

Summary

Technologist combining software engineering expertise with architectural design thinking to solve problems. Unique blend of 5 years in software development and 5 years in architectural design, specializing in computational modeling and optimization. Interested in web development, spatial computing, parametric modelling, embeddings + LLM applications, machine learning, optimization algorithms, among others.

Professional Experience

Senior Software Engineer | Capital One | 04/2025 - Current | NY

- Designing/monitoring APIs for high resiliency and availability.
 - *Skills: AWS, Java, Python, Splunk, New Relic*
- Defining and deploying AWS infra using AWS (CDK) in order to reuse infrastructure constructs more easily.
- Working with Product to define, architect, and derisk new scope and services and how they integrate with existing Capital One platforms and services.

Senior Software Engineer | Outer Labs | 10/2022 - 12/2024 | NY

- Developed full-stack prototypes as we iterated on product vision during the pre-seed phase of our real estate startup
 - *Skills: Javascript, Typescript, React, Node.js, Express.js, Tailwind*
- Played an important role in defining and future-proofing the data model and driving alignment across engineering + product
 - *Skills: Database design, Postgres, DrizzleORM, Data Models*
- Led RAG experiments and built a backend service enabling engineering/product teams to prototype and evaluate LLM workflows
 - *Skills: RAG, LLMs, Python, Node.js, Haystack, Function-Calling*
- Coordinated API and data model integration between 2 teams to remove undesirable dependencies
 - *Skills: REST APIs, System architecture, Database design*
- Played key role in defining the event loop of new space planning web application
 - *Skills: Javascript, React, State management, Software architecture*
- Contributed to critical libraries across the app related to rendering, state management, spatial algorithms, and geometric operations
 - *Skills: Three.js, Canvas API, React, Algorithms, Computational geometry*

Software Developer | KOPE | 04/2021 - 10/2022 | London

- Led the development and client engagement to deliver a modular building configurator implementing complex adjacency and stacking rulesets specific to the client's proprietary system
 - *Skills: Javascript, Typescript, React, Algorithms, Computational design, Three.js*
- Contributed to algorithm development and overall implementation during strategic pilot engagements related to building enclosure systems
 - *Skills: Algorithm design, Javascript, Python*
- Mentored younger engineers on best practices and design patterns
 - *Skills: Software architecture, Code review, Team leadership*

Computational Design Specialist | CallisonRTKL | 02/2020 - 04/2021 | London

- Authored custom plugins for Rhino + Grasshopper relating to the analysis and feasibility of building proposals
 - *Skills: C#, Rhinoceros, Grasshopper, Plugin development, .NET*
- Authored parametric tooling for the analysis of multi-objective tradeoffs of a commercial development
 - *Skills: C#, Grasshopper, Optimization algorithms, Data analysis*
- Implemented a logging system for tracking usage of our internal tooling initiatives across the firm
 - *Skills: C#, Computational Design, Data collection, Analytics*

Education

MSc Architectural Computation | University College London | 09/2018 - 05/2019 | London

Computer-science-for-architects program where we:

- Learned object-oriented-programming, familiarized ourselves with Visual Studio and Git
- Leveraged Unity and C# as a prototyping and simulation environment
- Implemented vanilla L-Systems, Genetic Algorithms, Kohonen Nets, Artificial Neural Networks, Octrees

Bachelor's of Architecture | University of Arizona 08/2008 - 05/2013 | Tucson

Skills

Frontend: Javascript, Typescript, React, HTML, CSS, MUI, Tailwind

Rendering + Browser: Canvas API, Three.js, R3F, Pixi.js, Canvas-Sketch, Chrome API, IndexedDB

Maps + Geospatial: Mapbox, Google Maps Platform, PostGIS

API + Scripting: Node.js, Express.js, Nest.js, Python, Flask, Go, C#

Database + ORM + Object Storage: Postgres, Firebase, Firestore, GCS, MySQL, IndexDB, TypeORM, Drizzle, (some) GraphQL

DevOps + Infrastructure: Gitlab, Azure DevOps, Github, GCP, AWS, Docker

Product Lifecycle: Agile, TDDs, Docusaurus, Slack, GSuite, Linear, Notion

Data & Tools: Data Models, Mermaid, ETL Pipelines, DuckDB, Visidata

LLMs & ML Libs / Frameworks: RAG, Function-Calling, Haystack, Llama-Index, Pytorch, Numpy, Langgraph, Google ADK

Algorithms: GAs, L-Systems, Kohonen Nets, Neural Nets, Octrees

Computational Design: Rhinoceros, Grasshopper, Revit, Dynamo, Unity

Involvement

08/2024 | **Competition:** Untabbed: *Gemini API Developer Competition*

04/2021 | **Publication:** Rumor 76: voxel-based building + apartment generator mentioned in *Generative Design With Hypar* article (pg. 43)

05/2020 | **iOS game:** Grid-locked: foray into game development during lockdown

04/2020 | **Talk:** Data Management & Display: *Elefront* and *Human UI*

01/2020 | **Plugin:** PlanBee for Grasshopper: cell-based spatial analysis plugin

08/2019 | **Tutoring:** Bartlett: *Introduction to Programming* Workshop (1) (2)