John Huang

Senior AI & Manufacturing Engineer | Digital Transformation Specialist

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EDUCATION & CORE CREDENTIALS

Education: **Beijing Jiaotong University (211 Project)** — B.S. in Materials Chemistry (2004 – 2008)

Certifications: **PMP Certified (3A Rating)**, Project Management Institute (PMI) | 2024.07

Methodologies: SPC, CPK, DOE, 8D Root Cause Problem Solving, ISO 13485 (Medical Device GMP), Lean / TPM

Languages: **English** (Professional working proficiency, async/technical writing) | **German** (Reading comprehension)

EXECUTIVE SUMMARY

15+ years of engineering leadership bridging high-tech precision manufacturing (cleanroom flat panel displays, medical devices, heavy machinery) and production-grade AI/software systems. Track record spans orchestrating group-wide EAM platforms across **9 BUs and 40+ factories** at Sany Group, to independently engineering full-stack AI microservices, knowledge graphs, and local LLM harness architectures. Dedicated to pragmatic *Vibe Coding*, strict data privacy, and deterministic software engineering over brittle demo scripts.

KEY AI & FULL-STACK PROJECTS (BUILT WITH CLAUDE CODE / VIBE CODING)

EMS-Claude: Enterprise Equipment Management Platform

`Go` `Postgres` `Redis` `Vue3` `Docker` `RAG` GitHub ↗ | Demo ↗

- Engineered a production-ready EAM platform via Vibe Coding: 4-container Docker Compose microservices, RBAC, and mobile H5 QR-code inspection.
- Integrated LLM+RAG equipment diagnostics; diagnosed and resolved complex production edge cases (PostgreSQL array driver mappings, Nginx dynamic DNS resolver caching, and Busybox HTTP HEAD healthcheck issues).

PDCA-with-AI & Agent Harness Base

`Python` `SKILL.md` `Lark API` `LiteLLM` PDCA Repo ↗ | Harness Repo ↗

- **PDCA-with-AI**: Automated quality engineering framework implementing Deming's cycle with 4M1E, 5Why, and SMART objective verification. Officially invited for listing on the European Agensi.io skill marketplace.
- **Agent Harness**: Modular architecture establishing strict separation between deterministic verification algorithms and non-deterministic LLM reasoning.

PROFESSIONAL EXPERIENCE

AI Product Engineer — Xinghuo Shuzhi (EdTech / AI Platform)

2024.05 – 2024.09

- **Full-Stack AI Delivery**: Prototyped and delivered 3 production microservices (question intelligence with dual knowledge graphs, explainable student mastery metrics, and adaptive personalized study plans).
- **On-Premise Infrastructure**: Deployed private local LLM stack (Qwen 35B / 27B / bge-m3) via LiteLLM gateway, guaranteeing zero student data leakage outside intranet.
- **Computer Vision Pipeline**: Built end-to-end exam parsing workflow: automatic segmentation, RapidOCR, KaTeX formula extraction, and YOLOv8 pre-labeling.

Digital Equipment Manager & EAM Lead — Sany Group (Heavy Machinery)

2021.06 – 2023.11

- **Enterprise Digitalization**: Led EAM platform rollout across **9 Business Units and 40+ factories**; achieved 100% online operational coverage.
- **LLM Maintenance Assistant**: Pioneered manufacturing RAG diagnostic assistant, achieving **63% solution adoption rate** on shop floor.
- **Data Governance & Closed Loop**: Unified SAP asset depreciation and MES OEE calculations; governed 300K+ master asset records (+40% data hygiene).
- **CAPEX Optimization**: Built multi-criteria evaluation model for idle asset redeployment (~$3M USD), driving annual maintenance cash expenses down ~8%.

Process & Automation Equipment Engineer — CSOT (TCL Panel Display) & MicroTech Medical

Earlier Career

- **Precision Equipment Management**: Led slit coating & photo-lithography equipment engineering in Class 10/100 high-tech cleanrooms; enforced strict MES recipe interlocks.
- **Medical Device Compliance**: Implemented full-lifecycle batch validation, IQ/OQ/PQ protocols, and traceability under rigorous ISO 13485 standards.