

Shuang Luo

Software Architect / Senior Full Stack Engineer
Shanghai, China | imluoshuang@gmail.com | shuang.dev

SUMMARY

Software architect with 13 years building production systems in telecom identity and anti-fraud (STIR/SHAKEN, SIP, caller ID), fintech lending, and consumer-scale infrastructure at Tencent and JD.com. Designs the architecture and writes the code that ships it. Builds AI-agent infrastructure and develops with it: production MCP servers behind OAuth, and agent-assisted delivery of production code. Strongest on regulated domains, complex third-party integrations, and correctness at system boundaries.

SKILLS

Domain	STIR/SHAKEN call authentication, SIP signaling, PKI and certificate lifecycle, telecom anti-fraud, loan origination systems
AI engineering	MCP servers and tool schemas, OAuth-protected agent access, agent-assisted development (Claude Code, Codex), AGENTS.md context contracts
Languages	Go, Python, TypeScript
Backend	PostgreSQL, Redis, DynamoDB, Django and DRF, Node.js, Effect-TS, microservices, distributed job pipelines
Frontend	React, Next.js, Tailwind
Platform	AWS (Lambda, SQS, S3, RDS, EC2, VPC, Route 53, CloudFront, CloudFormation), Docker, nginx, CI/CD, OpenTelemetry, Grafana

EXPERIENCE

Spectra Capital, LLC
Senior Full Stack Software Engineer

12/2024 - 07/2026
Shanghai, China (remote, US team)

- Commercial lending platform: origination, underwriting, and servicing.
- Largest contributor to a 5,042-commit TypeScript monorepo, with 1,198 commits over 19 months on a multi-person team.
 - Led the shared-package boundary architecture separating runtime-neutral, frontend-only, and backend-only code, enforced by lint in CI rather than by convention.
 - Drove whole-monorepo upgrades to Node 24 with full ESM, TypeScript 6, and pnpm 11, and replaced fire-and-forget background work with an SQS-backed job pipeline that is retryable and observable.
 - Designed the OpenTelemetry tracing conventions that auto-instrument 100+ database methods and 60+ external service calls, so production latency is diagnosed from a trace instead of a guess.
 - Built the MCP server exposing the platform to AI agents, secured by full OAuth rather than a shared API key, with presigned direct-to-S3 upload for large documents.
 - Authored the agent context contracts (AGENTS.md, CLAUDE.md) codifying architecture rules, test layout, and invariants, so coding agents and new engineers work from the same brief. Shipped production code at volume with agent tooling alongside conventional review.
 - Integrated roughly two dozen third-party services across banking data, credit, CRM, identity, and e-signature. Implemented role-based access control on every API endpoint and ran the dependency-patching and vulnerability-review cadence.

Neustar Inc., acquired by TransUnion
System Architect

12/2020 - 11/2024
Virginia, US and Shanghai, China

- Principal Software Engineer, 12/2020 - 03/2022
- Core member of the Communications Solutions Innovation Team, building nationwide call-authentication infrastructure.
- Designed and built the STIR/SHAKEN Interoperability Test Automation Platform, replacing manual cross-carrier testing with a repeatable automated suite.

- Prototyped STIR for Messaging, extending signed-identity guarantees from voice to SMS.
- Drove rollout of call authentication and verification across Brazilian carriers, resolving per-carrier signaling differences one operator at a time.
- Owned the certificate lifecycle underpinning SHAKEN (CA generation, signing, revocation, CRL, verification), and did the SIP integration work across Oracle SBC, Kamailio, and Asterisk.

Telo USA, Inc., acquired by Neustar

09/2016 - 12/2020

Vice President of Technology

Atlanta, GA

Led cross-functional engineering teams while remaining the lead full stack engineer on core products.

- Owned three revenue products end to end: **OpenCNAM**, a caller-ID platform with REST, SS7/SIGTRAN, ENUM, and SIP interfaces; **EveryoneAPI**, a reverse phone append API for fraud prevention; and the **OpenCNAM Storage Platform**.
- Architected high-availability, low-latency services against an explicit cost-per-query target, and standardized build and deployment across dev, test, and production.
- Built the monitoring stack on CloudWatch, InfluxDB, and Grafana, plus an invoicing system integrated with external financial platforms.
- Owned the technical due diligence package through the acquisition: the architecture and infrastructure documentation the acquirer's technical review was conducted against.

Tencent Technology

05/2015 - 05/2016

Software Engineer

Shanghai, China

- Built player-facing web features and promotional campaigns for Tencent's gaming portfolio in the Interactive Entertainment Group (IEG), shipping in step with game release cycles.

Tencent E-Commerce (ECC), acquired by JD.com

04/2013 - 05/2015

Software Engineer

Shanghai, China

- Built the cross-platform monitoring agent (Windows and Linux) for in-warehouse PCs and servers, with centralized remote deployment and updates.
- Led DevOps for JD.com's mobile division: built the Configuration Management Database (CMDB) that became its single source of truth for infrastructure, plus server monitoring and a status-code system that turned silent HTTP error spikes into actionable alerts.

SELECTED PROJECTS

Licensed data platform for air pollutant research (university research lab)

2022 - 2026

Sole architect and author

Django, DRF, React, Docker

- Built the async job engine that runs numpy/scipy matching of monitoring stations or coordinates to pollutant values over a requested time range, plus geocoding of Chinese addresses across Baidu, Gaode, and Tianditu with per-vendor throttling and Chinese-to-international coordinate conversion.
- Designed the commercial layer from scratch: signed license files, per-installation activation, feature gates, a charge ledger with prepaid reservations, and settlement reconciliation that survives delivery succeeding while billing fails. 1,067 tests, zero type-checker errors enforced at merge.

Public air quality health service (airhealthindex.org)

2021 - 2026

Sole author

Go, PostgreSQL

- Hourly health indices for cities across China on the Go standard library with one external dependency. When the upstream data feed is late, the cache serves the previous hour's snapshot rather than an error page.
- Selects the map provider by visitor origin, with fallback, so the site stays compliant with Chinese mapping regulation and usable from outside China. Dual .org and .cn deployment with versioned releases, one-command rollback, and Chinese ICP registration.

EDUCATION

Nanjing University of Science and Technology

Nanjing, China

Master of Engineering, Computer Science

2010 - 2013

Bachelor of Economics (second bachelor's degree)

2009 - 2011

Bachelor of Engineering, Mechanical Engineering

2005 - 2009