

Carl Welch

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PROFESSIONAL SUMMARY

Senior Product Engineer with 20+ years owning customer-facing SaaS, enterprise workflows, internal tools, mobile experiences, analytics products, and interactive applications from product definition through release. Combines strong React and TypeScript architecture with Node.js services, PostgreSQL-backed systems, AI-assisted product features, design-system thinking, testing, and cross-functional delivery. Especially effective where ambiguous user problems require practical product judgment, fast iteration, and reliable end-to-end implementation.

CORE SKILLS

product engineering, end-to-end ownership, enterprise SaaS, customer workflows, internal tools, React, TypeScript, Next.js, Node.js, REST APIs, API Design, PostgreSQL, Prisma, React Native, Flutter, Material UI, Storybook, design systems, analytics, data visualization, AI-assisted features, WebAuthn, Jest, Playwright, cross-functional leadership, mentorship

SELECTED PRODUCT BUILD

ProgressionLab - AI-Assisted Music Product | 2026

Skills: Next.js, React, TypeScript, OpenAI Responses API, PostgreSQL, Prisma, Material UI, Tone.js, Storybook, Jest, Playwright, WebAuthn

- Built and deployed a product that turns harmonic intent into playable chord progressions with structured AI output, practical voicings, playback, diagrams, and sharing.
- Shipped MIDI and PDF export, a saved progression library, public share links, session-based authentication, and responsive product workflows.
- Built a separately deployed admin application with marketing-content draft, publish, and rollback workflows.
- Added AI-assisted localization with mandatory human review and stale-draft detection, plus server-side funnel analytics and persona-based onboarding.
- Integrated WebAuthn security keys for admin MFA and user credential management, with Jest, Storybook, and Playwright coverage.

PROFESSIONAL EXPERIENCE

Yubico - Senior Software Engineer | Jul 2022 - Mar 2026

Skills: React, TypeScript, Node.js, AWS, Material UI, Storybook, Jest, Playwright, Redux, REST APIs, frontend architecture, component libraries, test automation

- Built enterprise admin-console features for YubiKey management, provisioning, inventory and shipping workflows, and device lifecycle operations.
- Increased automated frontend test coverage by 50% with Jest and Playwright, reducing QA effort, regressions, support issues, and release risk.

- Led Storybook adoption and shared component-library work, improving reuse, local development speed, and consistency across product surfaces.
- Mentored engineers, reviewed pull requests, defined frontend standards, and coordinated delivery with product, design, QA, and backend teams.

Revenue.io - Senior Software Engineer | Mar 2020 - Jul 2022

Skills: React, TypeScript, Node.js, Backend-for-Frontend, Backbone, Docker, Jest, Storybook, Redux, REST APIs, Twilio, analytics, SaaS

- Built analytics dashboards, reporting views, sales-engagement workflows, communication tools, admin tooling, and customer-facing SaaS interfaces.
- Migrated legacy Backbone screens to React and TypeScript while introducing shared components and modern frontend architecture patterns.
- Reduced friction across CRM, telephony, reporting, and communication workflows used by sales teams.
- Improved page performance, test coverage, reliability, and maintainability while supporting broader product adoption.

Bosch - Lead Frontend Developer | Jul 2018 - Mar 2020

Skills: React Native, TypeScript, Java, Xcode, Google Maps API, Stripe, Redis, Firebase, WebSockets, Twilio, Redux, REST APIs

- Led frontend and mobile development for a B2B ride-sharing product supporting corporate commuters and internal mobility programs.
- Built scheduling, routing and maps, payments, messaging, real-time driver and rider updates, localization, and release workflows.
- Managed Apple App Store and Google Play release planning while improving release speed and operational reliability.
- Coordinated delivery with backend, product, design, QA, and international stakeholders across U.S., Mexico, and Germany launches.

Bridg - Senior Frontend Engineer | Dec 2017 - Aug 2018

Skills: React, TypeScript, Jest, Kubernetes, Elasticsearch schemas, API Design, Redux, REST APIs, analytics, data visualization

- Built responsive analytics dashboards, audience-segmentation workflows, reporting tools, search and filtering experiences, and data visualizations.
- Defined frontend architecture, component patterns, API contracts, and testing standards while improving maintainability and delivery quality.

Grindr - Senior Web Developer / Manager | Apr 2016 - Aug 2017

Skills: React, JavaScript, Sass, Go, CMS, Redux, REST APIs, analytics, computer vision, mobile campaigns

- Built an in-app campaign-package tool that automated creative generation, resizing and cropping, metadata packaging, targeting rules, QA checks, exports, mobile handoff, and analytics integration.
- Built a content site and CMS with editorial publishing, ad placement, analytics, campaign pages, and backend and admin tooling.

- Managed developers, reviewed code, planned releases, and coordinated with marketing, product, design, mobile teams, vendors, and stakeholders.

EARLIER EXPERIENCE

SapientNitro - Manager, Interactive Development | 2015 - 2016

Skills: JavaScript, React, Angular, Backbone, SCSS, Node.js, PHP, MySQL, REST APIs

Managed developers, estimated work, reviewed code, coordinated with design, product, and account teams, launched high-traffic campaigns, and led frontend architecture for major retail and entertainment brands.

Nezzoh Studios - Technical Director | Dec 2013 - Dec 2014

Skills: JavaScript, PHP, MySQL, Chromecast, Roku APIs, Kaltura, REST APIs, analytics, video accessibility

Led video-platform development, analytics and advertising integrations, player plugin work, accessibility support, vendor coordination, engineering mentorship, and client communication.

Trailer Park Studios - Lead Developer | Sep 2012 - Sep 2013

Skills: JavaScript, jQuery, CSS, Three.js, Canvas, PHP, MySQL, Backbone, Node.js

Led interactive entertainment campaigns, admin tools, short-film contest moderation tooling, Apple iBooks widgets, and recovery of a high-risk project while overseeing five junior developers.

BPG Advertising - Interactive Art Director / Front End Developer | May 2012 - Jul 2012

Skills: JavaScript, jQuery, CSS, Three.js, Canvas, PHP, MySQL, Backbone, Node.js, CMS

Built entertainment marketing sites, interactive campaigns, microsites, landing pages, CMS and admin tools, and social integrations.

Petrol - Interactive Art Director / Full Stack Developer | Sep 2011 - Feb 2012

Skills: HTML, CSS, JavaScript, jQuery, PHP, MySQL, Three.js, Canvas, analytics, localization

Built localized movie and game marketing sites, interactive campaigns, social integrations, analytics, and frontend and backend systems.

TASER International / AXON - Front End Developer | Apr 2009 - Oct 2011

Skills: JavaScript, HTML5, CSS, jQuery, Google Maps API, PHP, MySQL, REST APIs, video tooling, encryption

Built early AXON officer-dashboard workflows for body-camera video review, synchronized GPS and map playback, evidence annotation, case preparation, secure packaging, and prosecutor and court exports.

General Dynamics Land Systems - Manager / Lead Developer | 2001 - 2004

Skills: VR/AR hardware, Visual Basic, C++, Macromedia Director 3D, CAD, AutoCAD, VR, AR

Managed a VR lab and built spatial AR and VR proof-of-concept tools for engineering analysis, maintenance support, and virtual training.

U.S. Army - Fire Support Specialist | Operation Desert Storm

Skills: fire support coordination, map reading, coordinate calculation, field communications

Supported infantry and maneuver units through target identification, fire-support coordination, map reading, coordinate calculation, and communications with Tactical Operations Centers.

PROJECTS

- Job Search OS: Built a protected single-user job-search operating system for discovery and scoring, evidence-backed materials, application tracking, email outcome monitoring, Slack operations, agent evaluation, and approval-gated browser assistance. | Next.js, React, TypeScript, PostgreSQL, Prisma, pgvector, OpenAI structured outputs, LangGraph, MCP, Playwright
- Flight Tracker AI: Built and deployed a read-only aviation-intelligence portfolio application combining regional ADS-B traffic, deterministic replay, aircraft trajectories, NOAA weather and hazards, layered atmospheric data, explainable attention signals, telemetry, and constrained human-reviewed AI drafting. | Next.js, React, TypeScript, Rust, Axum, PostgreSQL, PostGIS, NOAA APIs, OpenAI, Vercel, Render
- Supraconscious Avatar AI: Built a multi-app AI reflection platform with separate Next.js web and admin applications, an Express MCP server, PostgreSQL/Prisma persistence, policy-first RAG, source provenance, prompt governance, metadata-first observability, RBAC, and audit-aware review workflows; the Flutter mobile client remains a scaffold. | Next.js, React, TypeScript, Express, PostgreSQL, Prisma, OpenAI, RAG, MCP, Docker
- Argent Matchmaking: Architected a synthetic, human-led matchmaking concept and monorepo foundation spanning public and admin web surfaces, Flutter mobile, Fastify API, worker, contracts, database, and design-system boundaries; it intentionally has no accounts, real profiles, persistence, AI, or matching workflow. | Next.js, TypeScript, Flutter, Fastify, PostgreSQL, Redis, Docker, OpenAPI

EDUCATION

Virginia Commonwealth University - Bachelor of Fine Arts