KEVIN TRINH NGUYEN

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PROFESSIONAL SUMMARY

Software Engineer with 4+ years building production embedded systems and AI-powered developer tools at John Deere. Architected a 316-file AI-integrated knowledge system with custom agents, specialized skills, and Python tooling, then drove team-wide GitHub Copilot adoption from zero to general use. Experience in deep C++ systems debugging across 98+ production defects with end-to-end feature delivery. Bridged embedded systems engineering and agentic AI with hands-on experience in agent orchestration, Model Context Protocol integration, Spec Precision and Context architecture workflows.

CORE COMPETENCIES

Agentic AI Engineering · Agent Instruction Authoring · Model Context Protocol (MCP) · Context Architecture

LLM-Assisted Development · Specification Precision · Evaluation and QA LLM Judgment · Cost and Token Economics

C++14/C · Embedded Linux Systems · Qt5 Framework · Python · Systematic Root Cause Analysis

Google Test / Google Mock · Git / CI/CD (Jenkins, GitHub Actions) · Agile / Scrum

PROFESSIONAL EXPERIENCE

SOFTWARE DEVELOPER
June 2024 – Present

John Deere, AutoPath Team, Austin, TX

- Drove the AB-Curves feature from hackathon feasibility spike through 8 production stories in release 26.3, extending AutoPath Boundaries into curved and contoured terrain.
- Discovered 5 critical threading issues in a core planning service — including a use-after-free crash from MQTT callbacks — then designed a proxy architecture to safely decouple thread boundaries, modifying 37 files across 2 repositories.
- Diagnosed an infinite replanning loop producing 500+ planning cycles in 45 seconds; implemented guard logic reducing it to 2–3 legitimate cycles while preserving all valid triggers and ensuring all unit tests passed.
- Led a 8+ story refactoring effort on the most modified service in the AutoPath codebase, reducing technical debt and improving maintainability which then the process was automated by creating a refactor tool that mixed python scripting and agentic tooling using an 7 layer process following and company SDK and best practices.
- Built a 316-file MkDocs documentation system serving as the team's living PRD, onboarding hub, and AI-consumable knowledge base — covering 3 product modes, 30+ vehicle models, and 26 features.
- Created 6 specialized AI skills and scripts for automated test generation, requirement extraction, coverage analysis, test-to-requirement mapping, refactoring with safety nets, and architecture diagramming.
- Drove GitHub Copilot adoption across the team from 0% to daily interaction through multiple presentations on agentic engineering Demos, CLI workflows, prompting techniques, and AI-assisted refactoring.
- Delivered 90 story points across 23 sprints in 2025 (3.91 avg), improving to 6.2 points/sprint in Q2 2026 — exceeding the 4–5 point grade-level expectation.

QA/QI SOFTWARE ENGINEER
February 2023 – June 2024

John Deere, Guidance QI Team, Austin, TX

- Resolved 38 major and 60+ minor defects across Gen4OS 4060 and 4600 displays, specializing in high-severity crashes escalated as too complex to reproduce.
- Diagnosed SIGSEGV and SIGABRT crashes in production embedded firmware by tracing null dereferences, memory corruption, and illegal memory access to exact file:line root causes.

- Investigated and fixed threading defects — race conditions, deadlocks, and priority inversion — in a real-time Linux embedded environment using GDB, valgrind, and ASAN.
- Onboarded 3 engineers through structured mentoring and documentation, earning direct manager recognition for accelerating new-hire ramp-up.

PART-TIME SOFTWARE ENGINEER   July 2021 – December 2022

John Deere, Guidance QI Team, Ames, IA

- Resolved 24 confirmed defects in embedded C++/Qt software for Gen4OS displays using Google Test and Froglogic Squish while enrolled full-time at Iowa State University.
- Refactored core PieState logic into an independent component, improving modularity across the guidance system.

FRONT-END DEVELOPER   January 2022 – December 2022

Hinckley Medical, Remote

- Led front-end development for an inventory and shipment tracking web app built with React, JavaScript, CSS, and AWS (Amplify, DataStore, S3).

IT TECHNICAL ASSISTANT   February 2020 – July 2021

ISU Endpoint Technologies, Ames, IA

- Resolved 200+ technical support tickets; served as primary Apple technician deploying Jamf Pro and custom Python scripts across campus.

SELECTED PROJECTS

JobReforgerAI — AI Resume Tailoring Toolkit | *github.com/ktnCodes/JobReforgerAI*

- Built a local-first AI resume toolkit that uses Claude Code slash commands or Claude Cowork SKILLs to follow dual ATS/HR scoring: an 8-component keyword/semantic engine (SBERT embeddings, BM25, NetworkX skill graphs) and a 6-factor HR recruiter simulation.
- Engineered multi-agent orchestration via FastMCP, executing research, scoring, DOCX generation, and cover letter creation in parallel — ~50% faster than sequential execution. Documented at ktncodes.github.io.

ICM Template — AI Workflow Orchestration Framework | *github.com/ktnCodes/icm-template*

- Open-sourced a model-agnostic framework for organizing AI-assisted workflows through folder structure and explicit stage contracts — compatible with Claude Code, Cursor, GitHub Copilot, and Windsurf.

EDUCATION

B.S. Computer Engineering   Graduated December 2022

Iowa State University

Vietnamese Student Association, Student Advisor · Multicultural Vision Program Scholar · FIRST Robotics Alumni