BDX I/O

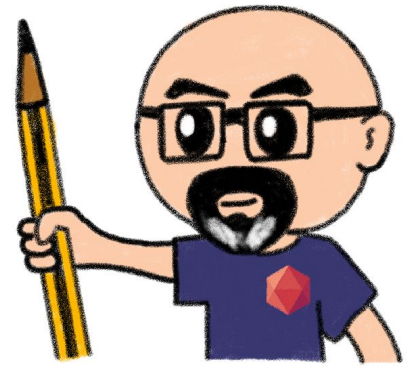
Rewriting the Role

Developers in the Age of LLMs

Horacio Gonzalez

2025-11-07

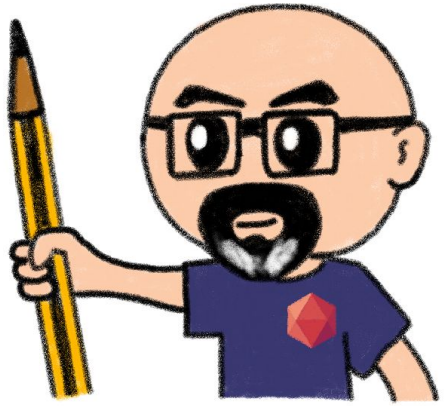
clever cloud



Who are we?

Introducing myself and

introducing Clever Cloud



Horacio Gonzalez

@LostInBrittany

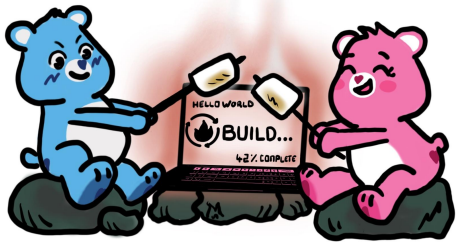
Spaniard Lost in Brittany

Old(ish) Developer

Head of DevRel

clever cloud

Finist Devs



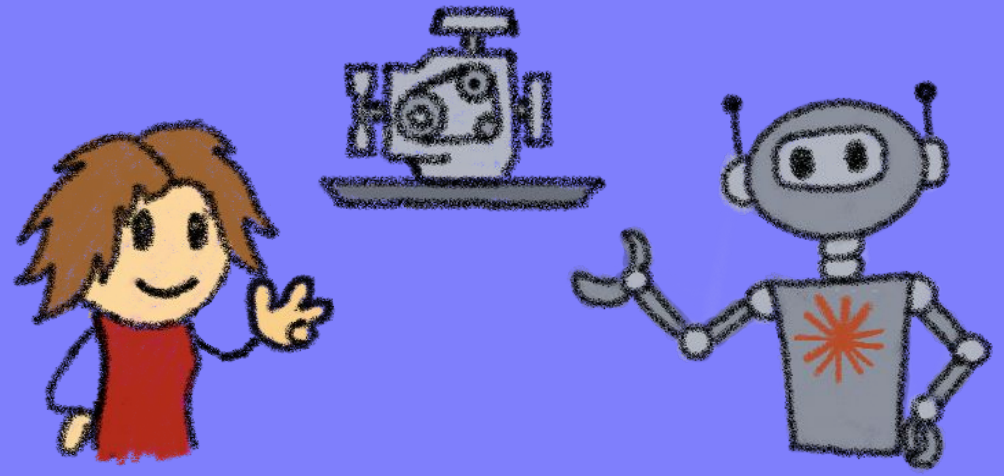
Clever Cloud

From Code to Product

clever cloud

Rewriting the Role

Developers in the Age of LLMs



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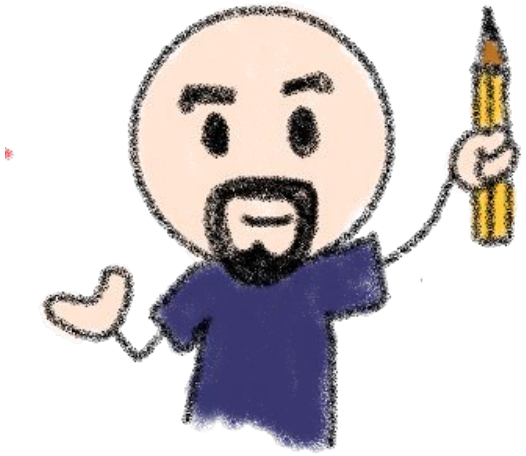
What are we going to talk about?

- Programmers Are Always Doomed...
  Until they are not
- When Tools Learn, So Must We
  Deskilling or reskilling in the age of AI
- The Developer's New Workflow
  Co-authoring with the machine
- The Developer's Journey
  Growing up with smarter tools
- Teaching the Next Generation
  How do we teach programming when the computer can already code?
- Differently Human
  The future of software development



Programmers Are Always Doomed...

Until They're Not

The first program language*: Fortran

It will make make programmers obsolete!

* Grace Murray Hopper invented the concept and tools that made high-level programming possible, Fortran was the first full implementation of that idea

The first program language*: Fortran

From machine code:

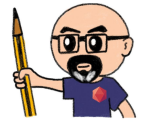
```
0001 0000 0000 10101    ; LOAD constant 21 into register A
0001 0001 0000 00010    ; LOAD constant 2 into register B
0010 0000 0001 00010    ; MULTIPLY A × B → result in register A
0011 0000 0000 10000    ; STORE result (42) into memory address 16
```

Low-level: registers, opcodes, memory addresses

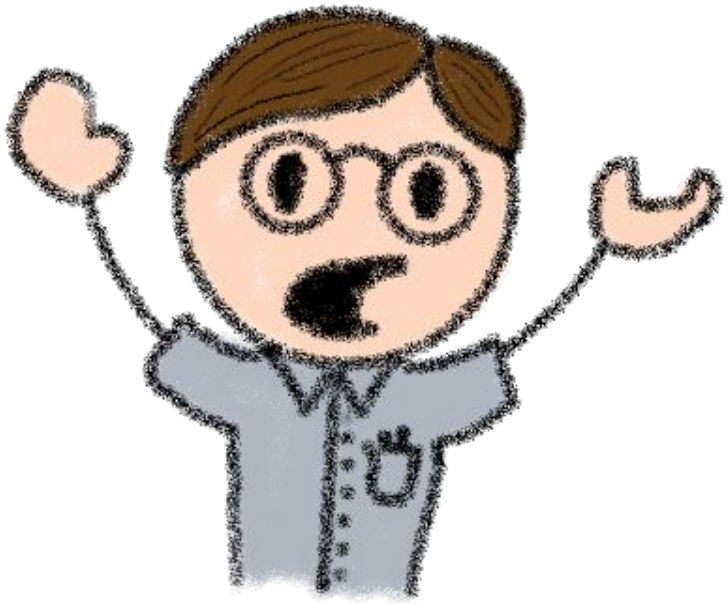
To Fortran:

```
    INTEGER A, B, C
    A = 21
    B = 2
    C = A * B
    PRINT *, C
    END
```

Low-level: registers, opcodes, memory addresses



The first program language: Fortran



Fortran is not real programming!

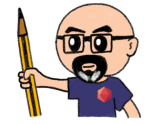
Anybody can write `DO 10 I=1,10`

without understanding anything about

opcodes, registries or memory.

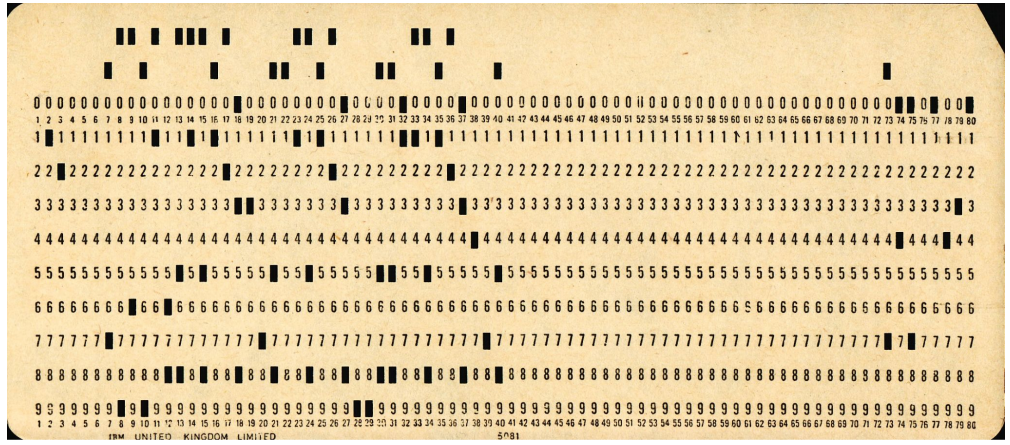
Programming is dead!

Source: IBM history of Fortran
https://www.ibm.com/history/fortran

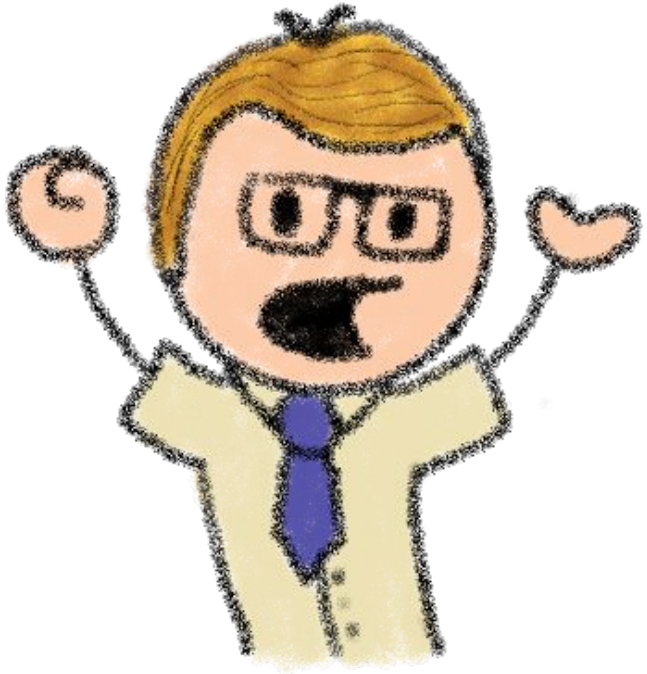


From punched cards to keyboards

Programmers won't think before coding anymore!



From punched cards to keyboards



I am not a typist !

Code is meant to be hard,

an intellectual pursuit,

typing it is for clerks.

Programming is dead !

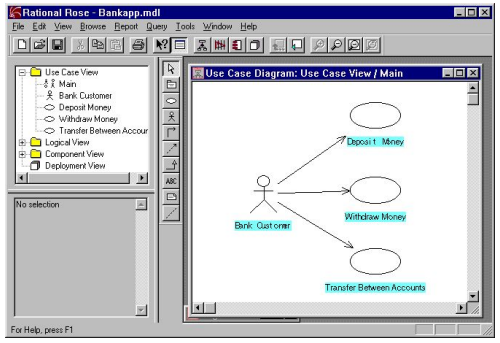
From punched cards to keyboards

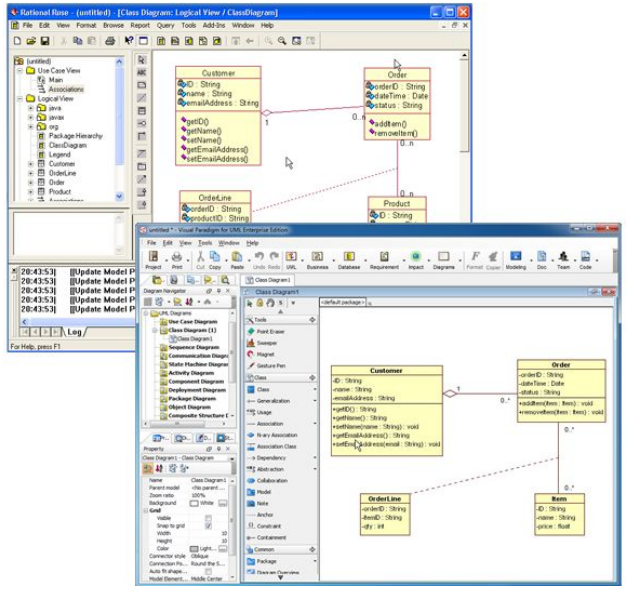
Sources:

- Wikipedia history of Punched Cards
  https://en.wikipedia.org/wiki/Punched_card
- Punching cards was a clerical job
  https://www.computerhistory.org/revolution/punched-cards/2/4

From Code to Models: the Automation Dream

Business users will be able to build applications without programming





MDE

UML

CASE

Rational Rose

Eclipse EMF

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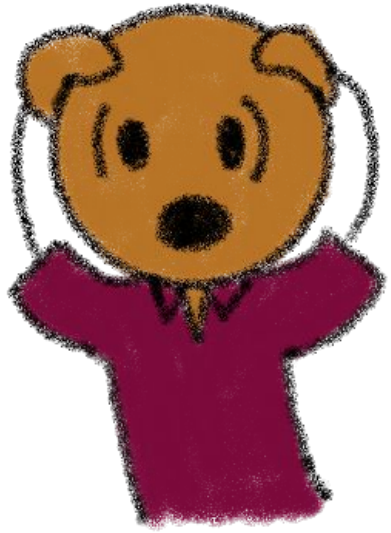
From Code to Models: the Automation Dream



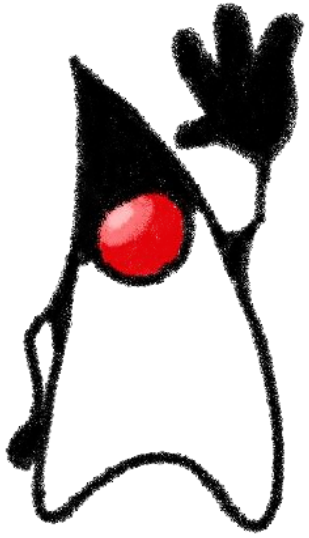
With CASE analysts will just design and computers will generate the code! Anybody will be able to use visual tools to create apps without a single line of code! Programming is dead!

Some sources:

- Software Engineering in the Twenty-First Century (M. R. Lowry, 1992)
  https://ojs.aaai.org/aimagazine/index.php/aimagazine/article/view/1012/930
- The Last One
  https://en.wikipedia.org/wiki/The_Last_One_%28software%29

Write once, run anywhere: Java

Anyone can be a programmer now!



Memory safe

WORA

Portability

Managed runtime

Applets

Democratize software development

Write once, run anywhere: Java

A language so dumb that

demands no superior intelligence!

Garbage collector, memory safe,

huge standard library, clean syntax...

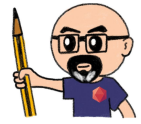
Real developers will be replaced!

Programming is dead!

Some sources:

https://www.joelonsoftware.com/2005/12/29/the-perils-of-javaschools-2/

https://nedbatchelder.com/blog/200601/joel_spolsky_is_a_crotchety_old_man.html



Low-Code / No-Code

Now anyone can be a developer

Low-Code / No-Code

It's the age of citizen developers!

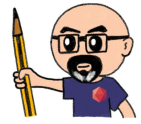
No knowledge is needed, coding skills are obsolete, even my grampa will be able to create apps!

Programming is dead!

Low-Code / No-Code

Some sources:

- The Rise of the Citizen Developer
  https://www.researchgate.net/publication/358383894_Rise_of_the_Citizen_Developer
- Will low-code/no-code platforms replace traditional developers?
  https://www.productmarketingalliance.com/developer-marketing/will-low-code-no-code-development-platforms-replace-traditional-developers/?utm_source=chatgpt.com
- Will the No Code Movement Change Software Development?
  https://www.quandarycg.com/no-code-movement-software-development-changes/



What Every Abstraction Wave Taught Us

Yet another apocalyptic change, it must be Monday...

What Every Abstraction Wave Taught Us

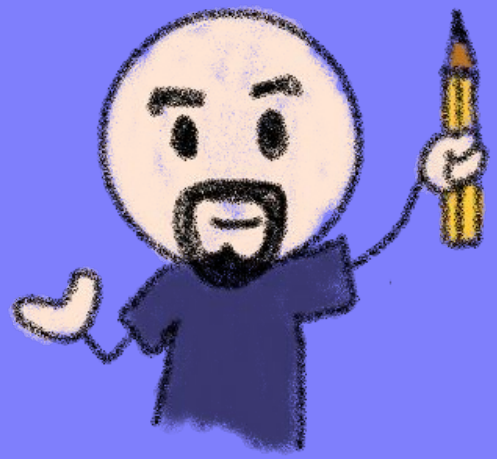
- Each new layer of abstraction triggers fear of obsolescence.
- Every time, developers adapt… and redefine the craft.
- Automation doesn’t eliminate skill; it changes where it lives.
- From bit-twiddling to system-thinking, we keep moving up the stack.

What Every Abstraction Wave Taught Us

We don't lose craft,
we move it up a level

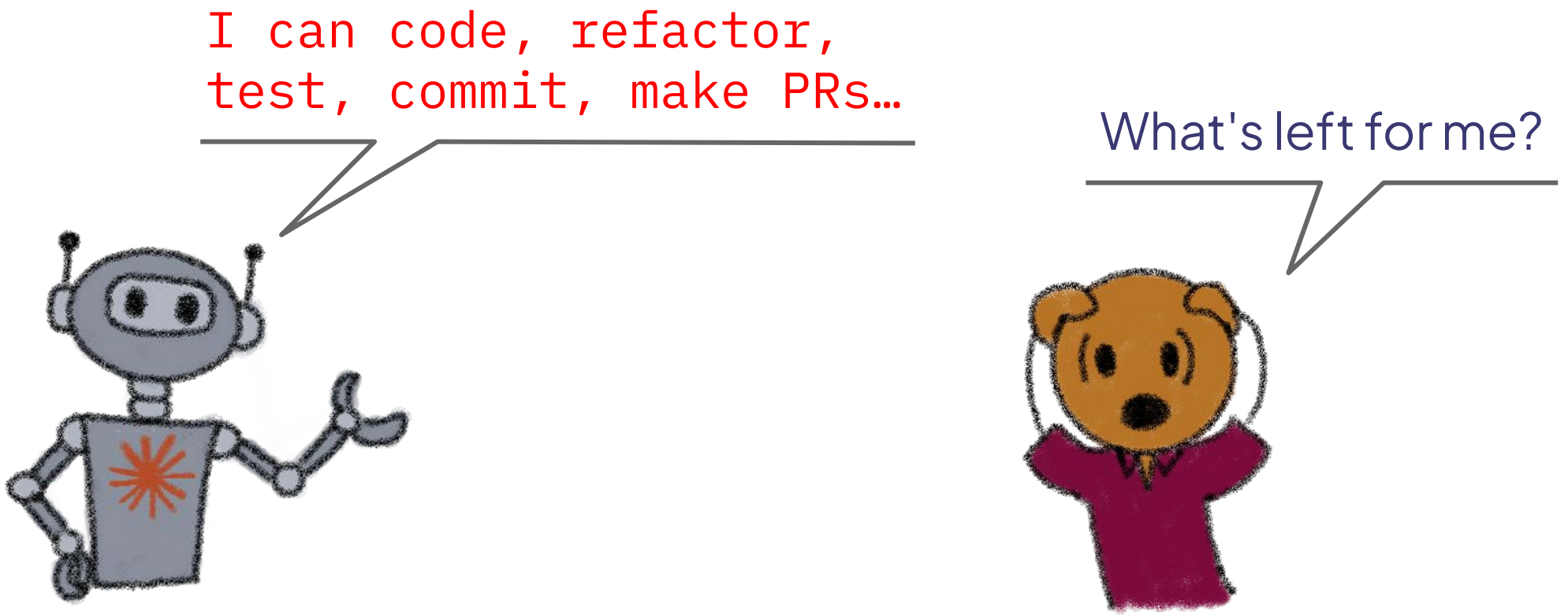
When Tools Learn, So Must We

Deskilling or Reskilling in the Age of AI



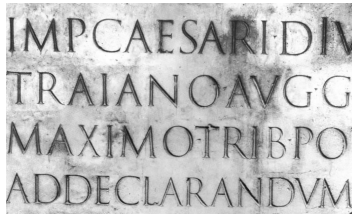
When Tools Learn, So Must We

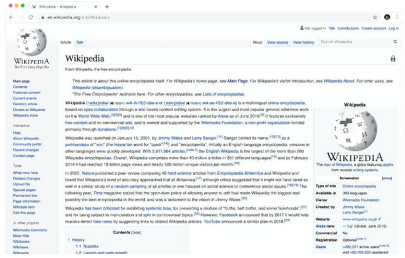
Are we being deskilled — or are we reskilling?



The Deskilling Fear

If AI can code, what's left for developers?





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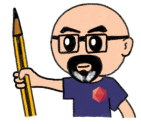
IDEAS

The Age of De-Skilling

Will AI stretch our minds—or stunt them?

By Kwame Anthony Appiah

https://www.theatlantic.com/ideas/archive/2025/10/ai-deskilling-automation-technology/684669/



Is software development being deskilled?

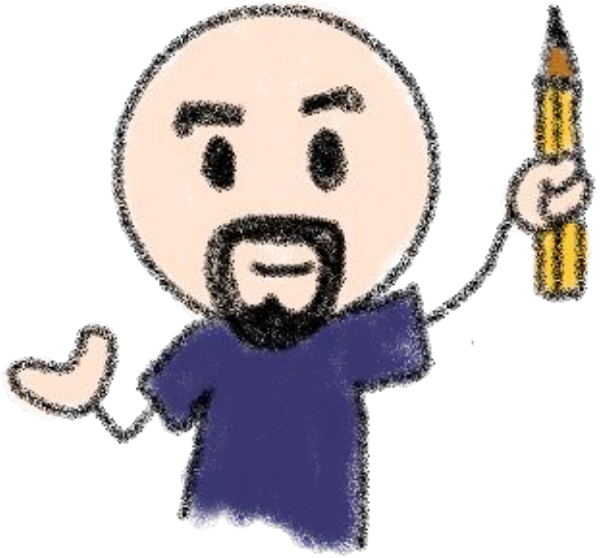
A very connoted word

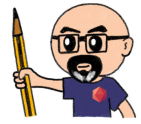
In economics, deskilling is the process by which **skilled labor** within an industry or economy **is eliminated by** the introduction of **technologies operated by** semi- or **unskilled workers**.

Automation doesn't deskill people

It shifts expertise to places the tools can't reach

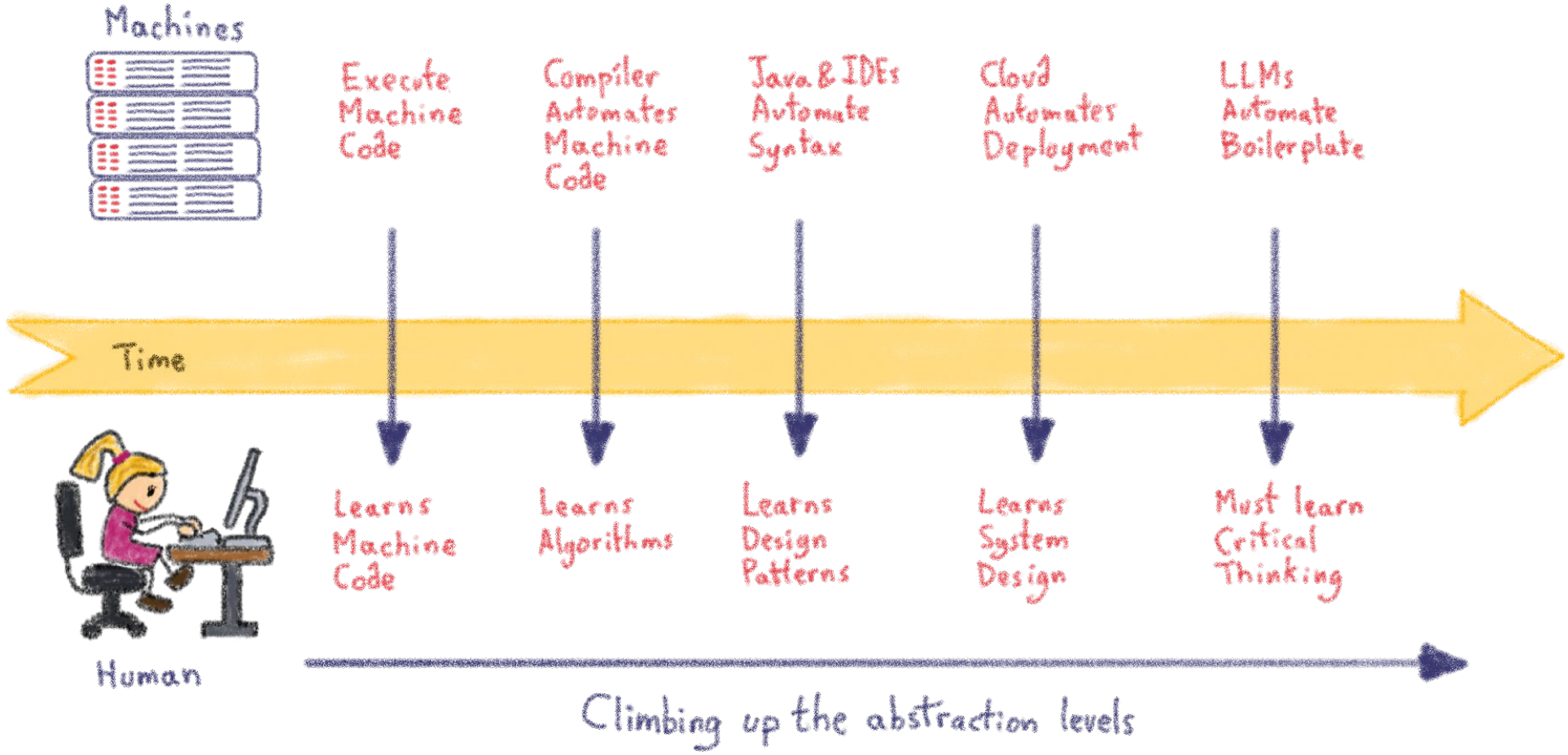
Every technology shapes our mind.
They don't eliminate skill,
it relocates to a new domain.





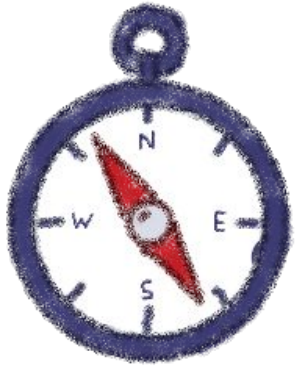
From Repetition to Reasoning

Automation shifts the skill, not the value



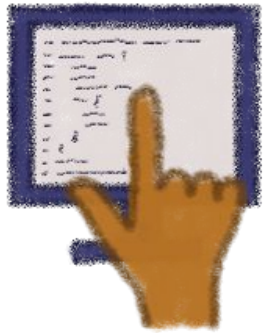
What We're Really Learning Now

New literacies for developers



Framing

Turning intent into precise prompts



Critical Reading

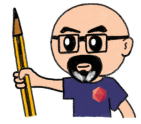
Validating AI output

Debugging abstractions

Tracing errors you didn't write

Ethics & Trust

Knowing when not to automate



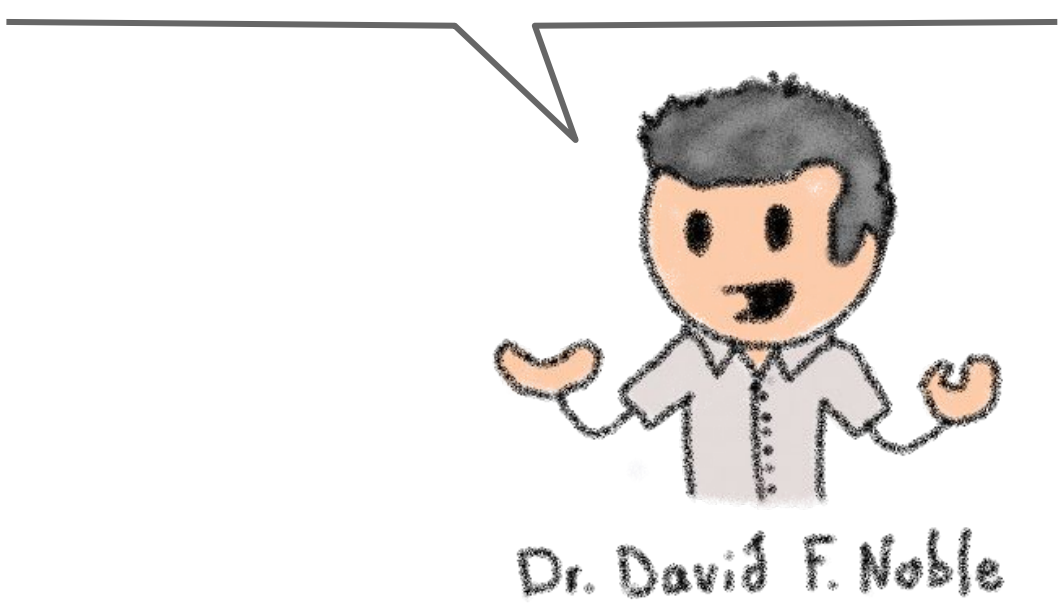
From “Lost Skills” to New Ones

We’re not forgetting, we’re evolving

“We’ll forget how to code”

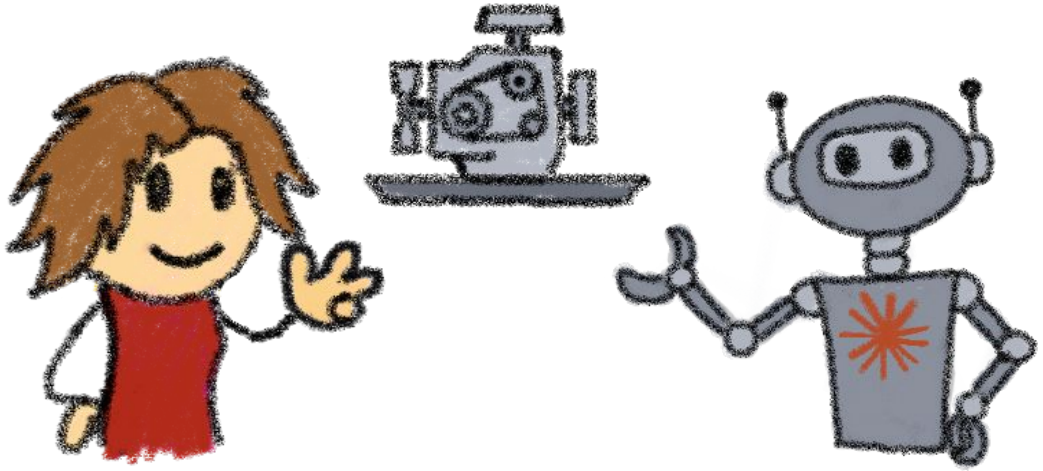
The danger isn’t forgetting how to write a loop, it’s forgetting how to think about one

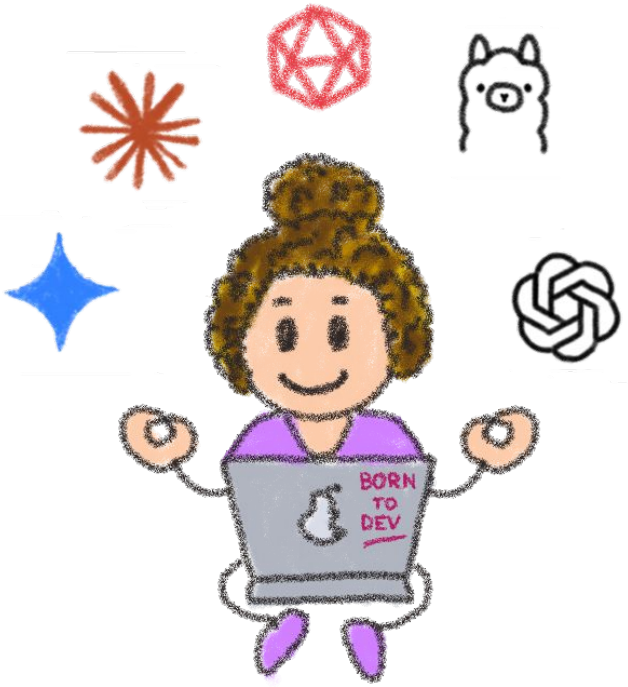
Every machine embodies a social decision, what gets automated, and what remains a skill



The Craft Endures

Still human, just differently skilled



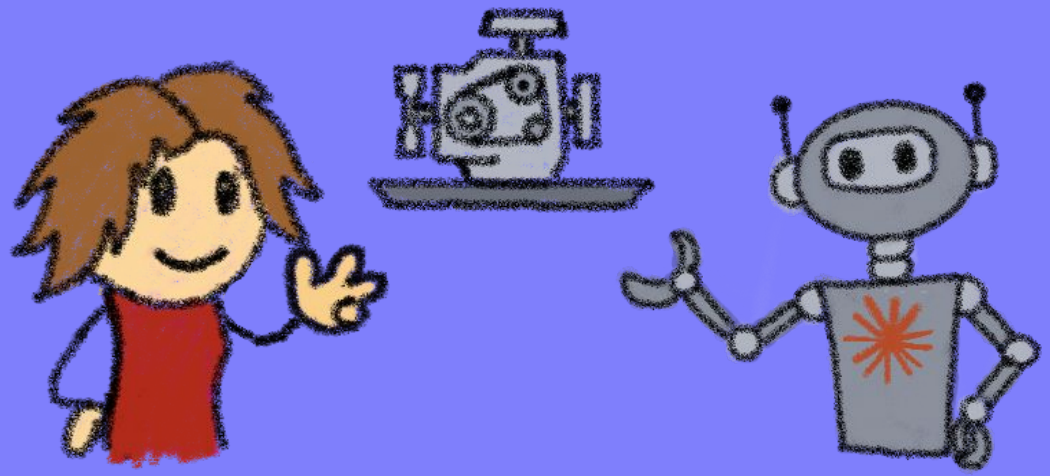


When tools learn, so must we

Automation doesn’t end craftsmanship — it redefines it

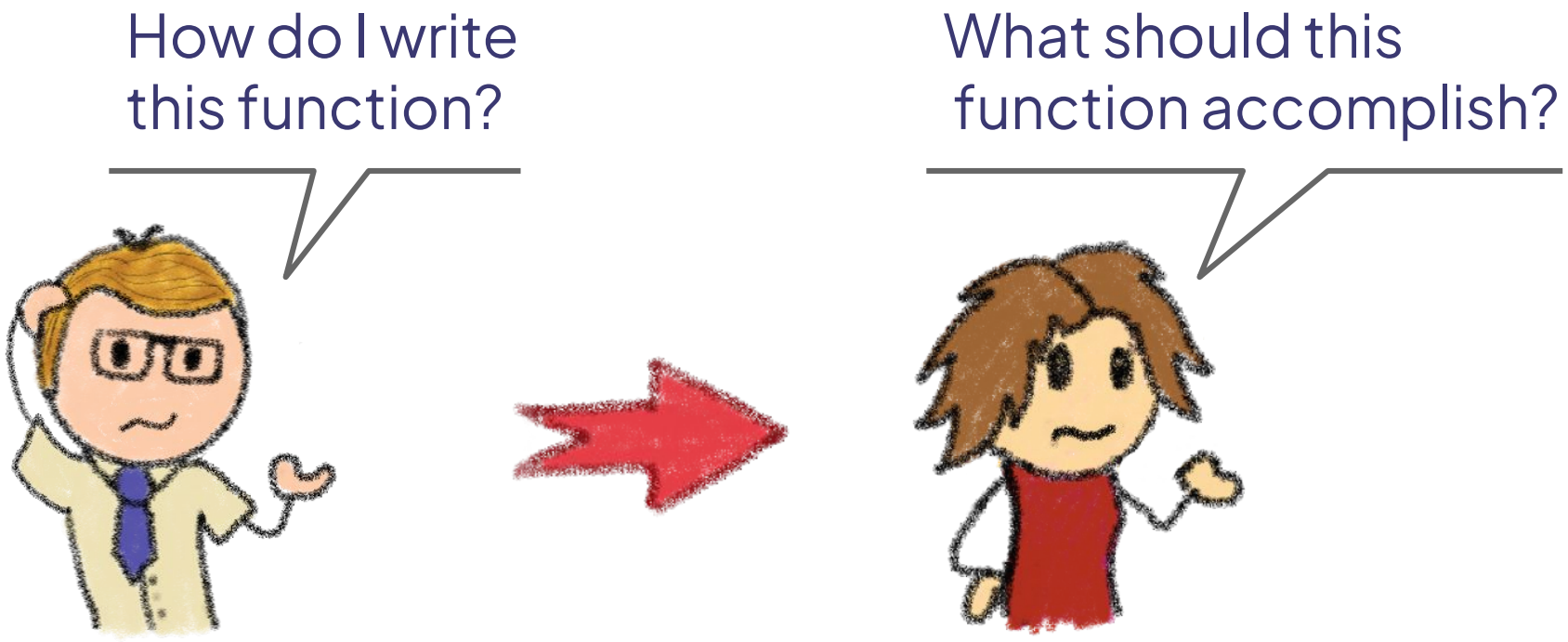
The Developer's New Workflow

Co-Authoring with the Machine



From syntax recall to intent articulation

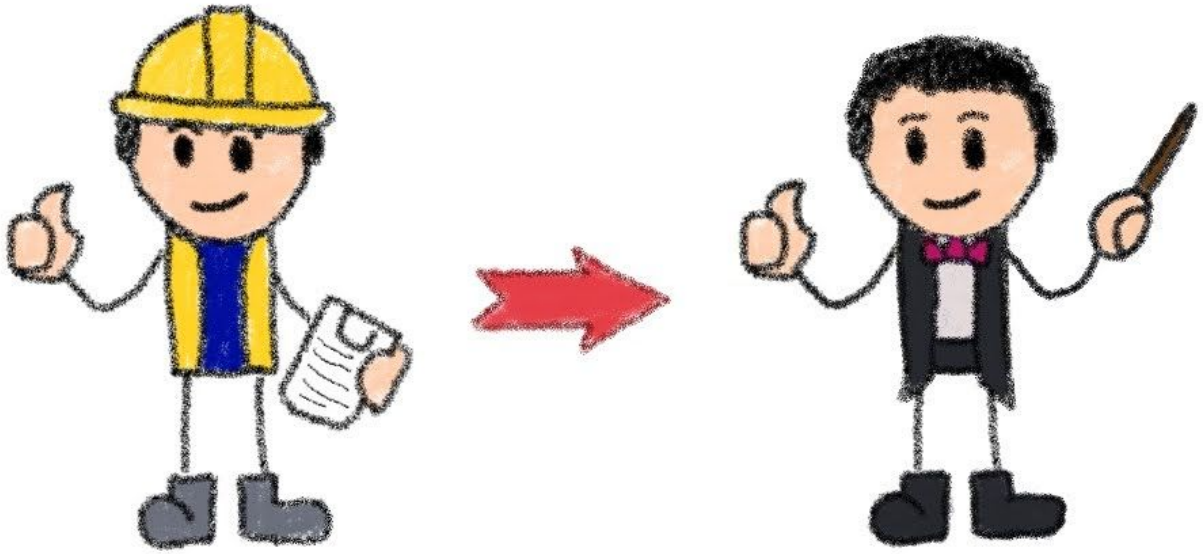
The bottleneck moves from syntax to semantics



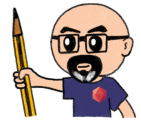
You're no longer coding for the machine;
you're negotiating with it

From implementation to orchestration

You used to be a builder, now you're a conductor

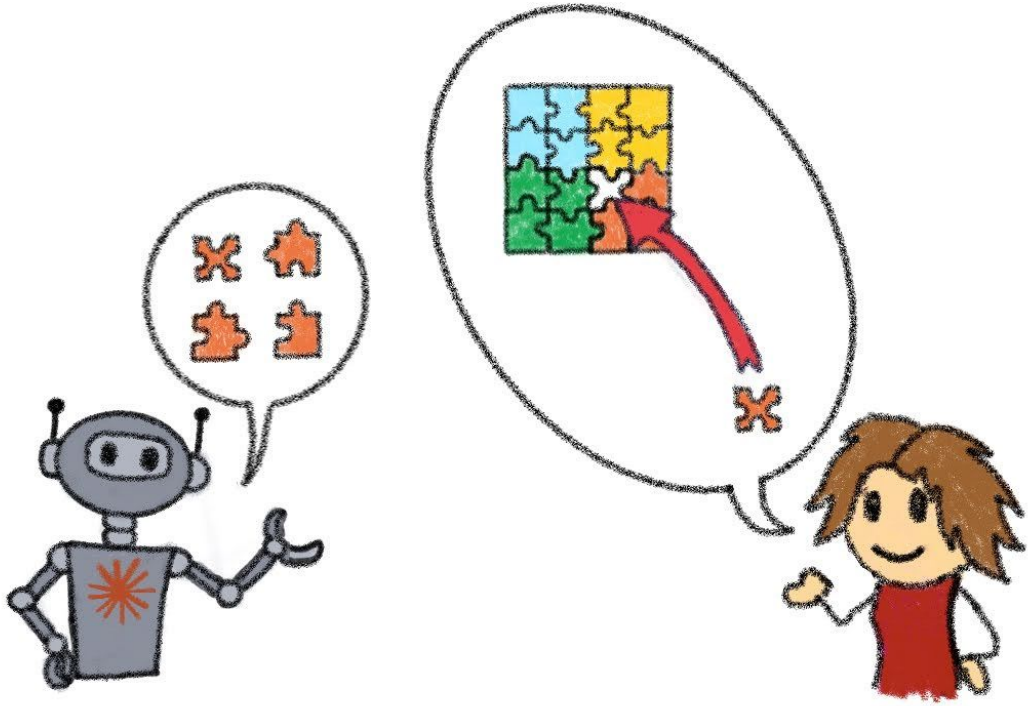


A conductor doesn't play every instrument;
they ensure harmony and timing



From writing code to curating systems

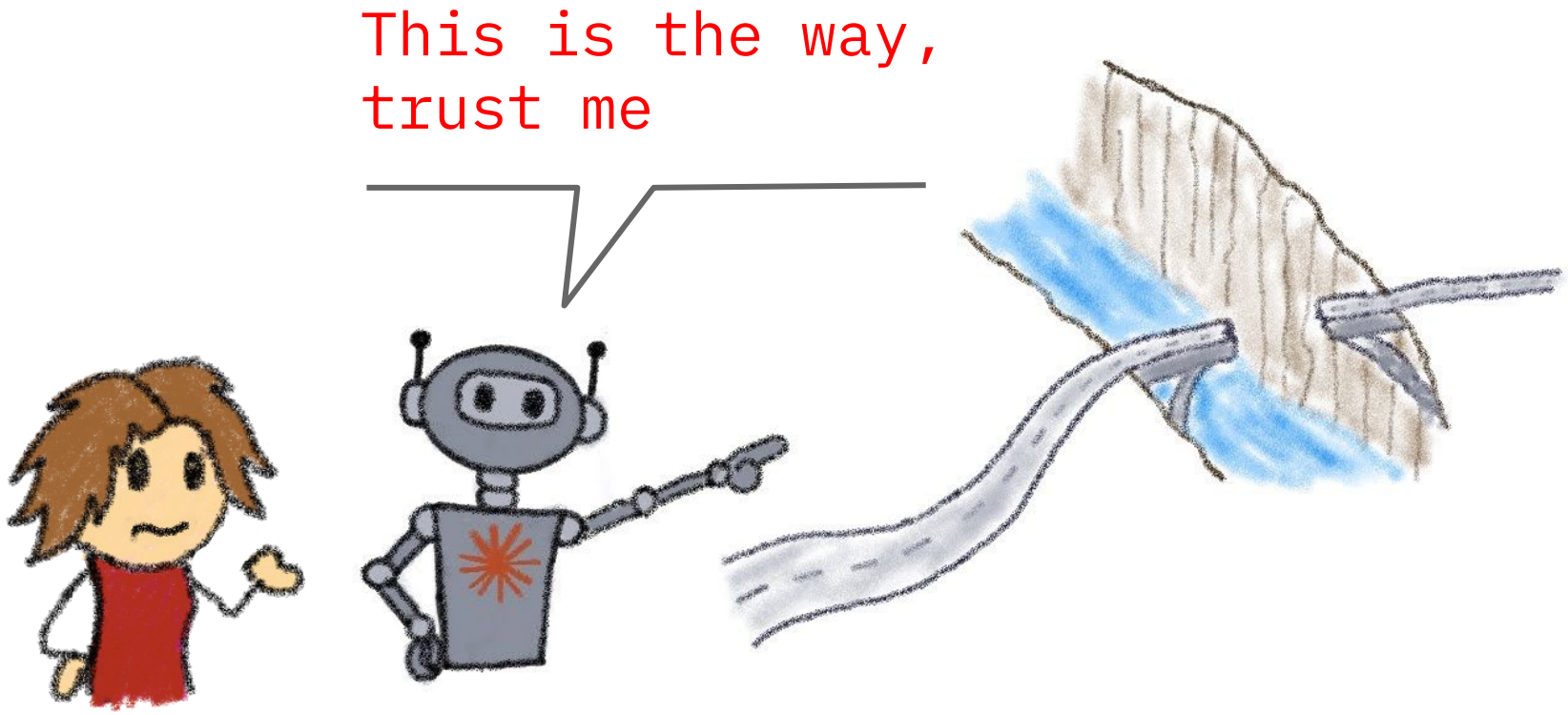
Deciding which lines matter, and which ones can be delegated.



Choosing what to keep, refine, or replace

Pitfalls

Overtrust, hallucination, loss of mental model

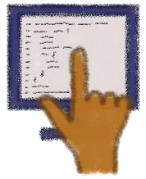


The risk isn't that the model will write bad code,
it's that we'll stop understanding the code it writes

The new rhythm of collaboration

Partnering with an LLM

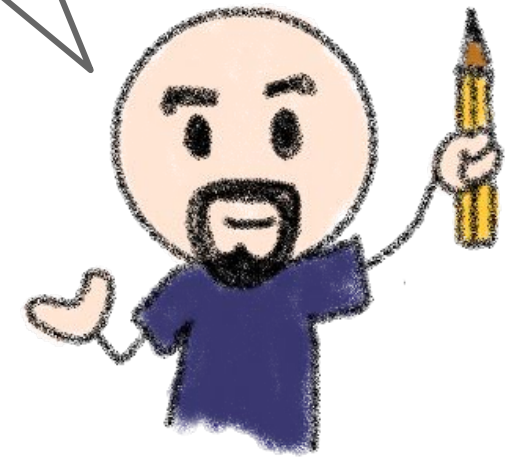
Ask clearly



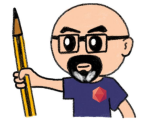
Review ruthlessly

Teach continuously

The best developers I know don't treat the model as magic, they treat it as a junior teammate who learns through feedback



Coding with an LLM is pair programming with a young colleague who's brilliant, tireless, and occasionally delusional



In conclusion

Co-Authoring with the Machine

We used to talk about “writing software.”

Now we’re talking about “conducting software.”

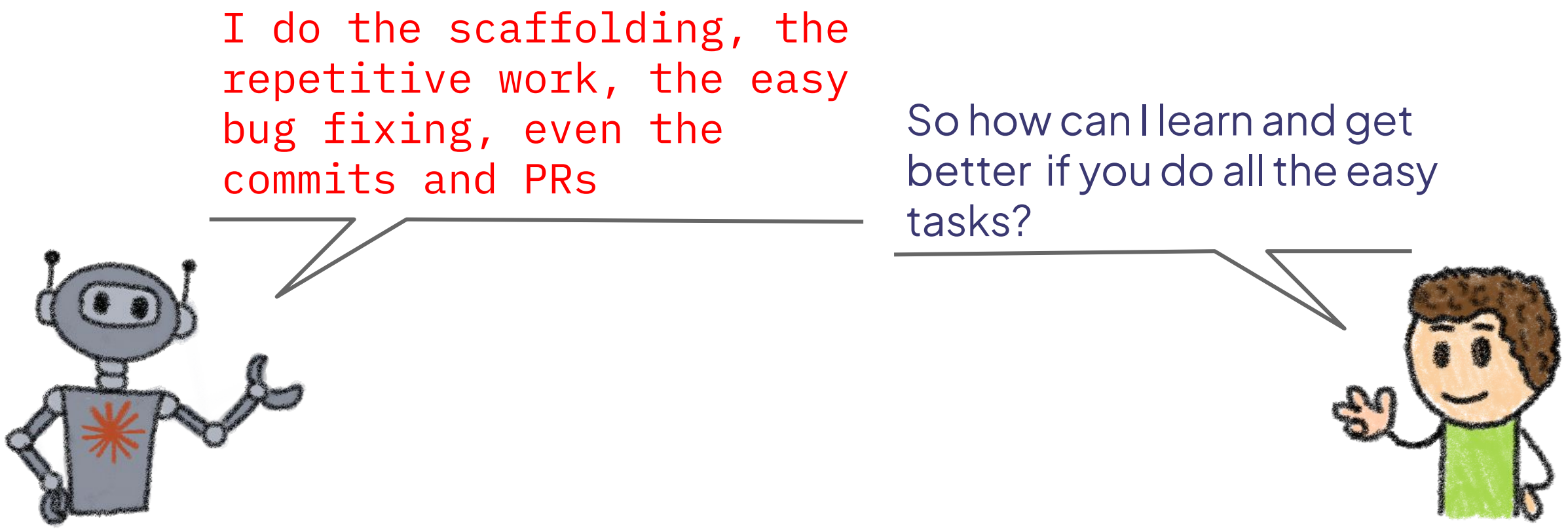
The tools play the instruments, but we still write the score

The Developer's Journey

Growing Up with Smarter Tools

The vanishing entry-level

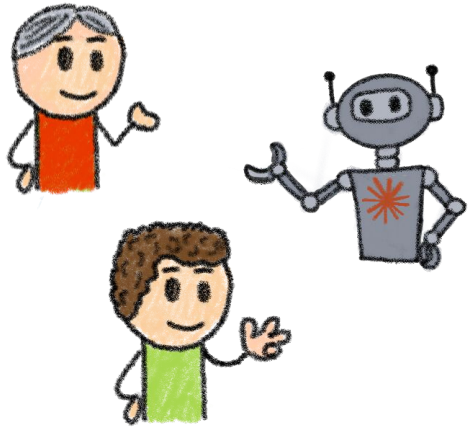
Setting the stage



If the easy problems are gone,
where do new developers cut their teeth?

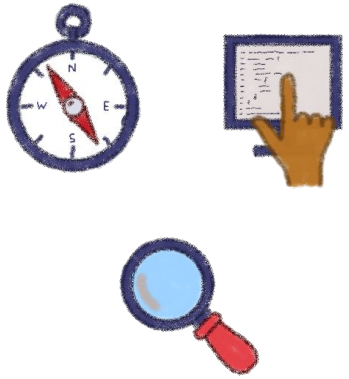
Rethinking learning

Juniors now must learn through AI, not before AI.



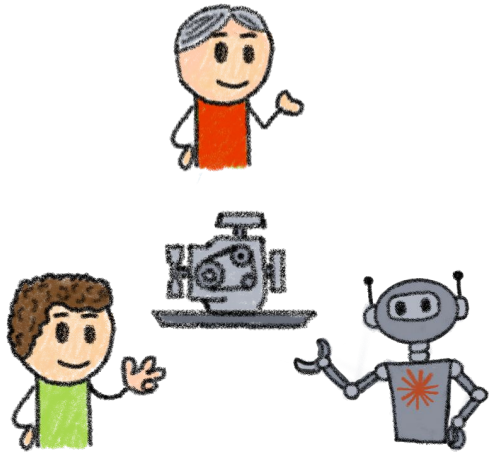
Tri-programming

Junior, AI and senior



Teaching

Prompt crafting, critical code reading and debugging AI output



Guided co-creation

New onboarding pattern instead of rote implementation

Redefining seniority

What means being senior in a world with AI?

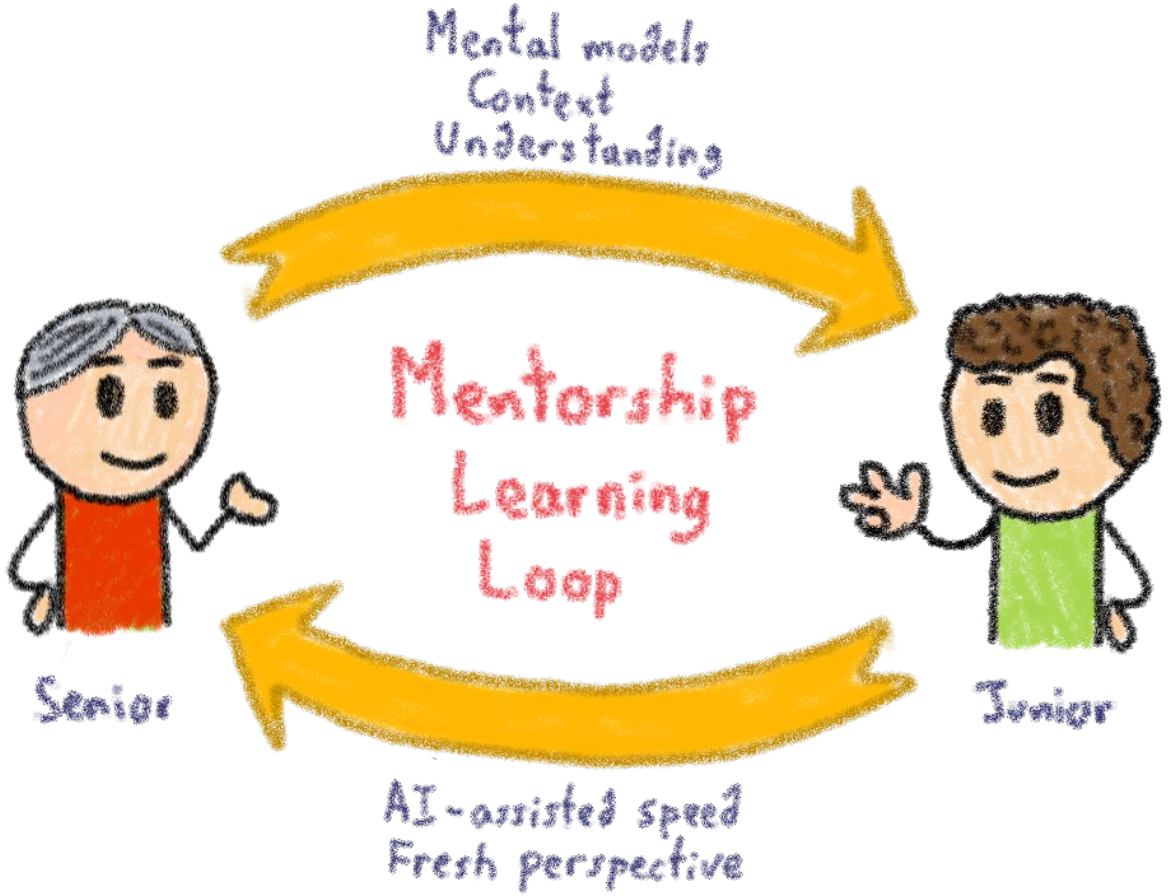
Senior ≠ years of syntax mastery

Senior = common sense, system and domain understanding, empathy and leadership

Seniority is shifting from knowing the answers to knowing which questions matter

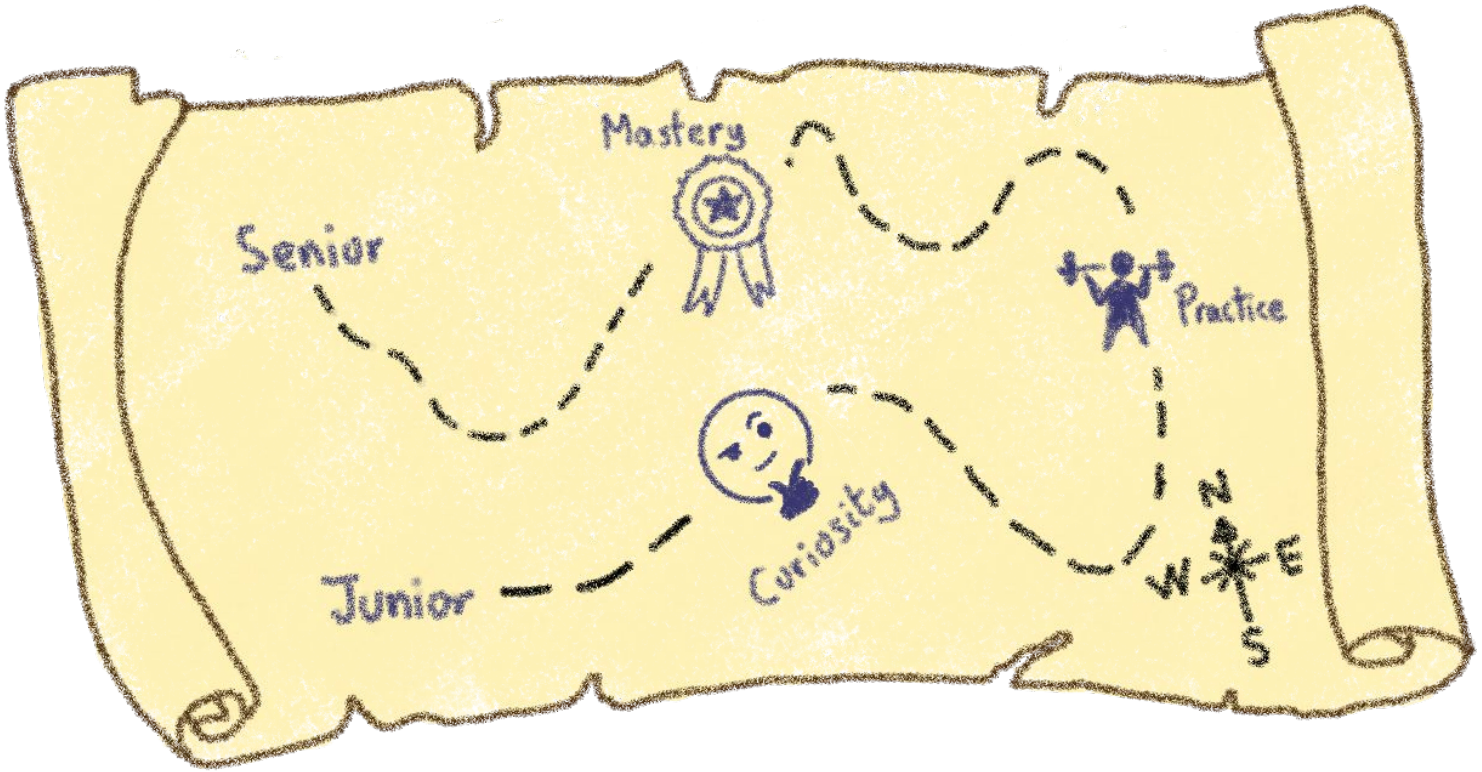
Mentorship in this new world

A two-ways road



Conclusion

The map changed, but not the destination



Still learning to talk to machines, the language just evolved

Teaching the Next Generation

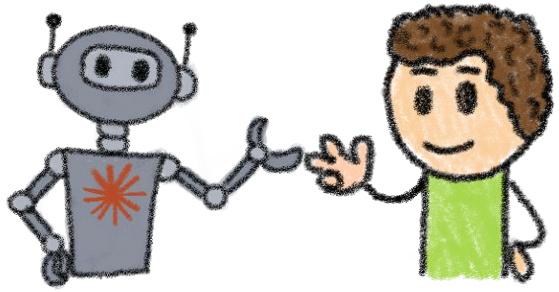
How do we teach programming when the computer can already code?

The broken model

We've been teaching how to code, not how to think about code

Traditional model

Syntax drills &
algorithmic exercises

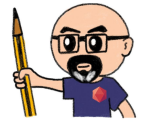


AI assistants

Students can "solve"
everything instantly

Grading output

Everyone can cheat… or
worse, learn nothing

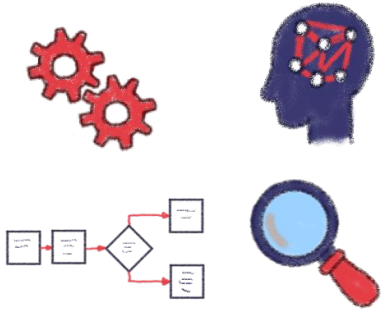


Shifting from execution to understanding

Let's teach less syntax, more synthesis

Write a function that...

Explain what this function does and why

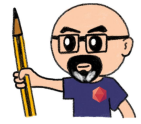


Change focus

Reasoning, mental models, system design and debugging

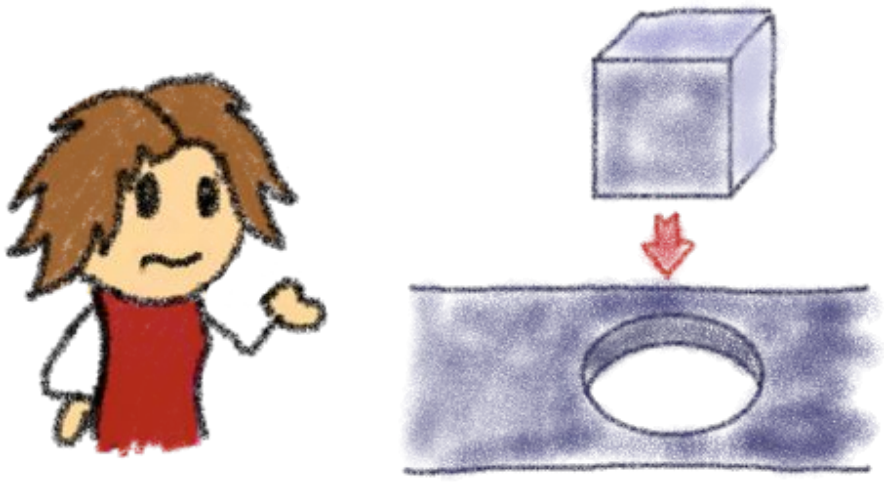
Evaluate process

Oral defense, live reasoning, code walkthroughs



The role of friction

We must design friction on purpose



Constraint-based learning forces students to think.

- debug broken AI code
- critique different answers
- give incomplete requirements

The struggle is where understanding grows.

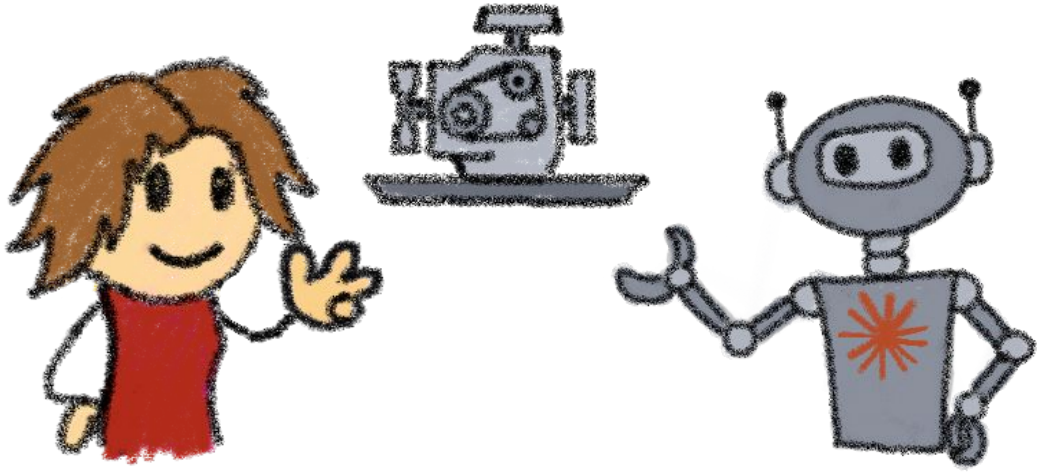
Teaching collaboration with AI

Students need to learn to use LLMs well, not to hide them

Prompt design
Describe intent precisely

Verification
Test and analyze the output

Reflection
Document what was learned
and what went wrong



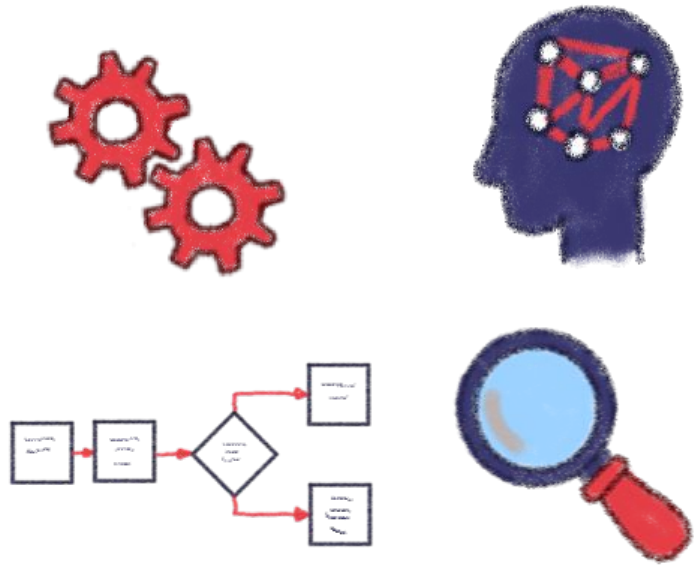
Assessment reimagined

How can we evaluate?

Plagiarism detection is meaningless

Grade something else:

- Process
- Reflection
- Reasoning



When understanding becomes visible, cheating becomes pointless

Re-tooling educators

Teachers need their own upskilling

We have to learn what these tools do, where they fail, and how to guide students through them

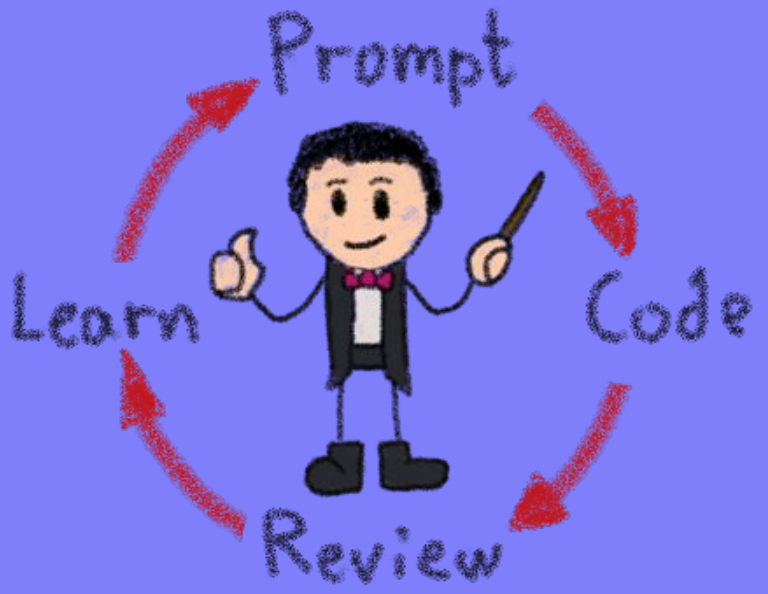
- Experimenting
- Sharing open lesson plans
- Accepting that “teaching AI-era programming” is itself a new discipline

Conclusion

We don’t teach people to out-code the machine.
We teach them to understand, guide, and question it.

Differently Human

The Future of Software Development



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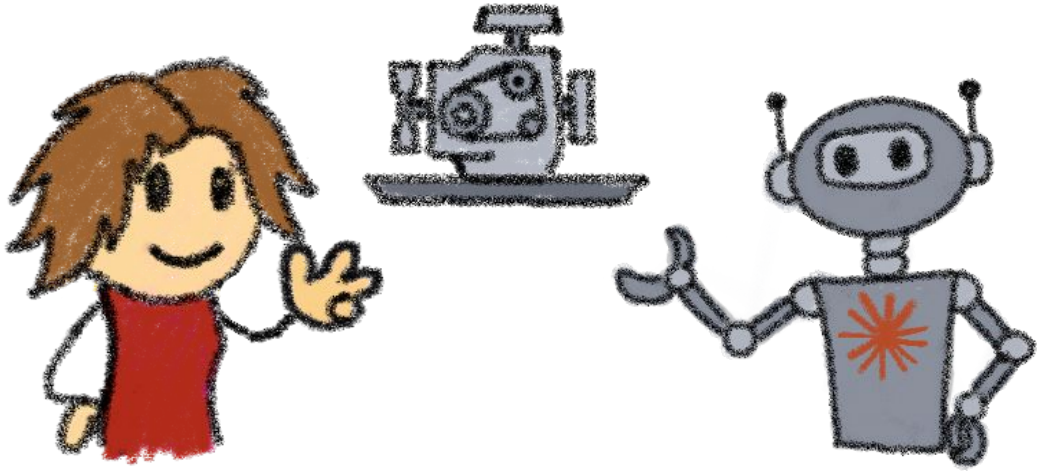
Differently Human

The future of software development



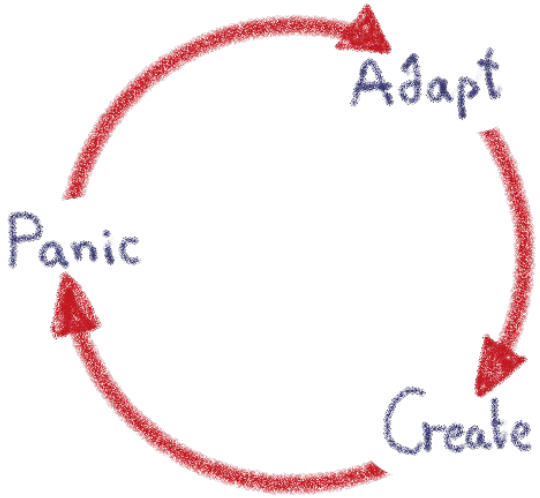
Every abstraction hides a machine…
and reveals a human choice.

The Pattern Repeats

Every revolution ends in rediscovery

Assembly → Fortran → Java → Cloud → LLMs

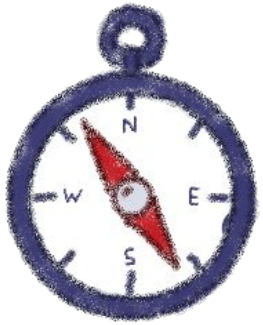
Each looked like an ending
None erased us; all redefined us



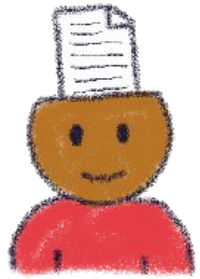
The next wave will do the same

What Machines Still Can't Do

Computation isn't comprehension



Intent



Context

Empathy

Ethics

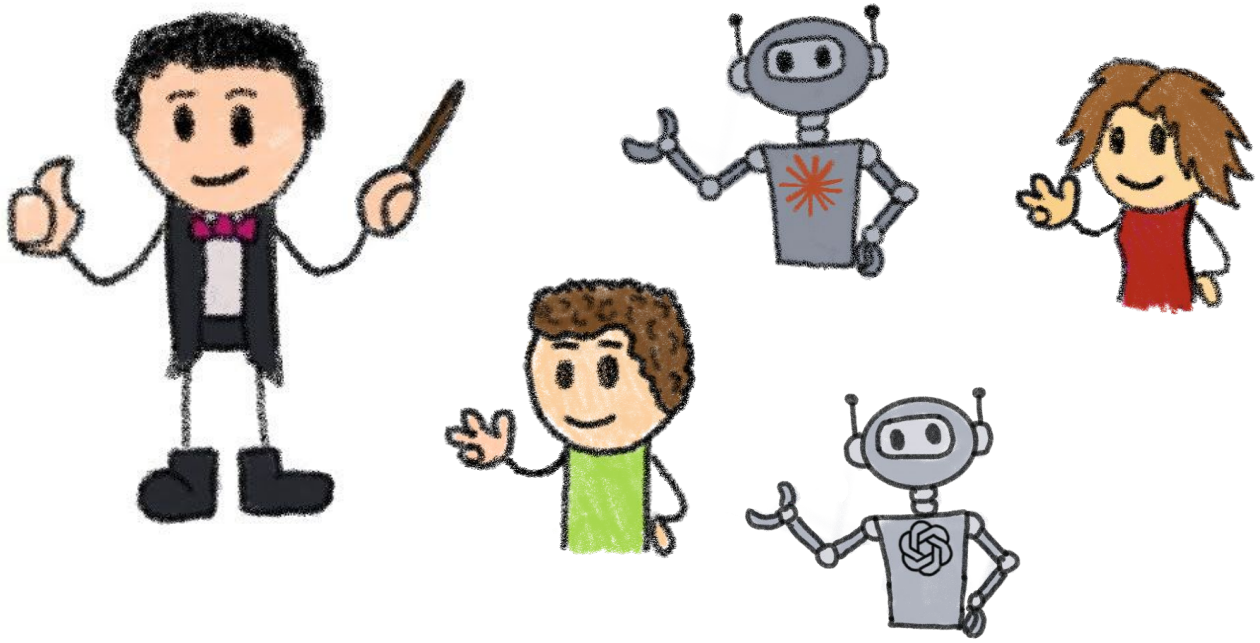
LLMs manipulate form, not meaning

We supply the "why," the value judgment, the connection to real people

The New Developer Archetype

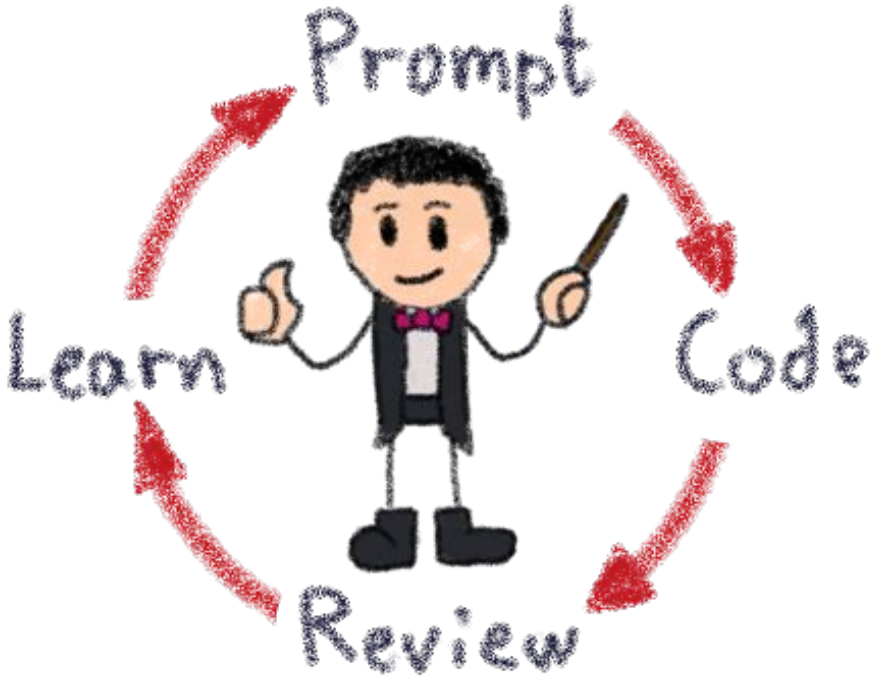
From Coder to Composer

- Orchestrates human + machine collaboration
- Balances automation with accountability
- Designs systems and stories



The Human Loop

Keep the Human in the Loop



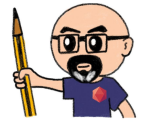
Our job: preserve understanding inside automated pipelines
Automation without comprehension is abdication

Conclusion

Not Less Human — Differently Human

The future of software development isn't less human.
It's just differently human.

Our craft remains — it just moves up a level.



That's all, folks!

Thank you all!

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