

Education

University of Virginia, Bachelor's in Computer Science

Expected Graduation May 2027

- **Extracurriculars:** Software Game Development Club, Cracking the Interview Club
- **Coursework:** Computer Architecture, Data Structures & Algorithms, Discrete Mathematics

Work Experience

Frontend Software Engineer Intern, A&S AI | *TypeScript, React, Python, AWS, Redux, Vite*

Mar. 2025 — Present

- Shipped LLM/RAG execution, file-processing, and credit-billing integrations by surfacing per-node token usage, upload state, and pipeline execution status via RTK Query into a unified workflow canvas, contributing to \$200K+ in funding raised.
- Engineered a three-phase async state machine (upload mutation, exponential-backoff polling, and mid-flight Redux-to-Formik source-of-truth handoff) with per-node polling that auto-restarts on page load, eliminating stale upload-state renders across a 59-module AI canvas.
- Architected Redux edge handlers cascading connection changes into individual node configs alongside 43 context-aware Yup schemas that recalculate field requirements from live upstream data formats, eliminating stale-reference corruption across 59 node types.

Full Stack Engineer, Flathead Special Education Cooperative | *TypeScript, React, Python, AWS, Redux, Vite, SQLite*

Sept. 2025 — Feb. 2026

- Launched a microservices-style React SPA on AWS Amplify & CloudFront with WCAG adherence to let program coordinators self-publish; cut content turnaround from 5 days to 3 hours by shipping AI-assisted admin workflows and a role-based content model.
- Built a guided UI with SQLite backend utilizing server-side validations and Amplify functions to have 95% spam form rejection, reduced global content availability time to under 60 seconds via automated CloudFront invalidations.
- Built a resilient CI/CD pipeline with HTTPS, auto-SSL, CDN, and least-privilege access control, deploying via Amplify Serverless for on-demand scalability, and low latency, dropping P1 incidents to zero.

Full Stack Software Intern, Commence | *TypeScript, React, C#, Python, MongoDB, PostgreSQL, AWS, Node.js*

Aug. 2022 — Jun. 2025

- Developed a Python full-stack document indexing tool leveraging computer vision and machine learning to automate the conversion of client physical records to digital, reducing the necessary processing time by over two hours per 1,000 documents.
- Developed administrative and database management tools, using React, OAuth, SSL, and TLS while leveraging SSR to streamline content for end users, minimizing load times, improving search on SQL databases, and resolved known security weaknesses.
- Refactored the entire codebase of a web application to extract both handwriting and typed text from standardized forms using Typescript, adding documentation and type safety to eliminate all frontend type errors in over 500 production files.

Game Development Engineer Intern, iD Tech | *C++, Unreal Engine, C#, Unity, Lua, Roblox*

Apr. 2025 — Jun. 2025

- Delivered project-based curricula in coding and game development to students aged 7–17, in multiple languages in hands-on workshops.
- Raised student project completion rates by over 90% across diverse age groups by created customized lesson plans that bridged theory with practice and scaffolding goals with rubrics parents and director could follow at home leading to an additional \$5k in monthly sales.

Gameplay Engineer Intern, The Verse | *C++, Blueprint, Unreal Engine*

Apr. 2025 — Jun. 2025

- Implemented core gameplay systems in C++, iterating on prototypes supporting immersive loops with unit/integration testing and QA.
- Tested gameplay performance using debugging tools and performance profiling to keep frame times stable

Projects

Real-Time Rhythm Game | *TypeScript, C++/WebAssembly, React, PixiJS, Web Audio API, Chrome MV3, Electron*

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- Engineered the first real-time client-side audio-to-chart pipelines — no backend, no manual authoring — by combining deterministic C++/WASM DSP, confidence-aware multi-hypothesis beat tracking, and browser-native ML inference (quantized wav2vec2-base, 768-dim via Transformers.js/ONNX Runtime Web) that clusters per-phrase audio embeddings via k-means++ to detect song-section labels and cosine-similarity boundary confidence scores that drive chart generation.
- Compiled a C++ DSP pipeline (FFT, onset detection, multi-hypothesis beat tracking with per-frame confidence) to WebAssembly via Emscripten, isolated in a Web Worker with a typed PCM buffer protocol for sub-50ms planning ticks; built a streaming ML interpreter over a circular buffer with latency-budgeted per-phrase embedding covering both real-time and offline analysis from one shared package.
- Architected a 13-package Turborepo monorepo with zero DOM or platform API surface enforced at the TypeScript compiler level, running identical engine, ML-interpreter, and game logic across browser, Chrome MV3, and Electron without runtime guards or forks.

Personal Portfolio Website | *NextJS, Docker, SQLite, AWS Amplify, TypeScript, CSS*

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- Architected a full stack web portfolio with a stream-lined graphical interface cutting TTFB from 2.5s to 1.1s by combining SSR, and AWS Amplify's global CDN using NextJS and Typescript.
- Enabled instant site updates by containerizing a RESTful SQLite API in Docker and exposing CRUD endpoints through Amplify Functions and automated deployments secured by IAM least-privilege roles to drive a 40% engagement and 2x recruiter contact rate.
- Migrated web app to AWS Amplify Hosting and serverless compute, cutting hosting cost by 70% and achieving 99.9% availability across edge locations; architecture enabled handling traffic spikes during peak outreach campaigns with zero downtime.

Technical Skills

Languages: TypeScript, JavaScript, C++, C#, Python, Java, Lua, SQL (PostgreSQL, SQLite), HLSL, HTML/CSS

Frameworks: React, Next.js, Node.js, PixiJS, Vite, Redux, .NET, Unity, Unreal Engine

Tools: WebAssembly, AWS (Amplify, S3, CloudFront), Docker, Git, Turborepo, GitHub Actions, Perforce, MongoDB