Liu **Tianyi**

Shanghai · Platform Development / Full-Stack Engineer

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Profile

5+ years of system-level software and infrastructure engineering, with end-to-end strength in diagnosing and engineering across the **full stack** — from the low-level system layer (Windows drivers / firmware) up to applications. My core advantage is fusing complex systems problems with **AI** to design and ship automated-diagnosis and efficiency platforms. At Lenovo, I designed and delivered a **BSOD intelligent-diagnosis Agent platform** built on a **Skills + Loop, task-driven paradigm**, productizing the engineering handling of system-level problems and moving the team toward **AI-assisted engineering**. Comfortable across a multi-language stack (**C++ / C# / Python**), with **full-stack ability** to independently design, build, and deploy CI/CD automation systems.

Experience

Shanghai Bizsmooth Co., Ltd. (on-site at Lenovo)

Shanghai, China

System Software Engineer (Test Infrastructure & System Diagnostics) — *Nov. 2022 – Present*

- **AI-driven system-diagnosis platform:** Owned deep analysis and engineering of system-level problems (BSOD / system anomalies). Designed and built from 0 to 1 a BSOD intelligent-diagnosis Agent on a Skills + Loop, task-driven paradigm, fusing dump parsing, symbol engineering, knowledge rules, and AI reasoning to auto-infer and classify root cause — cutting average localization time per issue by 80% and turning analysis conclusions into knowledge assets.
- **Deep system-level analysis:** As technical lead for core system modules (Display / Graphics / Power) on consumer PCs (Yoga, ThinkBook), dug deep into the WDDM driver model, SwapChain mechanism, and hardware-interaction layer, giving driver owners actionable root-cause localization and optimization decisions. Repeatedly resolved severe system and performance issues blocking mass production.
- **Automated test & delivery infrastructure:** Designed and delivered a CI/CD automation pipeline spanning driver build, validation, certification, and release. Compressed graphics-driver delivery from hours of manual work to minute-level automation — 90%+ efficiency gain — adopted as the team's standard delivery path to this day.
- **WHQL compliance & release:** Fully responsible for WHQL certification and Windows Update release of 10+ drivers, building multi-architecture loop-testing and signing environments for 100% compliant delivery.
- **Driving team transformation:** First on the team to bring in AI to assist engineering analysis, building internal diagnosis tools and a knowledge platform that moved the team from "manual test execution" toward "AI-augmented engineering diagnosis."

Tech-Com (Shanghai) Computer Co., Ltd. / Quanta

Shanghai, China

Firmware Test Infrastructure Engineer — *Oct. 2020 – Feb. 2022*

- Owned test-infrastructure build-out and system-level debugging for EFI/UEFI firmware on the MacBook mass-production line.
- Designed and established cross-region, cross-site automated test flows, safeguarding firmware quality consistency for new models before mass production.
- Led cross-team joint troubleshooting of complex firmware and hardware-adaptation issues, root-causing via log / core-dump analysis and delivering structured solutions, interfacing directly with Apple's engineering team.
- Reworked the test flow with a Python tool-chain, markedly improving execution efficiency and reducing manual dependence — shifting the way of working from experience-driven to data- and automation-driven.

Core Projects

BSOD Intelligent Diagnosis & Analysis Platform (core AI project)

System Architect & Full-Stack Lead

- Designed and built an end-to-end automated BSOD analysis platform to break the efficiency bottleneck of diagnosing Windows driver issues at scale.
- Built a modular analysis architecture decoupling dump collection, symbol resolution, the LLM-Agent reasoning engine, and the knowledge-rule system — delivering high-concurrency, extensible system-diagnosis capability.
- Led R&D of a task-driven AI Agent fusing LLM with Skills, inferring root cause and auto-classifying unknown crashes — moving human involvement from complex "cause analysis" back to efficient "conclusion confirmation."
- Built a problem knowledge-engineering system, structurally accumulating historical cases, module characteristics, and analysis strategies into reusable data assets that drive continuous improvement of model accuracy.

Driver Automation CI/CD Engineering System

Engineering-Efficiency Lead & Graphics Driver Owner

- As graphics-driver delivery owner, designed and shipped an end-to-end automated build, test, and release pipeline.
- Abstracted the delivery flow into parameterized, reusable pipeline stages, solving the core pain point of inconsistent environment configuration and lifting per-delivery efficiency by over 90%.
- The system has become standardized infrastructure supporting fast multi-model, multi-platform integration and delivery.

Windows System Stability & Performance Deep Analysis

System Analysis Specialist

- Long-term focus on BSOD and system-performance-bottleneck diagnosis across Display / Graphics / Power.
- Used WinDbg and symbol engineering in depth to analyze system call stacks and driver interactions at module and call-chain level, precisely localizing performance bottlenecks in virtual- and multi-display scenarios and driving upstream driver optimization.

Skills / Certificates / Other

Skills C#, C++, Python, Go, Git, Hyper-V, CI/CD, WHQL, Linux, Docker, .NET

Languages English (CET-6), spoken (B+)

Side work Test tools & docs at docs.terry.ee

Education

Fuzhou University Zhicheng College

Fuzhou, China

B.Eng. in Digital Media Technology (full-time)

Aug. 2016 – May 2020