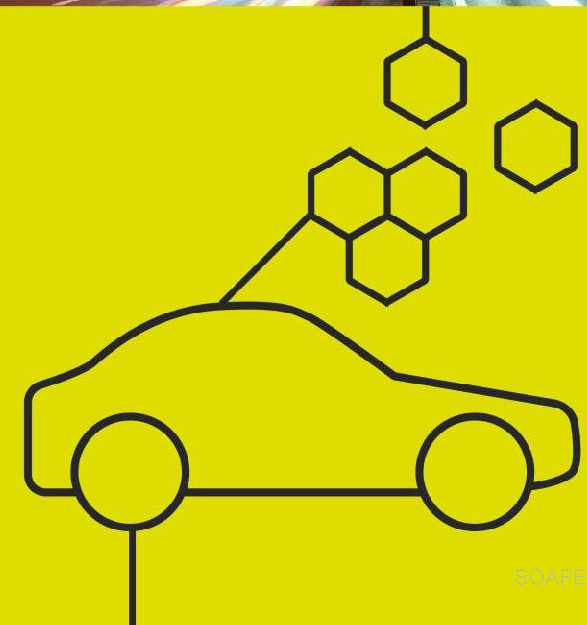


The Life We Know is Gone Forever

End-to-end AI-Driven Automotive Software Development

Yang Zhang
2025.11.12



**AI is transforming the world—
including every knowledge-based job**

75%

**Of enterprises will have AI at their core within
2 years**

Is your team leading—or following?

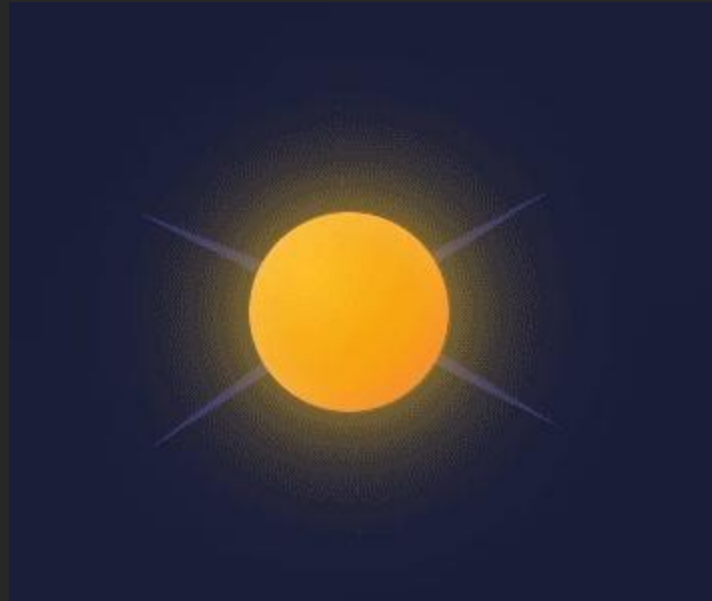
Speed, Quality, Cost — The Eternal Trade-Off



Conventional development **forces a compromise**: speed sacrifices quality; quality sacrifices time and budget.

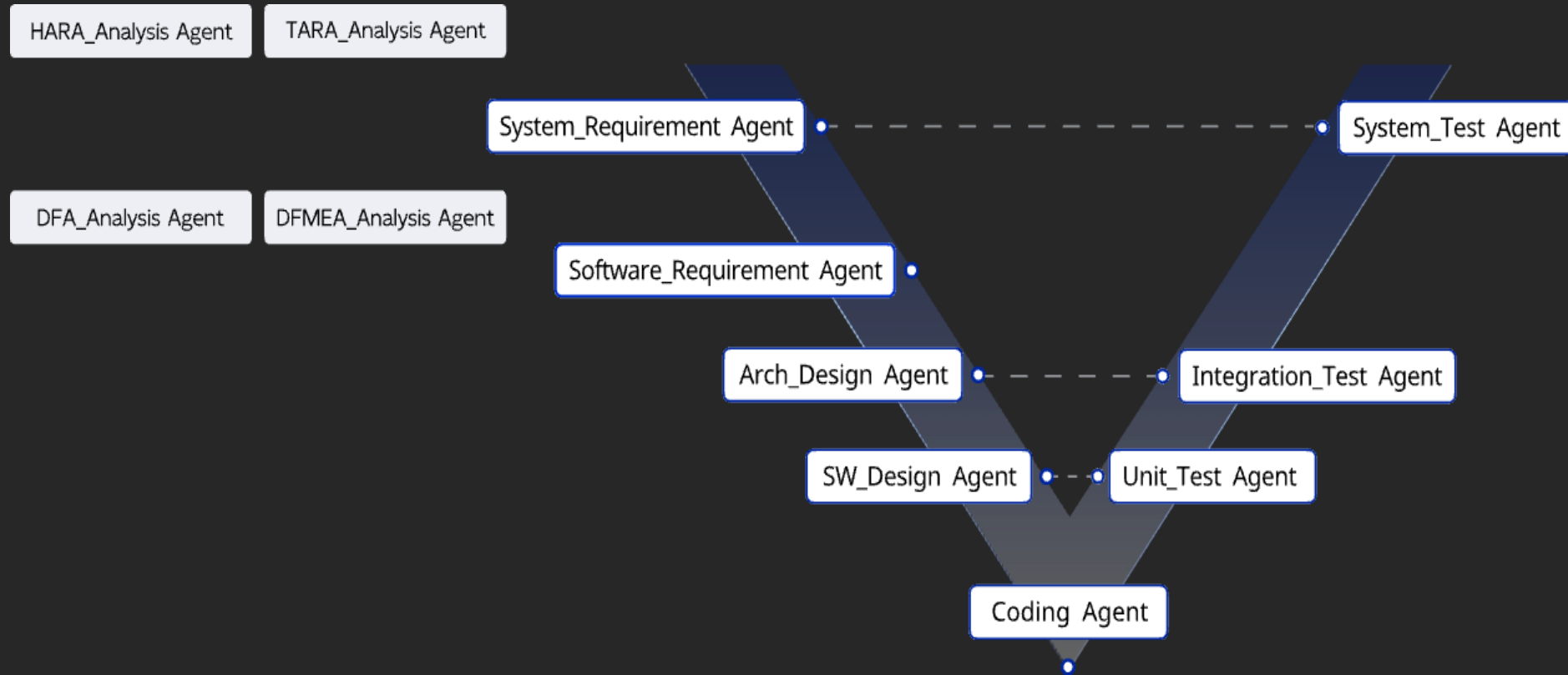
Why can't we have all three?

Break the Trade-off: INTELLIGENCE



AutoForge doesn't patch processes—it **reinvents** them.
AI Agents handle the repetitive grind, freeing your team to **create and decide**.

Platform Agents Spanning Traditional Software Development V-Model



AutoForge Agents cover the entire V-Model lifecycle, from **requirements to testing**.
Dedicated Security Expert Agents for functional **safety** (HARA, DFMEA) and **cybersecurity** (TARA, DFA) improve safety & security analysis efficiency.

Your Digital Expert Team

Requirements Analysis

System Requirements Agent

Converts user needs into formal specifications

Software Requirements Agent

Derives software specs from system requirements

Vehicle Control Function Requirements Agent

Generates body-function system requirements

Software Design & Development

Architecture Analysis Agent

Automatically generates bilingual (Chinese-English) architecture documents

Vehicle Control Function - Vibe Coding Design Agent

System requirements generation tool for body functions

Vehicle Control Function - MBD Design Agen

Automatically generates MBD development-style design documents and Arxml based on system requirements (L3)

Basic Software Detailed Design Agent

Generates detailed design documents including data structures and internal/external APIs based on architecture design documents

Testing & Validation

Test Case Generation Agent

Intelligently generates high-coverage test cases

Code Compliance Agent

Automated specification inspection and repair

Unit Testing Agent

Unit test case generation and coverage test execution via standard testing tools

Signal/Service-Based System Testing Agent

Automated signal/service-based test execution & reporting

From “Weeks of Manual Doc Torture” to “Intelligent Design Over Coffee”

Traditional automotive software detailed design: a weeks-long **manual workshop**

Engineers slog through 200+ page requirement docs and thousands of lines of CSV signal definitions—manually extracting, cross-referencing, and mapping traceability.

The result? **Slow (1–2 weeks)**, **error-prone**, and **quality depends entirely on individual experience**.

Trigger & Interaction

Engineers drag & drop 3 files:

- Requirements Document.md
- Service Definition.csv
- Type Definition.csv

And select stack:

【Language: C++】 【Platform: Zephyr】
【Output: Static Library】 【Cycle: 10ms】

Processing (Intelligent Factory)

1. Intelligent Generation (Within 5 minutes)

Agent parses requirements, selects stack → comprehensive **SoftwareDesignDocument.md**

2. Automatic Validation

Bidirectional traceability check →

DesignTraceabilityValidationReport.md (auto-fixes 3 missing interfaces)


3. In-Depth Quality Inspection

10-category constraint validation →


QualityValidationReport.md (Score: **98**)

Output (~15 min)

A complete, high-quality design package:

 **SoftwareDesignDocument.md**
High-quality, fully traceable design document

 **DesignTraceabilityValidationReport.md**
Traceability validation report

 **QualityValidationReport.md**
In-depth quality inspection report

Improve Design Efficiency

>95%

Weeks → Minutes

+

Ensure Design Quality

100%

Smooth Experience

+

Free Engineers to Focus on

Creation

From Documentation to Innovation

Thank You

