open-Source Developers



In this RCT, 16 developers with moderate AI experience complete 246 tasks in large and complex projects on which they have an average of 5 years of prior experience.



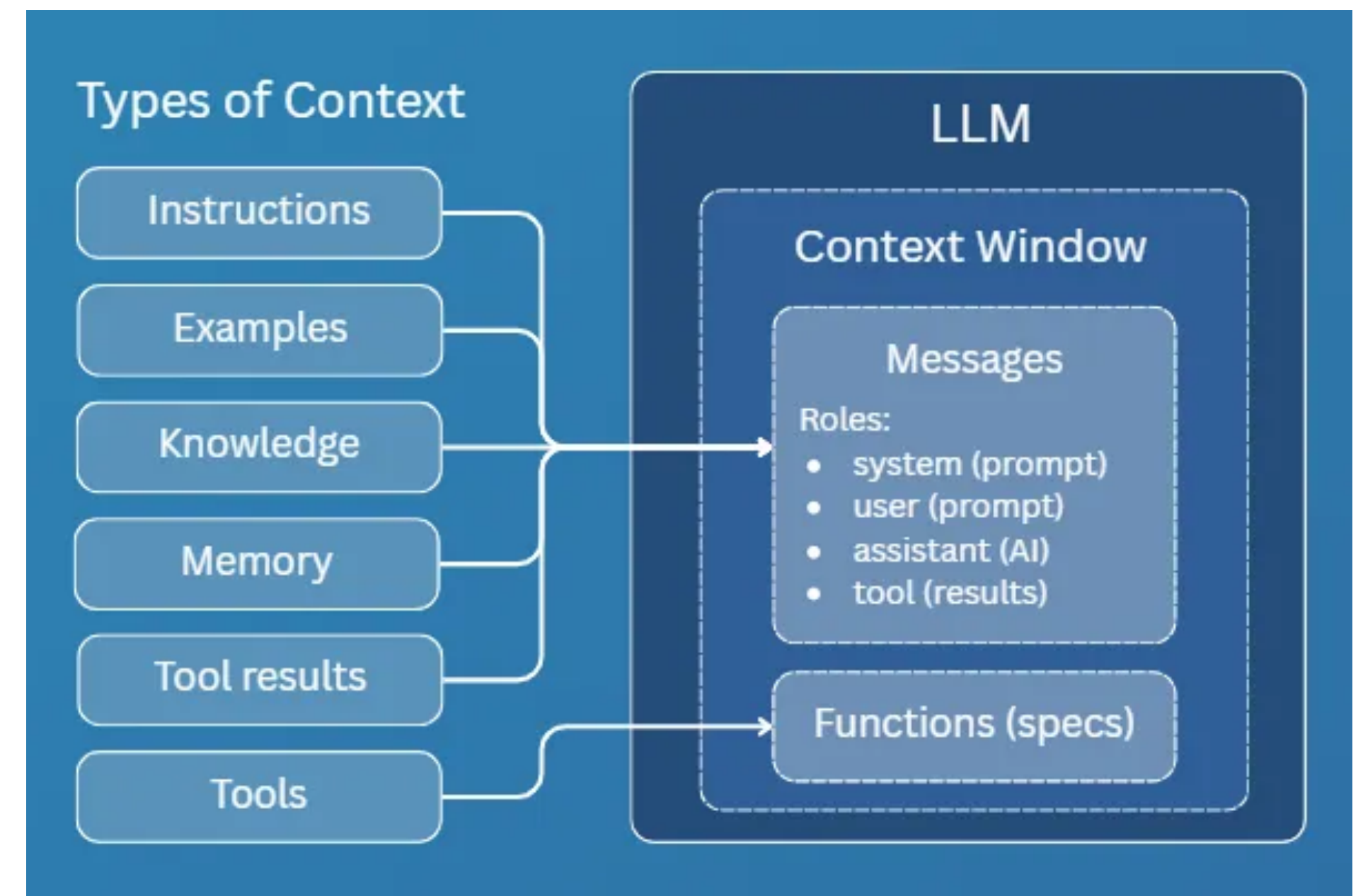
The Importance of Prompt Engineering



Prompt Engineering Is *So Last Month*

“Context engineering is the delicate art and science of filling the context window with just the right information for the next step.”

Andrej Karpathy

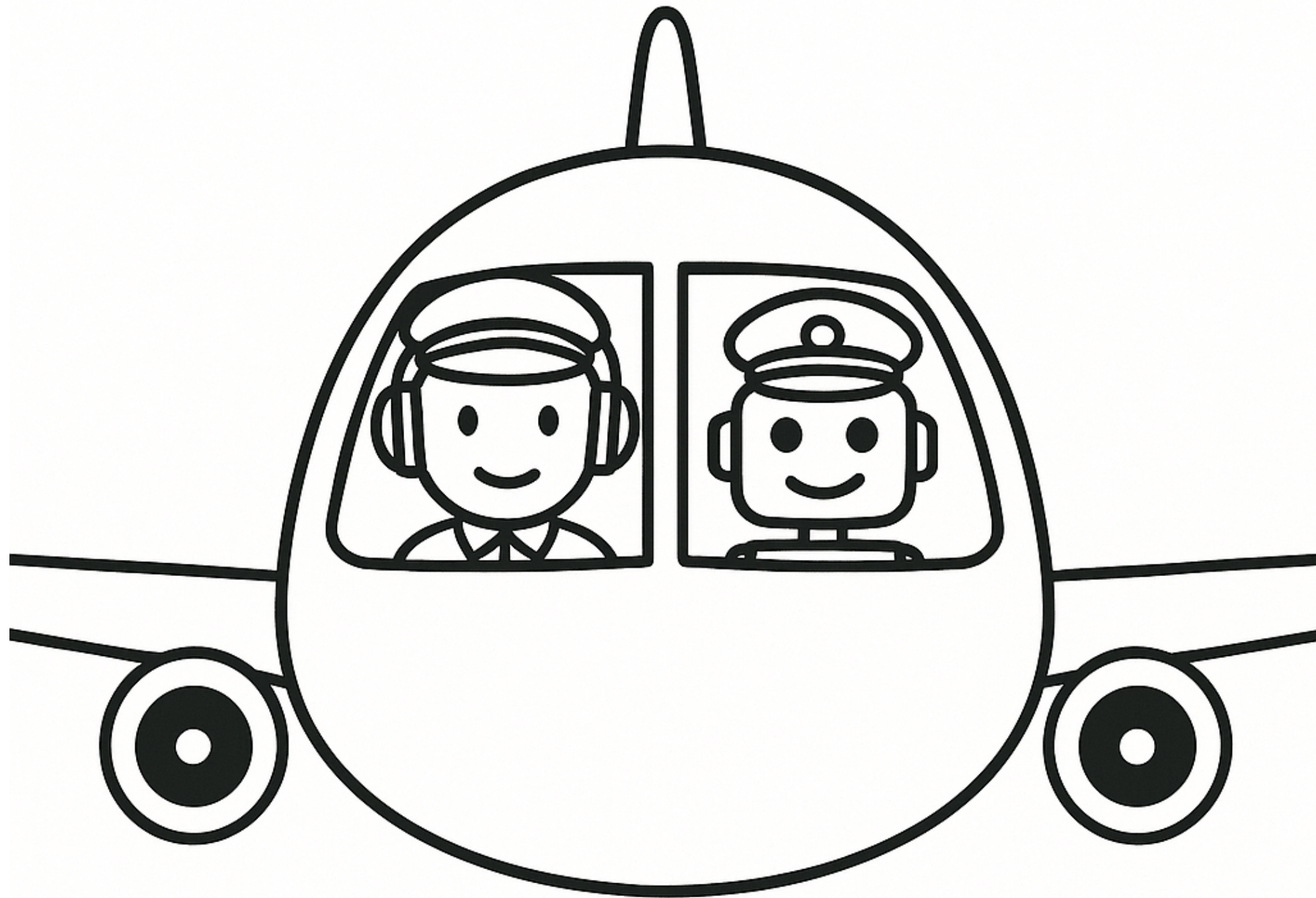


<https://www.productcompass.pm/p/context-engineering>

The Human-Computer Interface

	UX	Applications	User Knowledge
Eniac (1940s)	Punch cards	Patch cables & Switches	Team of scientists required to operate
Mainframe (1960s)	Terminal, Printer	Assembler, COBOL, etc	Single person with technical training
Personal Computer (1980s)	GUI	Consumer OS, off the shelf software	Computer literacy
Internet of Things (1990s)	Touch, Voice, VR	Apps, background services, multi-device	Appliances
Generative AI (2020s)	Natural language	Human like	No particular knowledge required

AI Explosion



Copilots

Agents

All sorts of code editing/generating tools & IDEs

ReAct, CodeAct, Tool Use, Self-Reflection, Multi-Agent, RAG ...

AI Applications of Tomorrow

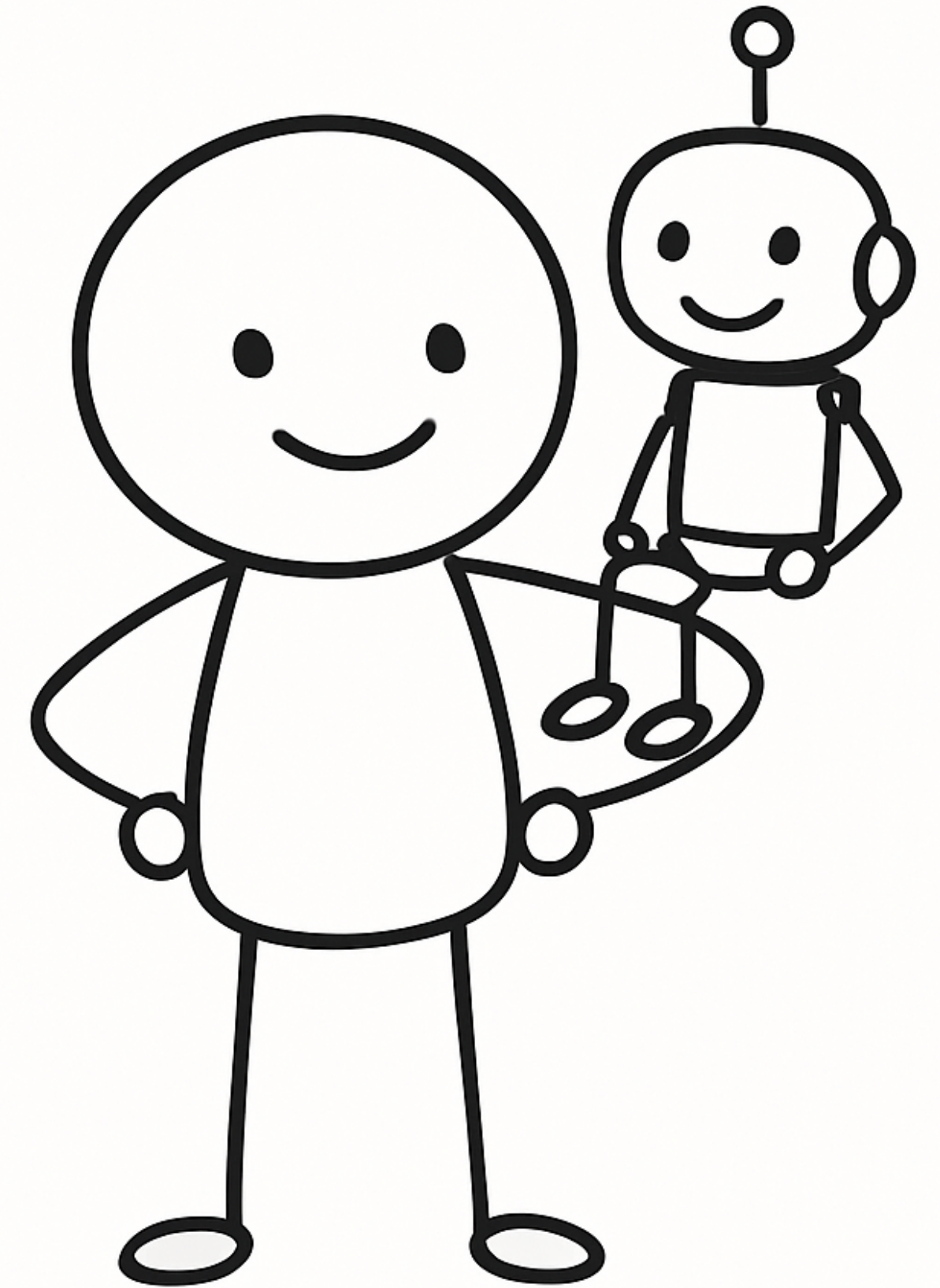
Speculation...

Natural language interfaces, the death of forms!!

Dynamic reasoning in place of imperative logic

More human-like both in interaction and behaviour

We might need to change our expectations of machines



Building the Applications of Tomorrow

New tech will enable even more rapid innovation

Emerging protocols (MCP, A2A, ...)

New “user” interfaces will require new verification practices (evals)

Security, risk, data privacy, etc are largely unsolved

Users won't necessarily be human any more (agents.txt)

Shifting usage patterns will shuffle priority of and/or introduce new NFRs



What does this mean
for you?

Four Key Themes

➡ Software Engineering Foundations

➡ Embrace AI Tools

➡ Calibrated Trust

➡ Critical Thinking & Problem-Solving

The Only Prediction is Change

The same fundamentals that took us through the previous shifts in computing will take us through the next

The most important skill to have is the skill to adapt

Technology has always moved fast and the ability to keep up with a rapidly evolving landscape has always been a prerequisite to success

Stay curious ... play with the toys ...



Annie Vella



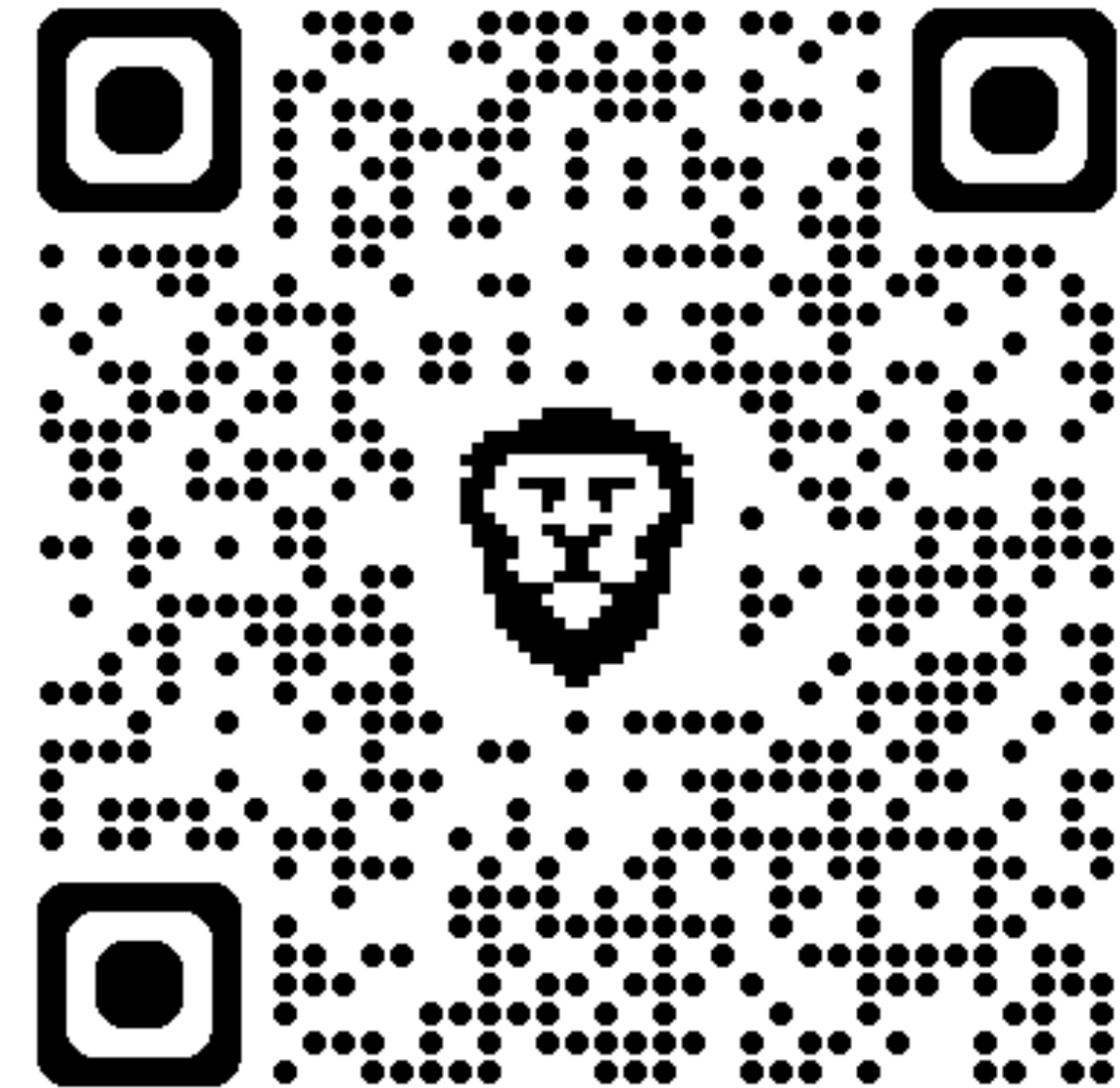
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