ESSENCE AND ACCIDENTS OF SOFTWARE ENGINEERING

No Silver Bullet

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Overview

"..WE SEE NO SILVER BULLET. THERE IS NO SINGE DEVELOPMENT, IN EITHER TECHNOLOGY OR IN MANAGEMENT TECHNIQUE, THAT BY ITSELF PROMISES EVEN ONE ORDER OF MAGNITUDE IMPROVEMENT OF PRODUCTIVITY, IN RELIABILITY, IN SIMILICITY.

1 Essence vs Accidents: The nature of the software problem
2 Essence: Complexity
3 Essence: Conformity
4 Essence: Changability
5 Essense: Invisibility
6 Software Designers

Complexity & Conformity

- Complexity: Physics vs Software
- Conformity: God vs human

Changeability & Invisibility

- Changeability: If it can change, it's asked to change.
- Invisibility: Un-visualizable

Promising "Silver Bullets"?

"No amount of activity on the task components that are merely the expression of concepts can give large productivity gains."

ADA/OOP

AI & EXPERT SYSTEMS

GRAPHICAL PROGRAMMING

Attacks on Essence

"The hard thing about building software is deciding what one wants to say, not saying it.."

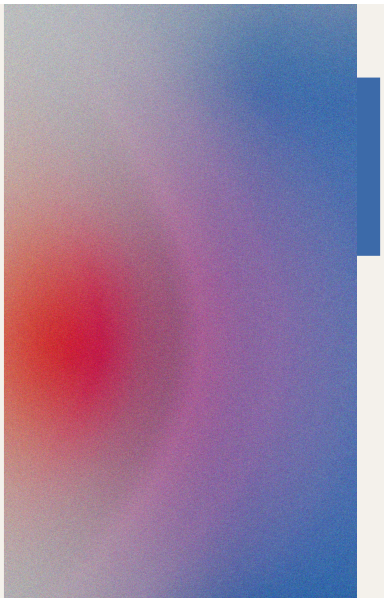
BUY/BUILD

PROTOTYPING & INCREMENTAL DEVELOPMENT

GREAT DESIGNERS

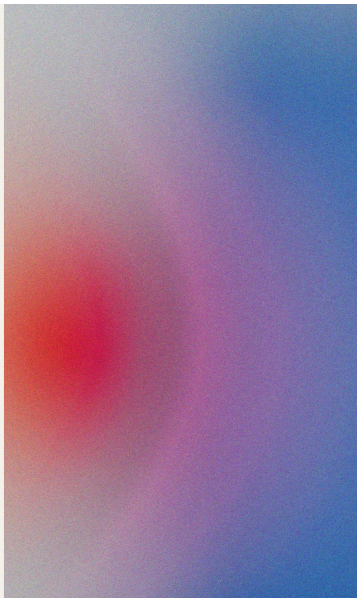
Positives

- The article is overall positive
- Even with the power of LLMs and Agentic Systems -the challenge remains in defining purpose over mere implementation
- As complexity grows, bottlenecks shift
- Intellectual effort. Deciding what to build.



Negatives

- "The single biggest problem in communication is the illusion that it has taken place." - George Bernard Shaw
- Everyone contributes to the code base. The positives of the essence of software.
- Single solution mindset for a multifaceted problem.



Metrics Tracking

Set up analytic tools to measure performance. How close can we get to 10x? Are there certain industries that allow this and others that may not?

Rating: 5/5

Rating the past, while see the potential of the future.

Discussion Questions

- Will there continue to be more moles to whack or will one mole emerge to be larger and more frequent than the others?
- Interested in where the class lies in the future of software. Do we think we will make the 10x leap or no? How could it look?
- How do we think organizations will have to restructure themselves in order to allow a 10x leap? How do we maximize creativity?
- Could software evolve like that of biology, making changeability an asset - the strengths of the esesnce of software.

Thank you

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