

CHRISTOPHER VUONG

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SUMMARY

Staff-level software engineer with 8+ years building high-volume payment platforms, distributed systems, and retail technology at Target. Deep experience architecting digital payment services, production-ready backend systems, event-driven integrations, observability platforms, and cross-team technical standards. Proven impact includes \$2M+ annual savings, P99 sub-20ms payment orchestration, \$20K/month cost avoidance, and self-service tooling used by 100+ engineers and operators across 5+ partner teams.

SKILLS

Languages: Kotlin, Java, Python, JavaScript, SQL

Backend & Architecture: Spring Boot, Micronaut, REST APIs, microservices, distributed systems, event-driven architecture, system design

Payments & Reliability: digital payments, payment processing, fraud and bot orchestration, routing, idempotency, reconciliation, production support, SRE, observability

Data & Platforms: Kafka, PostgreSQL, Redis, MongoDB, Elasticsearch, private cloud

Tools: React, Docker, CI/CD, Grafana, Kibana, DOMO, Google ADK, Spring AI, MCP

EXPERIENCE

Lead Software Engineer — Payments Platform | Target Oct 2023 – Present

- Architected and delivered Apple Pay v2 migration generating **\$2M+** annual savings, reducing soft declines to less than 50/day, and improving processing time by 1.5–2x
- Designed **P99 sub-20ms** payment orchestration layer for fraud and bot detection, driving **\$20K/month** cost avoidance
- Designed intelligent payment router for dynamic processor health monitoring and adaptive routing
- Implemented payment event ID standardization for transaction idempotency, preventing double-charges and enabling downstream data integration
- Architected event reconciliation system for distributed payment flows, improving financial auditability, reducing discrepancy risk, and increasing confidence in payment state transitions across systems
- Built payments observability and self-service investigation tools using React, Grafana, Kibana, and backend APIs, serving 100+ users across 5+ partner teams and reducing manual payment triage.
- Designed BIN processing regression testing strategy with automated validation across 500K–1M BINs, enabling safe iteration on complex transformation logic
- Co-created a peer recognition platform with engineers across three teams, growing an internal hackathon prototype into a production solution adopted by 300+ employees, with expansion planned across the Target Tech pyramid
- Built GenAI workflow automation platform using an OpenAI-compatible internal LLM, Google ADK agents, and MCP tools in Spring AI, reducing manual execution effort for deterministic enterprise workflows

Senior Software Engineer — Payments & Order Management | Target Aug 2020 – Oct 2023

- Led implementation partnering with 5+ cross-functional teams to enable processing of all store orders and invoices through modernized path as part of mainframe migration
- Built invoice processing pipeline handling high-volume transaction processing at scale; designed separate error reprocessing engine for operational flexibility
- Executed Oracle to Postgres migration, designing dual-database architecture (90 days operational data + 13-month historical retention) with custom Kafka-based migration pipeline, removed 10+ TBs Oracle footprint after migration. Continued partnership with Postgres team to optimize cluster performance to achieve equivalent performance of Oracle while reducing operating cost

- Implemented invoice line split logic correcting taxes, fees and promotion allocation, eliminating financial discrepancies and reducing return-related losses
- Partnered with Hawk support team to triage and automate recovery, achieving significant reduction in out-of-balance invoices and 99.9% closed invoice rate
- Developed masked production data capability for regression testing (SOX/Privacy compliant) and backend testing service for self-serve end-to-end testing
- Established Kafka best practices and containerized integration testing standards across engineering organization
- Conducted various POCs such as distributed tracing using Zipkin and Kafka consumer benchmarking using various consumer integrations
- Mentored interns and junior engineers through Technology Leadership Program (TLP) program, ensuring a smooth onboarding process and adaptation of devops culture

Software Engineer | Target *Jul 2018 – Aug 2020*

- Consolidated order ingestion pipeline, eliminating redundant systems and improving maintainability for Guest Order Management
- Developed backend services for store inventory accuracy, enabling real-time retrieval and updates across sales floor and backroom
- Built end-to-end automated validation with Docker and Drone CI/CD to improve system reliability and release confidence
- Built mobile checkout app (Skip the Line) supporting cashless payment options — Target Mobile Wallet, Gift Cards, Credit and Debit — allowing guests to bypass checkout lines
- Built a metric pipeline and Kibana dashboards that enable myCheckout app observability and business analytics

EARLIER EXPERIENCE

Software Engineering Intern — Parsons, Centreville, VA

New features and tests for a network visualization app (Java back-end, JavaScript front-end)

Software Engineering Intern — Hitachi Data Systems, Waltham, MA

Designed and unit tested product features within an automation infrastructure using Python and Java

EDUCATION

Georgia Institute of Technology — Atlanta, GA

Master of Science in Analytics (OMSA)

Rochester Institute of Technology — Rochester, NY

Bachelor of Computer Engineering