BASTA!

by entwickler.de

Generative Frontend: The End of Deterministic UI

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- **Core Tech:** Angular, TypeScript & AI-powered development.
- **Focus:** Scalable Front-end Architectures & Generative Interfaces.
- **Open Source:** Building libraries for AI integration in web ecosystems.
- **Passion:** Developer Experience (DX) & Next-gen tooling.
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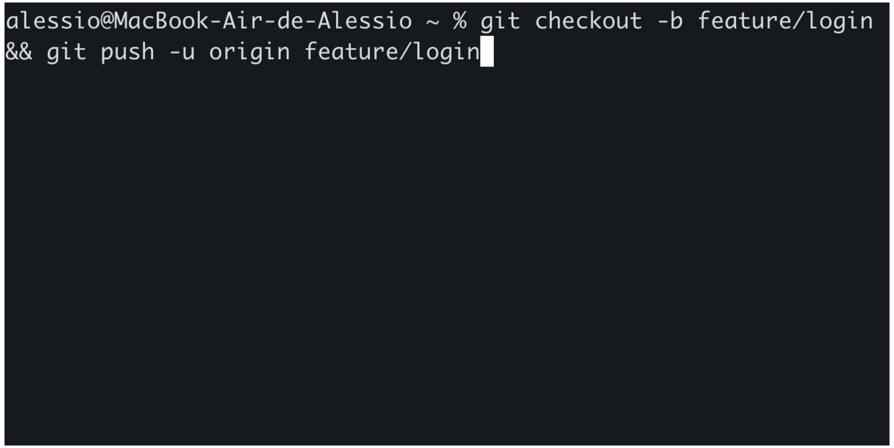
Agenda

1. Natural Language
2. Static vs Dynamic
3. Defining GenUI
4. Engineering GenUI
5. Guardrails
6. Showcases
7. Takeaways

The shift to natural language

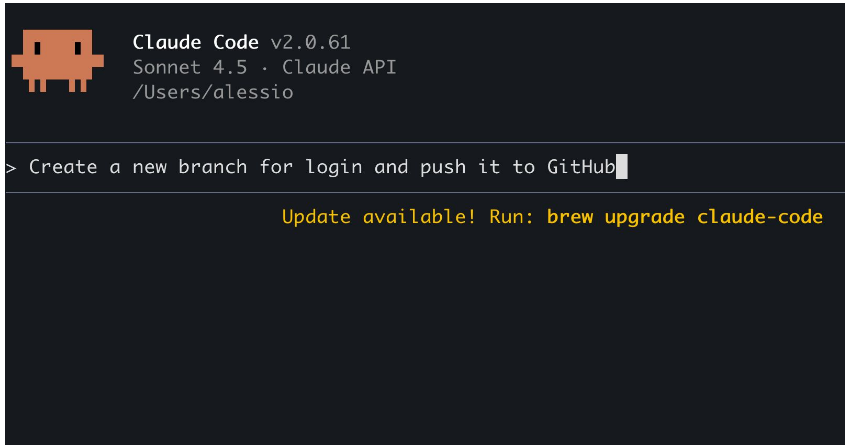
The Deterministic Era (Yesterday)



```
alessio@MacBook-Air-de-Alessio ~ % git checkout -b feature/login
&& git push -u origin feature/login
```

Rigid commands in terminals

The Intent-Based Era (Today)

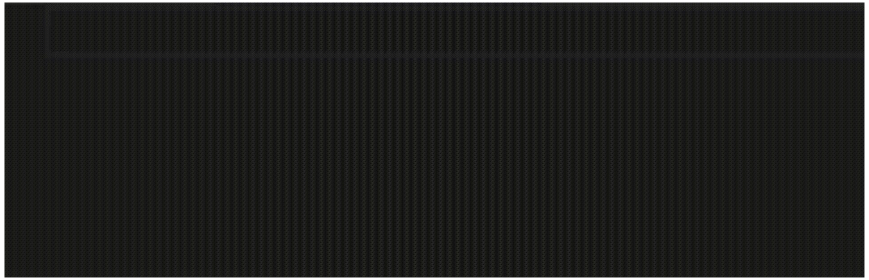


```
Claude Code v2.0.61
Sonnet 4.5 · Claude API
/Users/alessio

> Create a new branch for login and push it to GitHub

                    Update available! Run: brew upgrade claude-code
```

Asking an AI Agent

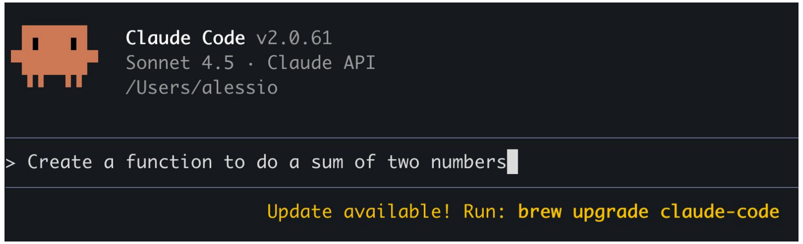
The shift to natural language

The Deterministic Era (Yesterday)



Writing code manually

The Intent-Based Era (Today)

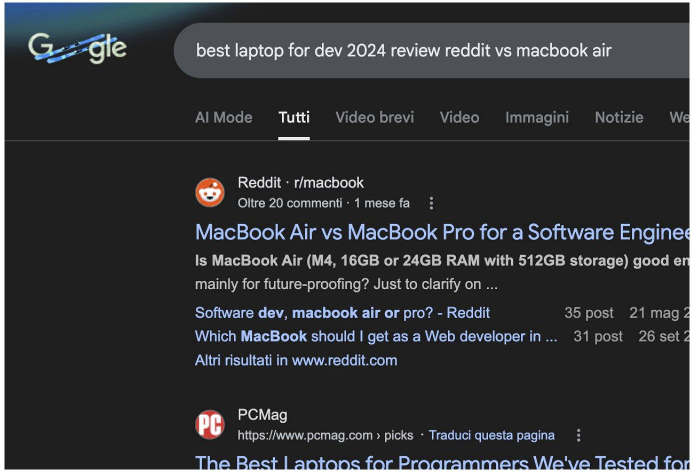


```
Claude Code v2.0.61
Sonnet 4.5 · Claude API
/Users/alessio

> Create a function to do a sum of two numbers

                    Update available! Run: brew upgrade claude-code
```

Asking an AI Agent

The shift to natural language

The Deterministic Era (Yesterday)



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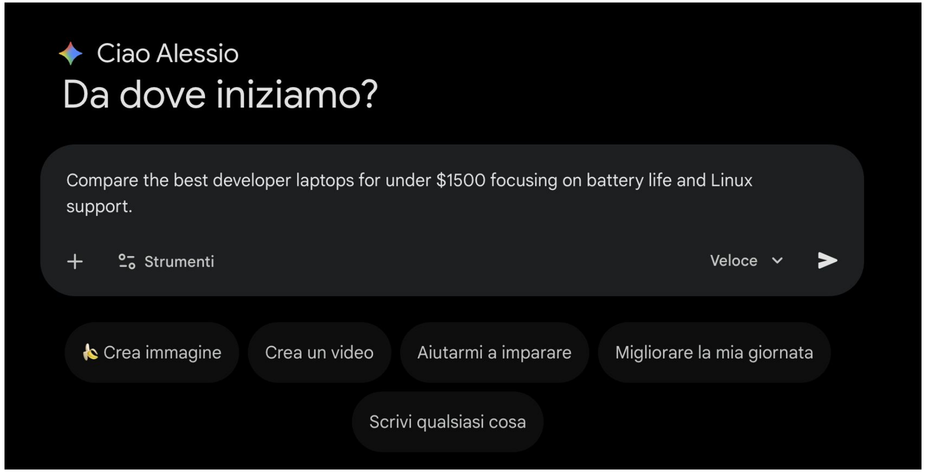
The Intent-Based Era (Today)



Ciao Alessio
Da dove iniziamo?

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Asking an AI Agent

The shift to natural language

<u>**The Deterministic Era (Yesterday)**</u>

<u>**The Intent-Based Era (Today)**</u>

Fixed Layouts

Generative Components

Why Static Interfaces are Failing Modern UX

- **Predictive Bottleneck:** Designers must guess user needs in advance; GenUI reacts to real-time intent.
- **Navigation Friction:** Users must "hunt" for features through menus; GenUI brings the specific tool to the user.
- **Feature Bloat:** Static pages often show every available tool "just in case," causing high cognitive load.
- **One-Size-Fits-None:** Traditional hierarchies ignore individual user context, forcing everyone into the same flow.

What is a Generative Frontend

AI Acts as the Orchestrator between the backend data and the visual presentation layer

- **Runtime Assembly:** The UI is "rendered on the fly" using atomic components (buttons, charts, text blocks) chosen by the AI at the moment of the request.
- **Intent-Driven:** The layout changes based on *what* the user is trying to do, rather than forcing the user to navigate a predefined menu.
- **Dynamic Component Selection:** If the AI determines a table is better than a list for a specific query, it generates a table instantly without developer intervention.

What is a Generative Frontend

Helps software and business to provide a custom experience to each user

- **Context-Aware:** It automatically adjusts density, complexity, and visual style based on the user's device, location, or expertise level.
- **Hyper-Personalization:** Every user sees a unique interface tailored to their specific data and history, eliminating "feature bloat."

The Lego Analogy

Traditional UI (Yesterday)

- Software is delivered like a **pre-assembled Lego set**
- To add a feature, you have to "dismantle" the code and **rebuild the whole structure**

Generative UI (Today)

- Software is a **box of loose atomic bricks** (components like buttons, charts, inputs).
- **On-the-Fly Assembly:** If the user asks for a report, the AI snaps the "table" and "filter" bricks together instantly.

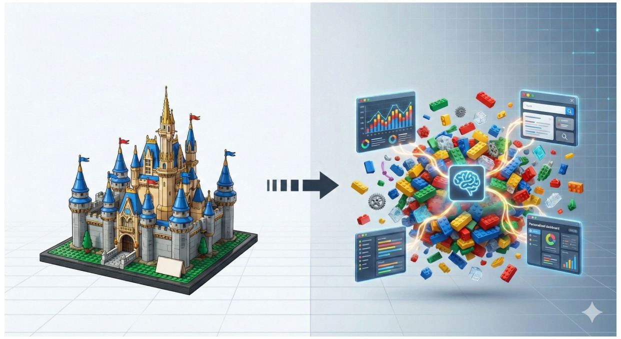
The Lego Analogy

Traditional UI (Yesterday)

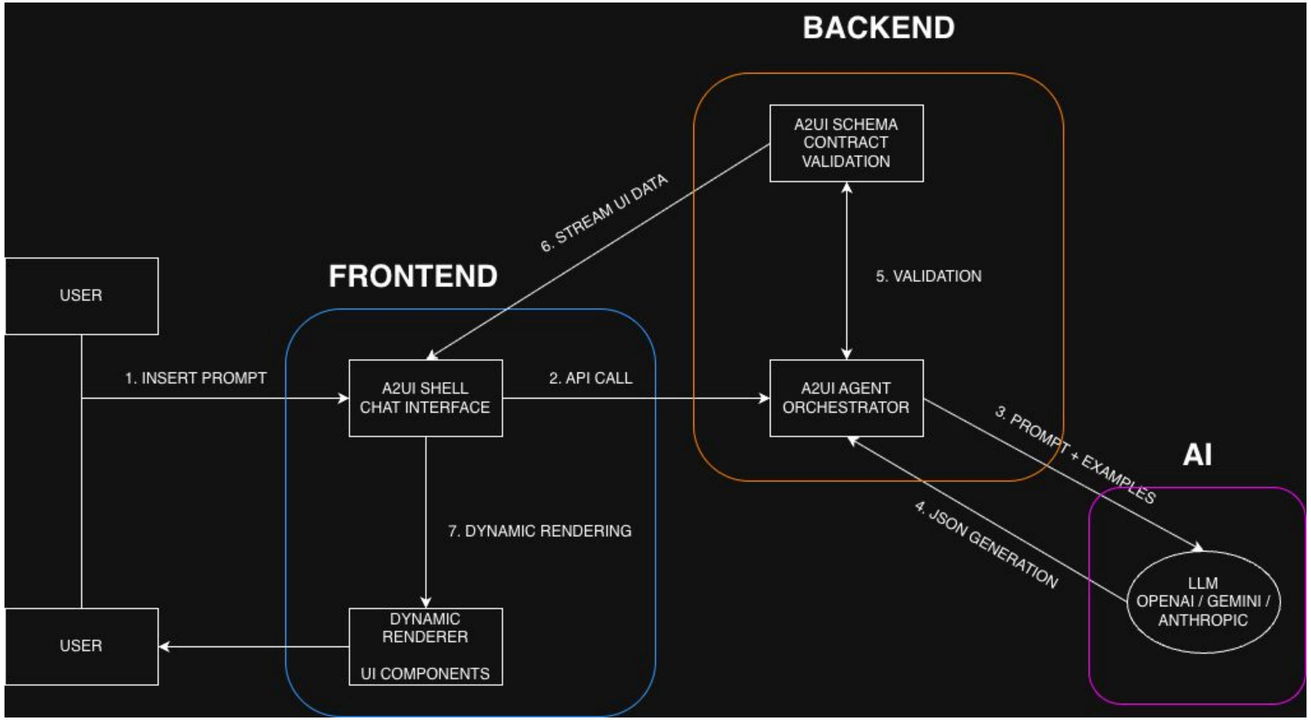
Users must follow the "instruction manual" (menus and pre-set flows) to find what they need.

Generative UI (Today)

There is no manual; the interface **reconfigures its shape** to fit the user's hand.



Architecture: Under the Hood



The pipeline

The contract (JSON)

Dynamic Rendering (LIT)

Make it Real (Deep Dive)

Design System as a DSL

Security & Validation

The Proof: Demos

Demo

Demo

Demo

Conclusion: Takeaways & Future