

ROBERT ZHOU

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Ships software that other people run: production billing on a legacy database, an autonomous web agent, an ML platform for a shared GPU cluster.

EXPERIENCE

Parsifal Corporation — Software Engineering & AI Intern

Jun 2026 – Aug 2026

- Sole engineer on the company's billing platform (.NET 8/WPF, SQL Server), which turns ~200K raw supplier-feed rows a month into audited invoices for Fortune 500 clients with no manual touch: ~\$600K/yr across 108 suppliers.
- Inherited a legacy SQL Server database with hundreds of millions of rows and no documentation. Worked out the real schema and which tables could be trusted by querying the data itself, then wrote the pipeline as set-based, indexed, batched SQL so a full run over the history takes minutes instead of the hours row-by-row processing would.
- Designed DriftPass, a diffing engine that compares successive billing-feed snapshots and flags rows that changed or vanished; it surfaced ~\$25K/month in unbilled charges and ~\$100K in recoverable underbilling.
- Shipped 26 releases in ten weeks with auto-update, crash reporting, and remote diagnostics, then handed daily operation to non-technical staff who run it unattended today; built four MCP servers so they can query its data through AI agents (the Power BI one was adopted in production).

Autonomous Web Agent for Multi-Step Workflows — Independent (open source)

Oct 2026 – Present

- Built and operate an agent that completes long multi-step forms and workflows end to end on 50+ unrelated sites: 300+ completed runs at ~\$0.11 of API spend each, a median of 27 actions in ~3.6 minutes, every run traced so failures are diagnosed afterward and fixed in code.
- Designed it so the expensive model handles the fewest decisions: deterministic rules first, a small typed decision model for routine choices (80% of 36K calls at ~0.3 s each), a planner model only when stuck. The decision model chooses among typed options and code checks each choice against the live page before acting, so it cannot invent an action.

ML Platform for a Shared Slurm GPU Cluster — Independent

Jun 2026 – Present

- Built ml-experiment so research iterates without fighting the scheduler: GPU allocations are held as supervised leases that work is dispatched into, a wedged worker is recovered rather than left burning GPU hours, and models (vLLM, llama.cpp) run as durable services behind an endpoint.
- Built it to be safe on infrastructure other researchers depend on: GPUs shared by default, diagnostics that observe but never cancel others' jobs, experiments as immutable specs that run identically on the cluster, rented GPUs, or a laptop.

AI-Assisted Game Production — Roblox, Independent Contributor

Jul 2026 – Present

- Built the production system: a 27-tool MCP server and Studio plugin through which parallel AI agents build scenes, UI, effects, and economies, with geometry and visual audit gates every generated change must pass before it lands.
- Contributed to *Mog Evolution* and *Lift a Tungsten Cube* (~3K peak concurrent players); reused modules across titles.

USC Mangul Lab, University of Southern California — Research Intern

Apr 2024 – Aug 2024

Benchmarked ML classifiers for sepsis-mortality prediction on 772 patients' transcriptomic profiles (best: LightGBM, 0.74 AUC).

Colby GPU Cluster (open source) — native SwiftUI macOS menu-bar app that renders the shared cluster as a live isometric city; when the link drops it keeps the last good snapshot marked stale, and missing data shows as “not reported” rather than zero. **Mayflower** — native SwiftUI macOS app (iOS companion): college sign-in, Workday and Moodle in one place, a degree audit across 100 programs where every verdict cites its source. **KennebecEnergyNext** — Android app an energy-distribution company runs in daily field operations.

SKILLS

Languages: C#, Swift, Python, SQL, TypeScript/JavaScript, Kotlin, Lua, Bash; English and Mandarin Chinese (both native)

Tools & Infrastructure: .NET 8/WPF, SwiftUI, SQL Server, SQLite, Velopack, OpenTelemetry, Bun/Node, Chrome DevTools Protocol, Slurm, vLLM, llama.cpp, LLM agent harnesses and MCP servers, PyTorch/scikit-learn/pandas, Git/GitHub

EDUCATION

Colby College, Maine

Expected May 2029

B.A. Candidate, Computational Biology; Pulver Scholar Program. **Awards:** USA Biology Olympiad Semifinalist, rank 27/11,900 (top ~0.25%), 2024.