KAWALDEEP SINGH

ENGINEERING TRANSFORMATION LEADER | PLATFORM ENGINEERING | AI-NATIVE ENGINEERING

Bellevue, WA | 425-373-6007 | deepkawal@gmail.com | LinkedIn | GitHub: software-factory

PROFESSIONAL SUMMARY

Engineering Director with 15+ years of experience building internal developer platforms, developer productivity systems, engineering intelligence capabilities, and AI-enabled engineering workflows across Microsoft, Niantic, and Epic Games.

Most recently scaled a globally distributed Platform Engineering function at Epic Games from 5 to 40 engineers, including 14 Epic FTEs and 26 EPAM engineers. Owned a $2.2M annual engineering investment, maintained zero regrettable attrition, and conceived and led delivery of 8 internal developer platforms delivering $5.5M+ in documented business impact.

Known for identifying recurring engineering friction, delivering early results that build stakeholder confidence, and converting those patterns into reusable platforms, self-service workflows, and measurable improvements.

Now extending that mission into AI-native engineering through production-quality applications and an enterprise-oriented AI Software Factory focused on agentic delivery, organizational knowledge, engineering governance, and human-controlled quality gates.

EXECUTIVE EXPERTISE

Internal Developer Platforms & Self-Service Tooling • Developer Productivity & Engineering Effectiveness • AI-Native SDLC

Engineering Intelligence & LLM Workflows • CI/CD & Release Engineering • Platform Strategy & Adoption

Global Engineering Leadership & Scale • Cross-Functional Stakeholder Alignment • Vendor & Budget Ownership

Responsible AI Governance • Organizational Design • Executive Investment Strategy

PROFESSIONAL EXPERIENCE

Independent AI-Native Engineering | AI Product & Software Factory Work **Apr 2026 - Present**

AI-Native Engineering & Product Development

Extending a career spent building reusable engineering capabilities into AI-native software delivery through production-quality applications and an enterprise-oriented AI Software Factory. Exploring how organizations can compound knowledge and adopt agentic engineering safely through decision discipline, quality gates, domain experts, and human approvals.

- Designed and implemented a reusable AI Software Factory orchestrating specialized agents across product intake, planning, architecture, design, implementation, product review, architecture review, code review, validation, and release gates.
- Built a 10-agent pipeline with minor and major engineering lanes that route work differently based on complexity, risk, required decision records, and human approval needs.
- Created reusable engineering assets including Architecture Decision Record and Product Decision templates, shared domain experts, engineering rules, quality gates, production-readiness checks, and human approval workflows.
- Created a decision verifier that detects dangling decision markers, superseded or rejected records, orphan accepted decisions, and missing product-decision test coverage, making decision discipline enforceable through tooling rather than memory.
- Built Customer Pulse, an AI-native customer intelligence prototype that consolidates signals from forums, Slack, Jira, and operational logs, uses LLM reasoning to identify and prioritize recurring customer pain points, and presents stakeholders with a consolidated view of the highest-value issues; built MealBrain as an AI-native product and evaluated Claude Code, MCP servers, specialized agents, and reusable skill/expert systems to validate multi-agent orchestration and human-governed delivery.

Epic Games | Bellevue, WA **Sept 2023 - Mar 2026**

Engineering Director, Platform Engineering | Internal Developer Platforms, AI Engineering Workflows, Engineering Intelligence, CI/CD

Developer of Fortnite and Unreal Engine; products serve hundreds of millions of players and millions of external creators and developers globally.

Joined during organizational disruption following leadership turnover, company-wide layoffs, and a function in flux. Re-established operating clarity and stakeholder confidence, then scaled a 5-person function into a globally distributed 40-engineer organization across North America, Europe, and LATAM.

Organizational Transformation & Executive Leadership

- Scaled the Platform Engineering function from 5 to 40 engineers, including 14 Epic employees and 26 EPAM vendor engineers across 10+ time zones, with engineering managers and vendor delivery leadership.
- Owned the full commercial lifecycle for a $2.2M annual engineering investment, including staffing strategy, vendor negotiations, delivery accountability, monthly financial governance, executive budget defense, and renewal.
- Maintained zero regrettable attrition through restructuring and industry-wide gaming layoffs by creating clarity, protecting team focus, and giving engineers meaningful ownership of high-impact platform capabilities.
- Earned executive visibility after delivering Fortnite Battle Royale reliability improvements; presented engineering productivity patterns at Epic Corporate HQ, the company-wide Build Health summit, and the QA Leadership offsite.

AI Engineering Intelligence & Responsible AI Workflows

- Defined and delivered reusable AI services on Epic's internal LLM platform, exposing self-service APIs for blame-change identification and failure triage; achieved approximately 80% accuracy for blame identification and 70% for failure triage, with inbound investigation requests to the platform team dropping to zero after adoption.
- Conceived and delivered Build Insights, an AI-assisted engineering intelligence platform that translated submitted code changes into plain-language summaries, highlighted regression risk, and guided QA, Release Management, Engineering, and Technical Art toward the highest-value validation areas; grew adoption to 300 daily active users.
- Shifted the AI value proposition from developer-only productivity to engineering decision support, helping stakeholders understand risk, release impact, and validation priorities without interpreting raw code changes.
- Partnered with Legal, Security, and Compliance to productionize enterprise AI capabilities while meeting corporate privacy, governance, and responsible AI standards.

Internal Developer Platforms & Automated Verification

- Conceived, secured investment for, and delivered the Cosmetic Validation Platform to address a documented $10M+ visual-quality exposure across Fortnite cosmetics. Built nightly validation across 10+ platforms with AWS S3 pipelines, web UI, Jira integration, and self-service web/API access for eight engineering teams; delivered approximately $3M in documented savings.
- Delivered Cosmetic Performance Automation, enabling Technical Artists to self-serve memory and performance validation for more than 10,000 cosmetics before release across Epic title portfolios.
- Conceived and delivered a self-service multiplayer performance validation platform used by a 125-person QA organization across Fortnite Battle Royale, Ballistic, and LEGO Fortnite; helped avoid projected growth to 200 engineers, saved approximately 3,000 engineering hours annually, and avoided roughly $2M in projected cost.
- Delivered Crash Reporter and HitchHunter, Python-based engineering intelligence capabilities that detected unique production crashes and performance hitches, routed issues through Jira, and reduced manual triage across 10+ engineering teams; saved approximately 2,000 QA hours annually.
- Conceived and led automated validation for the Unreal Editor for Fortnite ecosystem, enabling nightly multi-platform regression testing for creator workflows and identifying multiple P0/P1 issues before release.

Release Readiness & Engineering Effectiveness

- Joined owning Fortnite Battle Royale release-pipeline reliability across six pipelines. Defined reliability targets, instrumented measurement, and delivered against those targets in the first six months, establishing the confidence required to secure the 2024 vendor investment and its 2025 renewal.
- Defined and delivered a unified engineering intelligence platform integrating CI pipelines, manual validation signals, build health, defects, commit history, crash trends, P0/P1 status, readiness gates, and release-over-release trends, replacing fragmented release assessments with a shared source of measurable engineering effectiveness.
- Created a shared ELT and Tableau decision layer used by 15+ functional leaders across Engineering, QA, Production, and Release Management for release readiness, go/no-go decisions, and engineering investment planning.
- Modernized CI/CD across 10 platforms and 14 automated test suites, improving end-to-end execution by 46%, reclaiming more than 60,000 build-agent hours annually, improving suite stability by 70%, and delivering approximately $500K in savings.

Niantic, Inc. | Bellevue, WA **Feb 2018 - Jul 2023**

Founding Lead, Development Productivity & Platform Engineering | Pokemon GO *(Formal title : Senior SDET)*

Mobile AR developer behind Pokemon GO, one of the highest-scale mobile gaming platforms globally.

Recruited as the founding engineer for Development Productivity when Pokemon GO lacked mature CI/CD, standardized automation, scalable device validation, and self-service developer workflows. Established the engineering capabilities that enabled teams to build, validate, and deploy through standardized workflows rather than manual coordination.

Developer Productivity & Platform Foundations

- Built the core engineering productivity foundation for Pokemon GO, including GitLab-based CI/CD infrastructure and GCP/Kubernetes deployment workflows supporting globally distributed backend services.
- Conceived the Bill of Materials (BOM) versioning strategy for Niantic's shared multi-game platform, built stakeholder alignment across engineering organizations, and partnered with Platform Engineering to operationalize the capability.

- Created a one-click GCP and Kubernetes server deployment capability that eliminated recurring environment setup, reduced dependency on support channels, and helped engineering teams get unblocked without filing tickets.
- Defined and delivered self-service pre-merge validation in GitLab CI/CD, enabling developers to catch integration issues before code merged into main and reducing reliance on manual QA coordination.

Engineering Effectiveness, Device Platforms & Influence

Architected and built an API automation framework from scratch, eliminating more than 8,000 manual testing hours annually and delivering approximately $400K in savings while improving confidence in server-side validation.

- Engineered concurrent-session validation for complex multiplayer gameplay, including Raid-related workflows, saving approximately 1,200 engineering hours annually and enabling more realistic validation of high-concurrency player experiences.
- Established Niantic enterprise device validation capability by selecting HeadSpin, expanding on-premises iOS capacity from 4 to 48 devices, integrating cloud Android/iOS coverage, and negotiating vendor agreements that reduced annual operating costs by more than $200K.
- Defined and presented the engineering productivity strategy and quarterly roadmap to executive leadership, influencing investment priorities and establishing developer productivity as a recognized engineering capability.
- Grew the Development Productivity function from 1 to 3 engineers, mentored QA engineers and an SDE intern, and helped create a path for the intern to convert into a full-time Software Development Engineer role.

Expeditors International | Seattle, WA **Oct 2016 - Feb 2018**

Automation Lead *(Formal Title : Developer in Test II)*

Fortune 500 global logistics and freight-forwarding company with operations across 100+ countries.

- Established the organization's first engineering test automation platform, architecting a Java-based framework across API and UI automation layers and integrating it into CI/CD to enable continuous, self-service validation across engineering teams.

Microsoft | Redmond, WA **Sept 2013 - Sept 2016**

Software Development Engineer II, Excel | MSN

Built engineering foundations across Excel product engineering, Office Online, Azure-based consumer services, API design, cross-platform delivery, automation, and high-availability service operations.

- Led delivery of new Microsoft Excel worksheet functions across Windows, Android, and Office Online, contributing to cross-platform feature delivery across desktop, mobile, and web experiences.
- Designed a reusable worksheet function API that reduced implementation code redundancy by approximately 90%, improving maintainability and consistency across platform-specific implementations.
- Led a four-engineer workstream delivering Excel functionality across multiple platforms, building early technical leadership, execution planning, and cross-functional delivery experience.
- Supported high-availability Azure-based consumer platform operations for MSN, contributing to 24x7 service reliability for a globally distributed platform serving millions of users; increased automation coverage by approximately 40% while reducing execution time by 30%.
- Built API automation for Cortana and Bing Travel workflows, reducing testing time from days to hours and helping teams validate service behavior more quickly.

HCL Technologies, supporting Microsoft Office 365 | Redmond, WA / India **May 2010 - Sept 2013**

Test Lead | Engineering Validation Lead

- Led an eight-engineer team supporting Live@Edu to Office 365 migration validation across 27 locales; built and scaled Page Object Model automation to 70%+ coverage and extended the solution to Office 365 web-portal validation.

TECHNICAL SKILLS

Platforms & Infrastructure: GCP, Kubernetes, AWS, Azure, Device Cloud, GitLab CI/CD, Github, Docker

AI/LLM & Developer Tooling: LLM API Integration, AI-integrated engineering Workflows, Multi-Agent Orchestration, Claude Code, MCP Servers, RAG

Languages & Frameworks: Python, Java, C, C++, C#, SQL

Data, Analytics & Quality: Tableau, ELT Pipelines, QMetry, Jira, AWS S3, API Automation

EDUCATION

Agentic AI Foundations: Business Applications and Risks | Harvard University | July 2026

Master's in Computer Engineering | Punjabi University, India

Bachelor's in Electrical & Electronics Communication Engineering | Punjab Technical University, India

COMMUNITY & PROFESSIONAL DEVELOPMENT

- Founder & Leader, Har Sewa Foundation (501(c)(3) nonprofit) - provides strategic direction, fundraising oversight, and community-impact initiatives supporting underprivileged communities with medical and educational needs.

- Member, Bellevue School District CTE Advisory Committee - supports technology workforce development and helps align educational pathways with industry needs.