



Andrew T. Carl

Senior Unity / C# Engineer | Simulation, Gameplay Systems & Tools | Backend & Applied AI

aTc

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Unity/C# engineer and technical lead with **17+ years** of software experience, from engineering simulation to games. I lead the **550,000-line Unity/C# codebase** behind Satus Colony Survival, with server-authoritative simulation, in-game authoring tools and an **AI-agent validation pipeline**, backed by production backend, payments and team-building experience.

550K lines of Unity/C# • **~2,800** automated tests • **200+** tickets/week with up to 8 AI agents • **3D acoustic** simulation shipped to sales • **10 engineers** hired

Experience

Co-Founder & Lead Software Engineer | Re3 Studios

Mar 2026 – Present

Co-founded 2021; also full-time Mar 2021–May 2022. Satus Colony Survival, a Unity/C# colony simulation game in public Creative Alpha.
re3studios.com/alpha | [Steam page](#)

- **Architecture:** Lead a 550,000+ line Unity/C# codebase (2,200+ files, ~2,800 automated tests) and sole owner of engineering, marketing and release strategy.
- **Client/server simulation:** Separated client, server and shared simulation into Unity assemblies with compile-time boundaries, server authority and persistent world state.
- **Colonist systems:** Built needs, work scheduling, navigation, farming, hauling, resource gathering, animation, recovery and interaction with a changing world.
- **Authoring tools:** Created in-game tools for terrain, structures, nature, entities, reusable blueprints and data-driven content, with Steam Workshop support.
- **Release tooling:** Built diagnostics, error reporting, build validation, Steam packaging, release profiles, telemetry and player feedback.
- **AI-agent pipeline:** Three-lane validation for up to eight parallel AI coding agents. Weekly completed tickets rose from about 40 to 200+, and merged PRs from about 40 to 60–70+.

Lead Software Engineer | Goodfynd

Aug 2024 – Feb 2026

SaaS, POS, events and payments platform for mobile vendors. Role ended when the company paused product development.

- **Backend ownership:** Owned the backend for consumer, vendor, POS, events and admin products, and redesigned the V3 API to cut repeated database calls and controller boilerplate.
- **Payments:** Migrated about \$1M in annual payment volume to a new fee model with zero downtime across POS, online ordering, invoices, ACH, cards, tax and tips.
- **FyndAI Leads:** Created the company's first AI product, growing from about 100 beta signups to 35+ paid seats in five months.
- **AI data pipeline:** Built a Gemini/OpenAI pipeline that processed about 100,000 vendor profiles into 30,000+ verified contacts, with separate onboarding and production runs for speed and cost control.
- **Product strategy:** Analyzed multiyear GMV and retention data, corrected churn assumptions and shifted the roadmap to recurring SaaS. Monthly revenue per vendor rose from under \$10 to over \$25.
- **Trusted to the end:** Last engineer retained from a six-person team, keeping the revenue-generating systems running.

Chief Technology Officer (Contract) | FUNToken

Apr 2024 – Aug 2024

Gaming token platform turnaround. Engagement ended when the founders refocused on existing products.

- **Audits:** Assessed the codebase and bridge rollback risks, and led two investigations that traced cross-chain transactions to KYC exchanges.
- **Team rebuild:** Reviewed 64 applicants and ran 15 interviews to hire two senior full-stack engineers.
- **Website and GameHub:** Launched the public Next.js site within weeks and designed the proposed GameHub architecture, UX and monetization plan.

Enterprise C#/.NET agency building CMS marketing sites.

- **Search and integration:** Cut a NetForum-to-Kentico data sync from hours to minutes, improving dependent Azure Cognitive Search results.
- **Kentico:** Earned the Xperience 13 developer certification in 2.5 weeks with no prior CMS experience, then the marketing certification.
- **Email:** Built personalized MJML templates with Kentico macros, tested across dozens of email clients.

Principal Software Engineer (Contract) | Glitter Finance

May 2022 – Aug 2023

Cross-chain payments infrastructure. Role ended when the company paused product development.

- **Building the team:** Recruited 10 engineers from 220+ candidates and 60 interviews, and managed 6–7 at a time across four products and four continents.
- **Bridges:** Wrote Algorand TEAL contracts and Node.js bridge services, and led a USDC rollout across eight blockchains.
- **SDK and monitoring:** Primary developer of the JavaScript SDK, published on npm for third-party integrations, plus real-time monitoring of ten networks with PostgreSQL recovery.
- **Bridge explorer:** Built one explorer across three bridge implementations, showing every transaction with status, volume and estimated completion time.

Lead Developer (Part-time Contract) | DoxxLocker

Aug 2021 – Mar 2022

Smart-contract security. Role ended when the company ceased operations.

- **Contract analysis:** Built an Azure platform that indexed 500,000+ Solidity contracts and analyzed about 100,000 BNB Chain contracts, with APIs and a Telegram bot.

Thermal Engineer (Engineering Software) | Evapco, Inc.

Dec 2008 – Mar 2021

Global heat-transfer manufacturer, Taneytown, MD. Started as Mechanical Engineer. Contract support through May 2022.

- **Contractual software:** Built the dual-use engineering and sales platform that teams in the US and Evaptech Asia used to price equipment and guarantee performance, with real damages if units underperformed. Results had to be exact where a 3% test tolerance is normal.
- **Built it twice:** WinForms/VB.NET (about 3 years in service), then WPF/.NET on Azure Functions and SQL Server (6+ years in service), replacing an Excel/VBA tool.
- **Acoustic modeling:** Built 3D models of sound paths, dampening, absorption and atmospheric effects, so sales could guarantee sound performance as well as thermal.
- **Thermal expertise:** Calibrated performance models against controlled tests, wrote a 90-page engineering design guide and co-authored two Cooling Tower Institute papers.

Skills

Game development: Unity, C#, simulation systems, in-game tooling, Steamworks, Steam Workshop, 3D visualization

C# and .NET: .NET, ASP.NET Core, WPF, WinForms, VB.NET

APIs and payments: REST APIs, Stripe, POS, ACH, zero-downtime migrations

Applied AI and data: OpenAI, Gemini, Claude, structured extraction, SQL Server, PostgreSQL, MongoDB

Cloud and web: Azure, AWS, Docker, GitHub Actions, TypeScript, Node.js, React, Next.js, Python

Leadership: Software architecture, technical hiring, distributed teams, incident response

Education

B.S., Mechanical Engineering, University of Maryland, Baltimore County, 2008 (GPA 3.978/4.0)

Publications: Co-author, [*Cooling Equipment Sound Measurements: Test Code Comparisons and Recommendations*](#) (CTI Journal, 2019) and [*Hybrid Cooling Towers Water Savings Calculations and Measurements*](#) (CTI Journal, 2015)