

Ken Rojbundit

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Professional Experience

Software Engineer - Olympic Collectible Solutions AI Corp.

Oct 2023 – Present

Distributed Systems & Search Platform (Backend):

- Built real-time CDC replication for **17M+ records (~300GB)** from **RDS PostgreSQL** to local DB + **Elasticsearch** via **Kafka + Debezium**, completing full sync in **~2 hours**.
- Achieved **<1s** end-to-end change propagation enabling real-time operational search features.
- Implemented **local↔cloud Elasticsearch index parity** (schemas, analyzers, relevance tuning) for seamless dev/prod workflows.
- Shipped search APIs (Postgres FTS + trigram + Elastic) handling **200+ qps** at **p95 <100ms**; tuned analyzers, scoring, and vector search relevance.
- Designed **staged import** for **1M+ records** with preview/approve, conflict detection, and full audit trails to maintain data integrity under high load.
- Automated AWS provisioning (EC2, RDS, S3) with a **Makefile + layered Docker Compose** workflow, reducing fresh environment setup time **~80%**.
- Raised reliability via **400+ automated tests**, Prometheus metrics/alerts, blue-green-style rollouts, and **zero customer-visible downtime**.

Operations Platform / Ops Tooling (Full Stack):

- Built an **operator control panel** (React + TypeScript) that replaced informal, paper-based coordination workflows with a real-time, server-integrated operations interface used daily by staff.
- Added **vision-assisted image lookup** via a third-party provider (caching, quota/rate-limit handling), improving match accuracy for items with incomplete metadata.

Selected Projects

- **Availability Rover (AWS-sponsored)** – Rover with environmental sensing and predictive failure detection on **STM32** (I2C/UART), from hardware, firmware, to data pipeline.
- **Automated Trading Card Sorter** – Python/C++ distributed control with **OpenCV**, barcode scanning, and **Modbus** motor control; robust error handling and recovery.
- **Through-Metal Wireless Comms** – Designed a **Class-D amplifier** and analog driver enabling signal transmission through conductive barriers.

Technical Skills

Languages & Frameworks:	Node.js, Python, C++, TypeScript, React, SQL, OpenCV
Data, Search & Messaging:	PostgreSQL (JSONB/FTS/trigram), Elasticsearch, Kafka, Debezium, ZeroMQ (ØMQ)
Cloud, DevOps:	AWS (EC2/RDS/S3), Docker & Docker Compose, GNU Make, Prometheus, Grafana, Alertmanager, CI/CD
APIs & Standards:	REST, GraphQL, OpenAPI

Education

Seattle University | June 2023

B.S. Electrical & Computer Engineering (GPA 3.74), Minor in CS & Mathematics