

Preston Lumpkins

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Education

The University of Alabama, Tuscaloosa, AL

Expected May 2027

B.S. in Computer Science, B.F.A. in Theatre | GPA: 4.0/4.0; Honors College

Dean's List, President's List (4x), Presidential Scholarship

Experience

Software Engineering Intern (returning)

May 2025 – August 2026

Pinnacle Solutions, an Akima Company – Huntsville, AL

- Eliminated a projected 6,300 hours of manual authoring across 270 lessons on the Virtual Maintenance Trainer program by building Delphin, a WPF/.NET 8 tool converting IETM maintenance manuals into Unity-ready simulation training files.
- Achieved regeneration-safe output with stable GUID reuse via a pure multi-layer pipeline (extraction → action attribution → state derivation → validation → lesson projection), generalized across IETM formats for reuse on future VMT contracts.
- Added AI-assisted content refinement without moving controlled unclassified information outside the accredited enclave by integrating deterministic LLM calls against AWS GovCloud Bedrock.
- Removed manual Unity roundtrips from asset setup with a Delphin integrated Three.js/WebView2 3D “Part Picker” resolving Maya asset IDs to art GUIDs and copying calibrated camera poses into the pipeline.
- Held average latency near 1s while improving answer relevance on an internal RAG chatbot (Python, Flask, AWS Bedrock) using hybrid semantic/keyword retrieval and custom cosine-similarity scoring.

Projects

The Greenrooms, LLC

2025 – Present

Next.js, TypeScript, Supabase/PostgreSQL, Row-Level Security, Cloudflare R2 & Turnstile, Vercel

- Architected and shipped a multi-tenant SaaS platform as founder and sole engineer — 50+ Postgres migrations, 570 automated tests, multiple live client sites — across three build tiers (\$300–\$1,200) and \$0/\$5/\$10 subscriptions.
- Designed a schema-driven content pipeline with a draft/published split and four-layer caching that keeps the database off the request path; publishing snapshots the draft and an HMAC-signed webhook invalidates exactly one tenant's cache.
- Engineered a cross-origin revision loop where clients pin feedback onto a live iframe of their deployed site, storing viewport-normalized coordinates that resolve to the same element on any screen over an origin-pinned postMessage bridge.
- Built an AI-assisted intake that branches on performer discipline and emits a live-previewed design-token system, re-validating model output against enum/hex constraints and a WCAG 4.5:1 contrast invariant before persistence.
- Enforced least privilege end to end: three-role authorization (admin/client/builder), deny-by-default row-level security keyed to tenant identity, database-enforced MFA, and a rate-limited public ingestion endpoint designed against tenant enumeration.

CrimsonTide Fitness Web Application

Fall 2025

ASP.NET Core MVC, C#, Entity Framework Core, Azure SQL, Azure OpenAI, Computer Vision API

- Delivered personalized wellness guidance via Azure OpenAI GPT recommendations, with Azure Computer Vision food logging that identifies meals and auto-generates nutrition records.
- Supported tracking across 10+ models with a relational EF Core / Azure SQL schema, exposed through MVC CRUD, role-based authentication, and an admin dashboard.

Skills

Languages: Python, C#, C++, C, SQL, Java, JavaScript/TypeScript, Rust

Frameworks: React, Next.js, ASP.NET Core MVC, Flask, Entity Framework Core, Node.js, WPF/.NET 8, Unity, Three.js

Cloud/DevOps: AWS (S3, Bedrock, GovCloud, Lambda), Azure (SQL, OpenAI, Computer Vision), Supabase, Cloudflare R2, Vercel, Docker, Git, Jenkins

Data & AI: PostgreSQL (incl. Row-Level Security), Azure SQL, MongoDB, Cassandra, RAG, LangChain, Vector DBs, PyTorch, NLP

Tools: Linux/Unix, PowerShell, REST APIs, Cybersecurity/Penetration Testing