

PAIGE JULIANNE SULLIVAN

Principal Software Engineer / ARCHITECT / STAFF ENGINEER



GITHUB



LINKEDIN

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North Carolina · available now, open to relocation

Thirty years of production software — embedded C firmware and five-nines telephony early on, distributed systems in Go, TypeScript and WebAssembly since. Two patents pending on a multi-trade topology graph engine and the language that queries it. Sole owner of research infrastructure for 1,800 researchers, technical lead of five engineers, solo founder of a platform now live in production. Early, disciplined adopter of LLM-augmented development, always under rigorous review and automated validation.

30
YEARS IN SOFTWARE

2
USPTO PATENTS

99.999%
FIVE-NINES VOIP UPTIME

50+
CLIENT APPS BUILT

WORKING IN

Go · TypeScript · React 18 · WebAssembly · PHP 8 · Python · C · C# · GCP · AWS · Kubernetes · Terraform · PostgreSQL · Redis · knowledge graphs · LLM orchestration

EXPERIENCE

NOV 2025 –
PRESENT
Thomasville, NC

Founder and Principal Architect

Topology.Cloud

- Own technical strategy and architecture for a digital-twin platform serving the trades-contractor market, greenfield to live production.
- Shipped a Go microservices backend with React 18 and WebAssembly clients against a real-time graph data model.
- Designed the Topology Formula Language: a DSL with lexer, parser and AST that decouples building-code logic from application code. *USPTO 63/971,587 pending.*
- Mapped 9,500+ component definitions across twelve building trades into one port-compatible topology graph. *USPTO 63/973,120 pending.*
- Engineered multi-user real-time collaboration over a custom binary WebSocket protocol; operate the whole GCP stack under Terraform IaC and automated CI/CD.
- Concurrently consulting as *Sullivan Technology*: a 31-tool Windows diagnostic suite in C# with PHP and Stripe licensing, plus WordPress-CRM and commercial IoT work.

AUG 2020 –
MAY 2025
Baltimore, MD

Programmer Analyst and Technical Lead

Johns Hopkins Bloomberg School of Public Health

- Sole technical owner of the research data infrastructure behind 40+ clinical trials, 1,800 researchers and 150,000+ participants at the largest US orthopedic trauma consortium.
- Ran high-availability LAMP infrastructure end to end; disaster-recovery procedures cut bare-metal restoration to under 15 minutes.
- Released seven open-source REDCap modules now adopted internationally, including conversational SMS capture; mentored a technical assistant through semi-annual reviews.

AUG 2019 –
AUG 2020
Durham, NC

Senior Software Engineer

Target RWE

- Rebuilt the AWS deployment pipeline for a Phase IV clinical trial platform, cutting deployments from 60+ minutes to under five — a 91% reduction — through CI/CD automation and dashboards.

EXPERIENCE, CONTINUED

JAN 2019 – AUG 2019 Research Triangle Park, NC	Senior Software Engineer <i>IBM Corporation, z Systems Division</i> — Led TypeScript extensions for Visual Studio Code and the Eclipse Theia web IDE against z/OS, modernizing the developer experience for enterprise mainframe customers.
OCT 2014 – JAN 2019 Thomasville, NC	Independent Software Architect <i>Boolean Informatics</i> — Architected and delivered 50+ custom applications for clients across healthcare, consumer products and field services. — Built cross-platform mobile applications with integrated GPS tracking, and custom Amazon Alexa voice integrations for consumer hardware.
JAN 2008 – OCT 2014 Thomasville, NC	Lead Engineer and Co-Founder <i>Concert Telecommunications</i> — Architected a hosted VoIP platform in PHP, Python and C++ across three datacenters, with automated failover that sustained 99.999% availability. — Built the phone system from scratch and owned the customer deployment lifecycle from provisioning through production support.

EARLIER
CAREER

IBM, BladeCenter Division — Advisory Software Engineer and technical lead, 2004–2008: firmware rewrites in C on Linux for Advanced Management Modules, I2C and IPMI bus communications, directing five engineers. **TheraSim** — Lead Architect, 2011–2012: rearchitecture to MVC and a DSL for medical case authoring in virtual-patient simulation. **Cisco Systems** — Senior Software Engineer, 2009–2011: VMware management tooling, an IOS configuration library, an enterprise data warehouse. **Boolean Systems / Dynamic Designs** — Founder and CEO, 1995–2004: just-in-time manufacturing simulators and early web SaaS ticketing. **HiddenMind, MCI/WorldCom, AT&T** — Lead Web Developer, 1999–2003: principal architect for enterprise intranet, extranet and health-monitoring systems.

OPEN SOURCE

- Seven REDCap external modules for clinical research data capture, adopted by research institutions internationally.
- Open-source file compression utility written in C, released with a published format specification.
- Component Modeling Language and Topology Formula Language specifications, published as open repositories.

TECHNICAL INVENTORY

LANGUAGES	Go, TypeScript, JavaScript (ES2023+), PHP 8, Python, C, C++, C# (.NET), Node.js, SQL, Bash and shell scripting
FRONTEND	React 18, WebAssembly, HTML5, CSS3, REST APIs, WebSockets, single-page applications, VS Code and Eclipse Theia extensions
ARCHITECTURE	Distributed systems, microservices, event-driven and service-oriented architecture, API design, high availability, fault tolerance, failover, load balancing, concurrency, scalability, SOLID
CLOUD AND DEVOPS	GCP (Cloud Run, Cloud SQL, Memorystore, Pub/Sub), AWS (CDK, EC2, S3), Kubernetes, Docker, Terraform, IaC, CI/CD, GitOps, Linux, SRE, observability, disaster recovery
DATA	PostgreSQL, MySQL, MariaDB, SQL Server, MongoDB, Redis, data modeling, knowledge graphs, graph algorithms, telemetry ingestion, data warehousing
AI AND ML	LLM orchestration (Claude, Gemini, open-weight models), retrieval-augmented generation, prompt engineering, multi-agent systems, semantic search, graph neural networks
DOMAINS	Digital twins, compiler and interpreter design, DSLs, real-time collaboration, binary protocol design, VoIP and telephony, embedded firmware, I2C, IPMI, IoT
PRACTICES	Agile, Scrum, technical leadership, mentoring, code review, stakeholder management, SDLC, technical documentation, performance management