David Manzanarez

Senior Software Engineer · Technical Lead · Seattle, WA

Authorized to work in the U.S. without sponsorship · Open to relocation for compelling work

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I joined Amazon as an intern in 2017 and returned to Checkout full-time in 2018. I progressed from Software Engineer I to II, then Senior Software Engineer in 2022. My work grew from building individual checkout components to leading architecture and delivery across multiple teams. Today I set technical direction across the Checkout organization and still build core systems myself. The systems I build and own handle over a million requests a second and serve hundreds of millions of customers daily.

Experience

Amazon · Senior Software Engineer

October 2022–present

I have led Checkout's AI engineering work since 2025, with organization-wide scope since 2026.

- **Engineering agents.** Designed and built durable workflows for maintenance tasks such as removing expired feature flags. Each task is validated against an operating procedure and runs as a state machine that records each step, so stalled or failed agent runs can resume without repeating completed work. Outputs are evaluated before merge. Built MCP tooling over purchase-journey data and service logs, with caching and query limits to protect production systems.
- **Add to Delivery.** Set the Checkout architecture and led execution across 20+ engineers in four organizations. Connected delivery data, checkout services, and the customer-facing experience. Later led the expansion to five European marketplaces, working with Product, UX, and Legal on the experience and its requirements.
- **Java microservices migration.** Led 30+ engineers through a multi-year migration from a monolith to Java microservices, largely completed in 2025. Designed core APIs and plugin interfaces, ran platform experiments, and coordinated rollout while dependent teams continued shipping.
- **Checkout resilience.** Reshaping the resilience roadmap around the customer's ability to complete a purchase, including fallback data and experiences when dependencies fail.
- **Customer-experience (CX) federation.** Built a rendering-layer federation prototype that became a funded org program. Backend federation is already in place; this separate program extends team ownership to the customer-facing rendering layer. The goal is for partner teams to ship experience changes as independently owned packages with their own test pipelines. Production rollout is still ahead.
- **Performance and traffic controls.** Designed checkout bot defenses using rate limiting and actor fingerprinting. Reduced infrastructure overhead through log-volume optimization, heap analysis, and CPU profiling.
- **Buy Now experiments.** Led the A/B experiments for Buy Now, the next-generation two-click checkout.

Technical leadership and operations

- Review architecture designs and 800+ code changes a year across a 50+ engineer organization. Resolve design disagreements and guide implementation and launch decisions.
- Lead operational excellence work and handle high-level technical escalations across Checkout, including production reliability, performance, and peak-event readiness.
- Run weekly technical consultations serving 100+ engineers annually. Mentored 4–5 engineers toward senior promotion.
- Built and maintain the organization's technical knowledge base (200+ answers), and moved it to an Amazon Bedrock knowledge base that agents query through MCP.
- Conducted hundreds of technical interviews and promotion panels for engineering and product roles, from new graduate to principal.

Amazon · Software Engineer II

August 2020–September 2022

- Led checkout changes across international marketplaces for Brexit, Know Your Customer (KYC) requirements, and India marketplace regulations. Adapted UI, APIs, and data handling with tax and compliance teams. Regulatory work also covered the EU Digital Markets Act, Deemed Reseller requirements, and the US Retail Delivery Fee.
- Designed the latency measurement framework for the platform migration and a modular framework separating front-end rendering from back-end data operations.
- Prepared checkout systems for Prime Day and Black Friday through load, stress, and chaos testing, then automated those tests for future peak events.
- Reworked onboarding and ran daily office hours as 15+ new engineers joined the team. Improved the onboarding documentation too, and new engineers reached their first commit and their first on-call shift much sooner.

Amazon · Software Engineer I

July 2018–July 2020

- Extended the base chaos-testing framework, adapted it for Amazon Checkout, and integrated it into CI/CD.
- Built client-side event protection for one-click checkout and coordinated adoption across 24 partner teams.
- Built a plugin-based internationalization framework for language and currency formatting across all marketplaces.

Amazon · Software Engineer Intern

May–August 2017

Designed and shipped a reusable one-click purchase component proof of concept for integration across shopping pages.

Side projects

- **Personal systems, 2025–present.** Eight services I built for my own use, including a journal with full-text search, health and biometric tracking, finances, a study system with FSRS spaced repetition and a sandboxed Python runner, and a hub that provides Google OAuth single sign-on across the others. TypeScript, Hono, React, SQLite and Drizzle, running in Docker on DigitalOcean behind Caddy. GitHub Actions builds the images to GHCR, and deploys are safe to run in parallel. Every service checks a JWT and admits only its owner, and services call each other over an internal-only path. I write a spec first and build from it with Claude Code. A template for one service is public on GitHub.
- **Headless agent server, 2026.** Set up an Ubuntu server with an unattended install, LUKS disk encryption that unlocks from the TPM, and access only over Tailscale. It runs Claude Code orchestrations overnight. The first tool built there reconciles API billing: it compares invoice totals with per-request telemetry, recomputes the expected cost under prompt-caching pricing, and flags discrepancies. I ran it as a night shift of agents, and they built it and left a full audit trail and a write-up of what they learned.
- **Personal genomics pipeline, 2026.** Analyzed a 30x whole genome end to end: variant quality control, supervised ADMIXTURE with family controls, polygenic scores, pharmacogenomics, and Y-chromosome and mitochondrial lineage. Wrote up the method traps I hit along the way, including where PCA and admixture analysis disagree and what confounds tract-length dating.

Skills

Languages: Java, Python, TypeScript, JavaScript, SQL, Perl, Bash
Systems and architecture: Distributed systems, microservices, event-driven architecture, REST API design, API contracts and schema evolution, plugin architecture, caching, rate limiting
AI engineering: Claude Code, OpenAI Codex, Claude API, agentic AI, Model Context Protocol (MCP) server design, durable workflows, idempotency and retries, agent output evaluation, multi-agent orchestration, prompt caching, Amazon Bedrock
Frameworks and web: Spring, Node.js, Hono, React, React Router, Vite, Tailwind CSS, Drizzle ORM
Databases: PostgreSQL, SQLite, MongoDB, DynamoDB
Cloud and delivery: AWS (EC2, ECS, S3, RDS, ElastiCache, SQS, SNS, Kinesis, API Gateway), infrastructure as code (CDK, CloudFormation), Docker, Linux, Git, CI/CD, GitHub Actions
Reliability and performance: Resilience engineering, latency optimization, heap analysis, CPU profiling, load and stress testing, chaos testing, observability, CloudWatch, Grafana
Testing and experimentation: JUnit, TestNG, Cypress, A/B experimentation
Authentication: OAuth single sign-on, JWT authentication
Technical leadership: Architecture and code reviews, technical roadmaps, cross-team delivery, technical escalations, mentoring, technical interviewing

Education

Monterrey Institute of Technology

B.S. Computer Science · 2012–2017

4.00 GPA · Summa Cum Laude · Full-tuition merit scholarship · ACM-ICPC Mexico Regional Finalist, 2015

University of British Columbia

Exchange program · 2016

Machine learning and AI, computer graphics, and astrophysics. Certificate of Academic Excellence; Canadian Government Scholarship.
