Gabriel C. Fernández

Curriculum Vitae · Principal Software Engineer · Full-Stack, Mobile & Applied AI

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PROFILE

Software engineer and technical leader with 15+ years building and running production systems: tech lead and solution architect for a 1M+ request/day eligibility platform at USAA, co-founder and CTO of Receptiva, a production AI voice product, and founder of CodeHarmonic, a software consultancy and product studio. Named inventor on 76 granted U.S. patents across 26 patent families in authentication, fraud prevention, and network security. M.S. in Computer Science (cybersecurity concentration, deep learning thesis) with peer-reviewed publications at IEEE MILCOM, IEEE ICCE, and SPIE. Based in Clifton Park, NY; works remotely on Eastern hours.

PROFESSIONAL EXPERIENCE

Receptiva · Co-Founder & CTO Jan 2026 – Present

Bilingual AI phone receptionist for personal-injury law firms · receptiva.ai · remote

- Co-founded and built the product end to end; live in production since June 2026, answering, triaging, and routing inbound calls in English and Spanish for law firms
- Built the real-time voice agent in Python with a swappable model layer, so each firm runs on the voice model that fits its calls; warm transfer to attorneys over SIP; and an eval service that regression-tests call behavior before each deploy
- Built the Next.js 16 / TypeScript platform: self-serve setup wizard that provisions phone numbers, firm dashboard, Stripe subscriptions with trials, and a durable post-call pipeline that extracts structured leads into Postgres
- Designed a public REST API and MCP server (Hono, Zod → OpenAPI) with OAuth 2.1 + PKCE so firms can use Receptiva from Claude and ChatGPT; deny-all row-level security, a cross-tenant isolation test suite, and an append-only audit log
- Contracts-first polyglot monorepo with path-filtered CI; firm config changes reach live calls in about two minutes without redeploying the agent

Orthopedic Medical Platform (Confidential Client) · Lead Software Engineer (Contract) Feb 2026 – Present

Orthopedic second-opinion platform used by professional sports teams · part-time contract, remote

- Own engineering for an AWS-hosted platform that handles athletes' medical imaging (DICOM), physician reports, and payments; resolved the critical bugs and deployment issues blocking launch, and run the roadmap with the founders
- Led a security and privacy release: closed sign-up privilege-escalation and record-takeover paths, blocked unauthenticated access to athlete records, removed passwords from server logs, and added server-side access checks on images
- Rebuilt delivery: Terraform plans previewed on every pull request and applied from reviewed plans, automated deploys through CI/CD, and automated tests as a merge gate
- Hardened medical-imaging uploads for large MR and CT studies: every DICOM image now persists as it uploads, failures alert immediately, and affected cases were recovered the same day; established a predictable release cadence with versioned release notes and written reviews for the founders

CodeHarmonic, LLC · Founder & Principal Engineer Apr 2025 – Present

Software consultancy and product studio · codeharmonic.com · remote

- **BookMatcher —** AI book recommendations and reading tracker. iOS app live on the App Store (SwiftUI, Swift 6 strict concurrency, Clean Architecture), Next.js web app with programmatic SEO, and a TypeScript Hono API on Vercel with Supabase, Inngest, and OpenAPI/Zod; Sentry, PostHog, and RevenueCat in production
- **Recall Beacon —** product-safety recall alerts aggregated from FDA, USDA, CPSC, and NHTSA. SwiftUI iOS app with RevenueCat subscriptions, Firebase Functions (Node/TypeScript) ingest and push notifications
- **AI engineering practice —** built an agentic "software factory": scheduled Claude Code loops that triage Sentry alerts, pick up Linear issues, write a failing test first, open draft PRs, and review PRs, all behind hooks and a written risk policy so a human reviews and merges
- **Client work —** built a field and back-office operations app for a septic service company that automates technician service reports (Next.js, Postgres, Vercel)

USAA · San Antonio, TX Jan 2012 – Apr 2025

Lead Software Engineer Dec 2021 – Apr 2025

- Tech lead and solution architect for the Join USAA eligibility platform: React front end and Java / Spring Boot microservices handling 1M+ requests a day
- Led the rollout of SLOs and SRE practices across services, ran the 24/7 on-call rotation for critical systems, and set code-review standards for the team

- Program tech lead across teams; mentored junior engineers
- Shipped full-stack features on usaa.com/join with React, Redux, Java, Spring, Kafka event pipelines, Cypress, and CI/CD
- Worked with product, design, and engineering leads to break business concepts into epics and system designs

Senior Software Engineer Dec 2018 – Dec 2021

- Built secure REST APIs on OpenShift, Docker, and Spring with JWT and CyberArk; observability with ELK, Prometheus, Grafana, and Jaeger; led root-cause analysis on security and performance findings
- In USAA's innovation lab from 2017, matrixed to the Join eligibility platform: built and later helped lead the Join Modular Eligibility REST APIs (potential-customer API, JWT service, address validation, rules-engine migration) integrated with legacy WebSphere services
- Tech lead for an internal employee web app: designed the reactive architecture and built the React front end and Java / Spring WebFlux back end, using Akka actors and WebSockets for real-time updates and integrating several enterprise systems
- Mentored and coached junior developers and interns as a team Pulse Champ
- Built driver's-license and selfie capture for ID proofing on iOS with on-device ML Vision APIs

Research Engineer → Senior Research Engineer (2017), IT Security & Fraud Jan 2012 – Dec 2018

- Co-invented and built Adaptive Mobile DDoS Mitigation for the USAA iOS app (patented); shipped it as a production Objective-C library with a cryptographic protocol at the Akamai edge
- Led a cybersecurity research team of employees and contractors; ran a production pilot of behavioral-profiling fraud detection on live usaa.com traffic; prototyped on iOS and AWS and briefed senior executives
- Built full-stack prototypes in Java, iOS (Objective-C / Swift), and AWS alongside security and fraud architects, turning research concepts into working proofs of concept; stood up a malware analysis lab for the team
- Evaluated vendor machine-learning and authentication technologies (including Intel IPT for desktop and VPN logon) and delivered executive innovation briefs; named inventor on patent families spanning authentication, fraud, and network security

Texas A&M University–Corpus Christi · Graduate Assistant, ELITE Graduate Program May 2010 – Dec 2011

- Developed a web application for intake, registration, and tracking of graduate students in a grant-funded program (PHP, MySQL)
- Managed the department website and analytics, implemented an email-marketing system, and produced workshop video content

Independent · Web Design & IT Services Jan 2008 – May 2010

- Designed and built websites for small businesses; IT helpdesk support for government employees as a Unisys Technical Services technician

TimeLock Enterprise, LLC · Founder, President / CEO Jun 2003 – Jan 2008

- Founded an e-commerce startup (WatchKings.com); built and ran the storefront, supplier relationships, and PPC / SEO programs

EDUCATION

M.S. Computer Science · University of Texas at San Antonio May 2019

Concentration: Cybersecurity · Thesis: Deep Learning Approaches for Network Intrusion Detection · Laboratory for Cybersecurity Dynamics · Part-time while at USAA; graduate study began at Texas A&M University–Corpus Christi (2010–2011)

B.S. Construction Science · Texas A&M University, College Station Dec 2007

PUBLICATIONS

- **G. C. Fernandez and S. Xu,** "A Case Study on Using Deep Learning for Network Intrusion Detection," IEEE Military Communications Conference (MILCOM), Nov. 2019. doi:10.1109/MILCOM47813.2019.9020824 · arXiv:1910.02203
- **G. C. Fernandez,** "Deep Learning Approaches for Network Intrusion Detection," M.S. thesis, University of Texas at San Antonio, 2019
- **G. C. Fernandez and A. S. Danko,** "Addressing the Vulnerabilities of Pass-Thoughts," Proc. SPIE 9842, Signal Processing, Sensor/Information Fusion, and Target Recognition XXV, 98421F, SPIE Defense + Commercial Sensing, May 2016. doi:10.1117/12.2223429
- **A. S. Danko and G. C. Fernandez,** "My Brain Is My Passport. Verify Me," IEEE International Conference on Consumer Electronics (ICCE), Jan. 2016. doi:10.1109/ICCE.2016.7430507

PATENTS

76 granted U.S. patents across 26 patent families, all assigned to United Services Automobile Association (USAA), covering authentication, behavioral and biometric security, fraud prevention, network security, data protection, and connected devices. Google Scholar: 1,184 citations, h-index 15 (Oct 2026). Listed by family, most recent grant first.

- **Authenticating mobile traffic —** US 9,882,884 (2018); US 11,095,630 (2021); US 12,744,767 (2026)
- **Systems and methods for managing personalized life information —** US 11,782,883 (2023); US 12,072,848 (2024); US 12,688,162 (2026)
- **Systems and methods for secure data transfer —** US 11,765,166 (2023); US 12,028,340 (2024); US 12,647,417 (2026)
- **Data access control —** US 11,803,658 (2023); US 12,645,827 (2026)
- **Data access system for representatives —** US 10,917,516 (2021); US 11,206,329 (2021); US 11,758,039 (2023); US 12,574,457 (2026)
- **Authorization systems based on protected data —** US 11,501,307 (2022); US 12,505,452 (2025)
- **Systems and methods for authenticating a user using an image capture device —** US 10,764,281 (2020); US 11,792,189 (2023); US 12,489,749 (2025)
- **Authentication for application downloads —** US 11,140,158 (2021); US 11,924,201 (2024); US 12,432,202 (2025)
- **System and method for detecting deviations in building structures using reconstructed 3D models —** US 11,769,268 (2023); US 12,315,183 (2025)
- **Distributed ledger for network security management —** US 11,050,763 (2021); US 11,706,231 (2023); US 12,184,664 (2024)
- **Audio tokens for multi-factor authentication —** US 11,153,307 (2021); US 11,805,120 (2023); US 12,170,660 (2024)
- **Methods and systems for authentication of new users —** US 11,122,038 (2021); US 12,010,117 (2024)
- **Near instantaneous payment card or loan approval using digital identity —** US 12,008,641 (2024)
- **Automatic problem detection from sounds —** US 11,580,796 (2023); US 11,847,872 (2023)
- **Efficient logon —** US 9,430,624 (2016); US 10,013,544 (2018); US 10,325,085 (2019); US 10,650,131 (2020); US 11,294,998 (2022); US 11,816,199 (2023)
- **Systems and methods for authentication program enrollment —** US 9,548,979 (2017); US 10,013,984 (2018); US 10,650,831 (2020); US 11,270,708 (2022); US 11,817,105 (2023)
- **Intelligent vehicle guidance for improved driving safety —** US 11,180,159 (2021); US 11,814,065 (2023)
- **Efficient startup and logon —** US 9,509,676 (2016); US 9,984,224 (2018); US 10,331,870 (2019); US 10,650,132 (2020); US 11,288,352 (2022); US 11,783,020 (2023)
- **Selective passive voice authentication —** US 10,013,983 (2018); US 10,515,639 (2019); US 11,157,910 (2021); US 11,676,150 (2023)
- **Augmented reality-based interactive customer support —** US 11,200,742 (2021); US 11,663,782 (2023)
- **Security platform —** US 10,425,414 (2019); US 11,218,478 (2022); US 11,625,460 (2023)
- **Smart lock box —** US 10,745,943 (2020); US 10,808,427 (2020); US 11,187,013 (2021); US 11,572,713 (2023)
- **Data protection systems —** US 11,550,954 (2023)
- **Wearable display system for portable computing devices —** US 11,200,869 (2021); US 11,527,220 (2022)
- **Wearable electronic devices for automated shopping and budgeting with a wearable sensor —** US 11,328,334 (2022)
- **Behavioral profiling method and system to authenticate a user —** US 9,185,095 (2015); US 9,516,035 (2016); US 9,514,293 (2016); US 10,091,180 (2018)

CERTIFICATIONS & PROFESSIONAL DEVELOPMENT

- **Claude Code in Action —** Anthropic, Oct 2025
- **Deep Learning Specialization courses (deeplearning.ai, Coursera) —** Neural Networks and Deep Learning (Sep 2017); Improving Deep Neural Networks (Sep 2017); Structuring Machine Learning Projects (Oct 2017); Convolutional Neural Networks (Dec 2017)
- **Cybersecurity: Technology, Application and Policy —** MIT CSAIL, Spring 2016
- **Innovator Certification —** UT Austin IC² Institute, Fall 2014
- **Black Hat USA training —** Software Defined Radio and Digital Signal Processing (Aug 2014); Designing Secure Protocols and Intercepting Secure Communication (Aug 2013)

TECHNICAL SKILLS

Languages: TypeScript, JavaScript, Java, Python, Swift, SQL, Objective-C, C/C++

Front end & mobile: React, Next.js, Redux, Tailwind, shadcn/ui, SwiftUI, iOS (Swift 6, Core Data), Cypress

Back end: Node.js, Hono, Spring Boot, REST & OpenAPI, microservices, Kafka, durable workflows, Stripe, OAuth 2.1 / JWT

AI: Realtime voice agents, speech-to-speech models, LLM APIs, MCP servers, LLM evals, Claude Code, Cursor, Codex

Cloud & data: GCP, AWS, Vercel, Firebase, PostgreSQL, Docker, OpenShift, Terraform

Practices: System design, SRE & SLOs, observability (Sentry, PostHog, Prometheus, Grafana), CI/CD, TDD, Agile