RÉSUMÉ (CURRICULUM VITAE)

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BACKGROUND:

I am an experienced software architect and developer specializing in large scale cloud based web services, AI and ML design and architecture, medical software and device development, and mobile application development.

Recent focus has been designing, building, and validating production LLM applications end-to-end — structured extraction from messy real-world inputs, multi-stage matching and ranking, agentic workflows, multi-provider LLM orchestration (Bedrock, OpenAI, Anthropic), AWS-native serverless deployment (Lambda, Fargate, RDS), enterprise SaaS / CRM integration, and the evaluation infrastructure that proves these systems work in real production environments.

Whether acting as architect, individual contributor, or team lead, I am able to articulate to explain complex technology concepts to investors, clients, partners, and other engineers. I have served as Chief Technology Officer at three companies, where I successfully built and led engineering teams to bring innovative products to market.

SKILLS:

- Deep, practical experience designing and shipping modern AI/ML systems: large language models (could-provided and self-hosted); production agentic systems, leveraging agent SDK's like Claude Agent SDK and OpenCode, in-process MCP tool servers, subagent orchestration, extended thinking, parallel tool execution, and per-agent cost guardrails; workflow orchestration with LangGraph and LangChain; retrieval-augmented generation over PostgreSQL + pgvector (HNSW) and Chroma, with OpenAI embeddings and hybrid BM25 + vector retrieval using Reciprocal Rank Fusion; knowledge-graph construction and comparative evaluation, long-lived agent memory with importance-weighted decay and entity extraction; real-time voice agents; multimodal document understanding; structured LLM output with Pydantic and multi-pass confidence scoring; and LLM observability, tracing, and cost instrumentation with Langfuse.
- Design and implementation of secure, scalable, multi-account AWS infrastructures using CloudFormation (Infrastructure as Code), including Bedrock, Lambda, API Gateway, EC2, ELB, RDS (PostgreSQL and Aurora), S3 (with server-side encryption, bucket-owner-enforced ACLs, and presigned-URL claim/unclaim lifecycles), Secrets Manager, SES, VPC, Route53, CloudWatch Logs Insights, CloudWatch alarms, and AWS Cost Explorer. Production data access via SSM Session Manager port-forwarding bastions (no public IPs, no static SSH keys, no exposed RDS endpoints), IAM least-privilege execution roles, and compliance-isolated deployment accounts where regulatory scoping requires it.
- Continuous integration and deployment using AWS CodePipeline, ECR-based versioned container builds with idempotent CloudFormation apply, and Google Cloud Build, with experience in setting up automated pipelines and testing workflows. Branch-guarded deploy automation for multi-account production stacks (refuses non-main deploys without explicit override, preventing the wrong-branch-deploy class of incident), pytest-based test suites with separated unit and integration tiers, and environment-isolated test configuration to prevent cross- environment leakage.
- Design and implementation of secure, scalable infrastructures using Amazon Web Services, including Bedrock, CloudFormation (Infrastructure as code), EC2, ELB, RDS, SES, S3, VPC, Route53, and Lambda.
- Google Cloud Platform, including Google Cloud Run, Firestore, Google Cloud Logging, and Google Cloud Build, with experience in deploying and managing Docker containers on both AWS and GCP.
- Continuous integration and deployment using AWS CodePipeline and Google Cloud Build, with experience in setting up automated pipelines and testing workflows.

- iOS and Android development, with a deep understanding of mobile app development lifecycle and best practices.
- RESTful API design, implementation, and testing, using frameworks including Django Rest Framework (Python) and NestJS (Typescript/Node.js).
- SQL databases systems such as MySQL and PostgreSQL, including database design and performance optimization.
- Embedded systems programming and development, with experience in low-level programming and hardware interfacing.
- Project management tools and methodologies including git, GitHub, JIRA/Atlassian, and other project management tools.
- Salesforce integration: SOQL via the Salesforce REST API, OAuth client-credentials flow against custom Connected Apps, programmatic introspection of object schemas and field metadata, and direct read access to Salesforce data warehouses (MySQL) over private network tunnels. Practical experience with Salesforce-side data quirks (timezone-encoded datetimes, multi-stage opportunity lifecycles) and with coordinating decoding policy directly with client-side Salesforce administrators.

Excellent communication skills (English and business/conversational French), including preparation of written documents and marketing materials. Ability to work closely and successfully with marketing and sales organizations. Effective public speaker and technology evangelist.

EXPERIENCE:

February 2012 - Present, Bulldog Technology Consultants, Inc.

President and founder. Performing software development and technology services for small and large companies:

Layer10 AI, Inc. (Contract, 2025 through present)

Designed and shipped a production AI pipeline for a leading booker of private jet travel that automates the operator request-for-quote workflow end-to-end. Pipeline runs on AWS Lambda behind FastAPI, persists every call to PostgreSQL and Langfuse for cost and trace observability, and runs the same agentic code path against OpenAI, Anthropic direct, or Anthropic via AWS Bedrock — selected per environment from Secrets Manager.

On the outbound side: takes a trip request (route, dates, passenger count, preferences) and ranks hundreds of charter operators for fit with per-operator rationale explaining the score, then composes personalized RFQ emails and sends them via Gmail — automating work the client's sourcing agents previously did by hand.

On the inbound side: ingests operator replies (text plus PDF attachments), matches each to the correct trip via a multi-stage hybrid retrieval (heuristic pre-filter over 900+ candidate trips, LLM-driven shortlist, LLM judge with score threshold), classifies the reply (quote, decline, clarification, other), and extracts each quote into a structured proposal record (aircraft, tail, price, leg coverage, conditions). Each proposal carries written per-proposal evaluation surfaced to the sourcing agent for review.

Constructed a Neo4j-backed context graph over the client's operational entities (trips, legs, operators, aircraft, FBOs, customers, and their cross-references), consulted by both the matching pipeline and the operator-reply pipeline. Sourced from PostgreSQL and Salesforce reads, with a domain-aware aircraft-reference rewriter and an idempotent rebuild job on a dedicated EC2 instance. Exposed graph context to the LLM stages through MCP tool calls.

Shipped secure multi-account AWS infrastructure as CloudFormation: Lambda, API Gateway, RDS PostgreSQL (private subnet, accessed only through SSM Session Manager bastions), S3 attachment buckets with server-side encryption and a presigned-PUT claim/unclaim lifecycle, Secrets Manager-backed configuration, IAM least-privilege execution roles, and CloudWatch alarms. Reduced LLM spend on the email-extraction path by ~80% by introducing a body sanitizer that strips forwarded-mail boilerplate before extraction, verified live via Langfuse traces. Additionally built a trip-sheet extractor and discrepancy detector for booked-trip operator paperwork.

Fulkerson Advisors, Inc. (Contract, 2024 through present)

Design and develop production AI systems for Fulkerson clients, including: an agentic knowledge-graph and retrieval platform built on the Claude Agent SDK with an in-process MCP tool server, streaming (Server-Sent Events) FastAPI + asyncpg backend, hybrid BM25 + vector retrieval over PostgreSQL/pgvector, and Neo4j; an LLM-driven automation scanner that orchestrate subagents across Gmail, database, and other sources to identify AI-automatable business processes and surface findings as a knowledge graph; AI-powered legal document collection, analysis, and generation; an AI-powered bridge for searching and analyzing large-scale multi-tenant data warehouses via Trino federation; and a real-time voice agent prototype for internal and customer-facing project management.

Enclear Therapeutics, Inc. (Contract, 2023 through present)

Document, design, and developed control and user interface software for a pole-mounted drug delivery system which controls precise delivery of therapeutic medicines directly to the brain. During delivery, the system continuously monitors pressure and flow of medicine through the patient's cerebrospinal cord at samples per second, recording and analyzing the data in real time. System has been successfully used in multiple animal trials nationwide, and prototype has been delivered to contract manufacturer for FDA approval.

Sunrise Labs, Inc. (Contract, 2019 through 2023)

Document, design, and developed software for medical devices, including mobile applications and cloud-based services which enable HIPAA and GDPR compliance as per FDA regulations.

Developed scalable, secure web services, including HIPAA and GDPR compliance, for storing and analyzing results from portable electronic COVID-19 test (this device, Alveo's "be.well" test, won the XPRIZE Rapid Covid Testing Competition).

With one other engineer, designed and developed a reversible infusion pump and associated user interface for scripting and controlling the precise movement of cerebral spinal fluid. Pump was tested successfully in animal trials and is being used as a prototype for a commercial medical application.

Goodpath, Inc. (Contract, 2022 through present)

Migrate back-end health-management REST services from legacy implementation that used JavaScript, Express.js, and Netlify to use modern Typescript, NestJS, and Node.js running on Google Cloud. Implemented CI/CD on Google Cloud, including developer preview releases, and documentation for RESTful endpoints. Interfaced with Firebase for authentication and NoSQL data storage, and external services including Segment and Contentful. Scalable Google Cloud implementation now running all production servers, with considerable cost savings.

Stratasys, Inc. (Contract, 2018 through present)

Developed iOS and Android applications to allow management of remote 3D print queues for Stratasys' line of 3D printers. Recently added new user features, internationalization, and performed extensive security update for both the iOS and Android applications.

Golden Hearts Games, Inc. (Contract, 2020 through present)

Document, design, developed, and deployed secure and scalable back end game engine for hosting Bingo, Slots, and other casino-style games with real cash payouts. Code is written in Python and Django and Django REST Framework. Developed extensive unit test suite and AWS deployment scripts. Infrastructure is live and currently serving clients. Interfaced with a wide variety of third party services including AWS, Google Geolocation, Sentry, New Relic, IP geolocation, PayPal, Prizeout, Responsys, Sendgrid, Stripe, Givinga, and others.

Trivium Interactive, Inc. (Contract, 2018)

Together with subcontractors provided and managed by me through Bulldog Technology Consultants, designed and developed technology to power interactive exhibits in museums and tourist attractions, including at the Hershey Visitor Center in Hershey, Pennsylvania, the Mascots Hall of Fame, and others. Back end user and content management systems was written in Python and Django.

Kwippit, Inc., Denver, CO (Contract, 2016)

Designed and developed Kwippit image sharing application for iOS and Android. Developed back end to allow for creative teams to design and publish images with specific customization attributes. Designed and implemented back end infrastructure in AWS using EC2, RDS, and other AWS components. iOS application was developed in Swift, Android application was in Java, back end was in Python.

Drync, Inc., Somerville, MA (Contract, 2016)

Together with subcontractors provided and managed by me through Bulldog, developed and extended Drync's "private label" iOS application that allowed Drync to partner with various wine distributors and retailers, providing each with a cost-effective, privately branded, custom mobile application for discovering and purchasing wine.

Sonde Health, Inc., Boston, MA (Contract, 2015-2016)

Developed prototype Android and iOS applications to allow Sonde to advance its research regarding voice changes during cognitive load. Applications recorded high quality audio while engaging the user in cognitively difficult tasks, then uploaded this audio, together with meta-data about the users' performance in these tasks, to a simple back-end infrastructure hosted on AWS. Integrated with audio subsystems of iOS and Android.

ACT.md, Inc., Boston, MA (Contract, 2015-2016)

Developed Act.MD applications for iOS and Android, allowing for secure access to ACT.md's server-hosted health care applications. These applications allowed for creation and management of "ad hoc" teams of medical care professionals who together provide various types of care for an individual. Integrated with native "Touch ID" authentication subsystems in iOS and Android.

SuperPedestrian, Inc.,, Boston, MA (Contract, 2015)

Consulted for design of, and provided and managed subcontractors through Bulldog, to develop and improve SuperPedestrian's flagship iOS application that pairs with their "Copenhagen Wheel" over bluetooth. The Copenhagen Wheel converts any bicycle into an electric bike.

Boston Productions, Inc., Norwood, MA (Contract, 2015-2023)

Together with subcontractors provided and managed by me through Bulldog, developed secure back-ends that power interactive visitor kiosks at a long list of museums and tourist attractions, including the Niagara Falls Visitor Center (New York Power Authority), the Detroit Zoo, the Western Writers' Museum, the University of Illinois Alumni Association, the Point Defiance Zoo and Aquarium, Space Center Houston, among others. Each back end provided an administrative interface used for managing content, a RESTful API, automated analytics reporting, and an infrastructure hosted on AWS.

Alignable, Inc., Boston, MA (Contract, 2015)

Developed Alignable's flagship mobile application for iOS. Developed in Objective C.

AARP through partnership with Siteworx, Reston, VA (Contract, 2014)

Together with subcontractors provided and managed by me through Bulldog, developed the AARP member benefits application for iOS. This was a port of a web application to a native iOS application, written in Objective C.

Franklin Retail Solutions, Boston, MA (Contract, 2014)

Consulted on redesign of their flagship market research application, proposed detailed transition plan from commercial Microsoft technologies to Open Source technologies, designed extensive wireframes for proposed mobile application. Worked extensively with management to review use cases and refine the design for a mobile client.

CityVoter, Inc., Cambridge, MA (Contract, 2014)

Together with subcontractors provided and managed by me through Bulldog, developed a custom iOS application to complement CityVoter's "A-List" web site, where individuals can recommend business establishments by voting for them in online contests. The mobile application accessed CityVoter's existing database and API to make recommendations, and gamify the process of voting for and reviewing local businesses.

The Sync Project, Inc. (acquired by Bose, Inc.), Boston, MA (Contract, 2014)

Developed prototype iOS application that interfaced with a variety of bluetooth health monitors to measure bodily response to music, and then categorize that music (using data from the Music Genome project) so that new types of music could be recommended to assist users in achieving specific health goals.

CTO, LuckyLabs, Inc., Boston, MA (Bulldog Contract, 2012 - 2014)

Developed Scantopia Android application, iOS application, and back end. Application allows players to scan UPC codes for chances to win prizes. Processed more than ten million scans in the first four months after release. Back end built on Python/Django/MySQL and hosted in a virtual private cloud on AWS. Designed and implemented secure, high-availability, high-performance, versionable API atop Amazon's RDS, EC2, ELB, ElastiCache, and CloudWatch services. Integrated Sentry error reporting and New Relic monitoring, Redis cacheing server, Celery Distributed Task Queue, and more. Interfaced with PayPal, PayPal Login, TeleSign (SMS account verification), PubNub, Kontagent, Flurry, Splyt, FourSquare, Mobile App Tracking, SendGrid, and other third party providers including the implementation of high performance secure postbacks.

Extended Lucky Bingo for Android, developed Lucky Slots for iOS and Android. Together these games have been downloaded millions of times. Lucky Bingo is a native Android implementation, Lucky Slots is implemented on top of Adobe AIR for mobile, with native extensions in Java for Android and Objective C for iOS. Contract renewed multiple times.

Achvr, Inc., Boston, MA (Bulldog Contract, 2013)
Directed and oversaw development of ACHVR application, available in iOS App Store.

GrabCAD, Inc., Cambridge, MA (Bulldog Contract, 2012)

Developed 3D renderer and annotation tool for viewing and attaching comments and sketches to 3D models. Annotator written in JavaScript using AJAX and WebGL. Storage back end developed in PHP and MySQL and hosted in Amazon's cloud. Tool can be viewed and experienced after creating a free account at GrabCAD's web site. Contract renewed multiple times.

Punchey, Inc., Boston, MA (Bulldog Contract, 2012)

Developed the Android and iOS versions of Punchey's credit card swiping and processing software (available of Google Play and the iOS App Store). Contract renewed multiple times.

February 2002 – February 2012, Adela Group LLC / AdelaVoice Inc., Falmouth, Massachusetts

General Partner, CTO, co-founder. Developed server-based voice recognition technologies showcased in iPhone applications, Android applications, and embedded Linux applications. Extensive use of C, C++, Objective C, Java, Android OS, iPhone OS, Qt, PHP, MySql, and Adobe Flex. Extensive use of Amazon's Web Services (EC2, EBS, S3, RDS, load balancing, elastic IP addresses, etc). Extensive use of Android and iPhone API's and frameworks, including multi-threading, secure web service access, UI design, custom SQLite databases, audio management (input and output), Facebook and Twitter integration, voice recognition, speech synthesis, in-app purchasing, push notifications, authentication, PayPal, and more.

Developed and published applications for iOS App Store: Voice Dialer (250k users on first version of iPhone/iOS), TwitSmart (voice integrated Twitter client), SpeakAndSave (mobile, voice-activated advertising vehicle). Developed and published applications for Android Market: StartTalking (hands- and eyes-free SMS client, 250k users), SpeakAndSave, FlashBid (real-time auction client).

Developed Lighthouse, a voice-activated, voice-integrated digital picture frame prototype based on custom hardware and Linux/Qt software stack.

Developed ShareThat, a photo/video hosting service that encouraged interaction and involvement through sweepstakes. Extensive and in-depth use of C#, ASP.NET, SQL Server, and hardware infrastructure planning and implementation (configuring CISCO routers, Barracuda load balancers, redundant SQL Servers, integration with Amazon's Secure Storage Service Service for data storage).

Developed TapDance, a Facebook application written in Adobe Flex, C#, and SQL, which conducted high-frequency, database-driven sweepstakes with real-time delivery of sweepstakes statistics. TapDance integrates with third party services for music discovery and download delivery.

Developed KAYAK, a simplified 3D design tool written in Java and designed to drive 3D printers from Z Corporation. Developed custom drivers for Z corporation's 3D printers.

October 1999 – February. 2002, GorillaPark Ltd., London, Amsterdam, Paris

Chief Technology Officer. GorillaPark is a pan-European high technology business accelerator. Responsibilities: Performing technical due diligence, recommending internal technologies, advising on technology investments, and analyzing technology trends that affect portfolio companies and affiliated organizations. Designing and implementing accelerator model to assist startup companies in developing technology platforms that are secure, scaleable, and reliable. Assisting startups with design, architecture, and documentation of a wide range of technology-based products and services. Presenting concepts and technologies to subsequent investors.

May, 1999 – October, 1999, AwardTrack, Inc., Scotts Valley, California

Chief Technology Officer. Developed concept and implementation of a business-to-business server that facilitates the creation and management of customized loyalty marketing programs on the Internet. Responsible for building initial engineering team, overseeing product development, and specifying and prototyping all of AwardTrack's server and web-based technologies. Also responsible for presenting concept, business, and technology to investors, partners, and customers. AwardTrack was sold to 24/7 Media in 2000.

1992 – 1998, PointCast, Incorporated, Sunnyvale, California

Co-Founder, CTO, Vice President, Engineering. Developed initial prototypes of The PointCast Network with small team of dedicated engineers. Developed PointCast Network client and server. Grew and managed team of 85 engineers and testers to develop, test, and release high-performance Internet servers, clients, information feeds, and advertising technologies. Presented technology and represented the company to partners and investors. In conjunction with other senior management, successfully closed over $50 million in private investment. Delivered public addresses and sat on panels at Stanford University and various industry conferences. Grew company to $18m in annual revenue, 1.5m online subscribers, and 150 employees.

1998 – 1999, Consultant, AwardTrack, Incorporated, Aptos, California

Designed and developed technology for managing custom Internet "rewards" programs. Managed project to collect rewards information from disparate web sites (e.g. airline frequent-flyer sites), store these in a database, and aggregate the results for a consumer. Designed and developed cross-platform interfaces to allow Internet partner sites to access and manipulate these data from Java, C++, ASP, or Visual Basic. Was subsequently elected to the AwardTrack Board of Directors.

1985 – 1992, Software Engineer, Digital Equipment Corporation, Cupertino, California

Developed automated systems for tracking manufacturing process for high-density interconnected circuits (wafer-scale integration). Was responsible for design and implementation of database-driven process control system that interfaced directly with numerically controlled manufacturing equipment, tracked defects, controlled the routing of parts through the manufacturing process, and produced detailed reports for total quality management. Developed translation code to drive numerically controlled machines (including precision drills and lasers) to mass-produce parts directly from CAD drawings. Developed system for integrating automatic routing of signal and power lines according to very low tolerance design rules and specifications.

1981 – 1985, Software Engineer, Digital Equipment Corporation, Nashua, New Hampshire

Developed and tested portions of Digital's Pascal and Ada compilers. Designed test plans and implemented automated regression testing.

1979 – 1981, AdventureWorld Corporation, North Chelmsford, Massachusetts

Started, owned, and operated one-person company (at age 12) producing and distributing games for TRS-80, Apple II, and Commodore PC's.

PERSONAL:

60 years old, not married, one adult daughter. Native English; intermediate French.

REFERENCES:

Extensive; furnished upon request.