

Marco Juliani	portfolio	github	linkedin	gmail	twitter
---------------	---------------------------	------------------------	--------------------------	-----------------------	-------------------------

Life learner and tinkerer passionate about learning and using data-driven approaches to problem solving.

5 years software development experience. 5 years architecture project design + delivery, computational + geometric modeling experience.

Domains + technologies of interest: solvers, optimization, data visualization, CRDTs, full-stack development, embeddings, LLM agents, search algorithms, geospatial, space-planning.

Work & Education

10/2022 - 12/2024	NY	Senior Software Engineer	Outer Labs
<ul style="list-style-type: none"> Y2: Took part in the pre-seed phase of a real estate startup. Developed full-stack prototypes as we iterated over our product vision. Y2: Played an important role in defining the data model and driving alignment across eng + product. Evaluated data sources quantitatively & qualitatively for compatibility with product objectives. Led development of ETL pipelines and data lifecycle. Y2: Led RAG experiments and built a backend service enabling engineering/product teams to prototype and evaluate LLM workflows. Y1: Tech lead on a team developing a space planning web application. Served as point person on our team for coordinating data model and API definitions between interdependent services maintained by different teams in order to achieve integrated behavior. Y1: Helped develop the next version of our space planning application from 0 to 1. Played a key role in defining the event loop of the app. Y1: Contributed to critical libraries across the app related to rendering, state management, spatial algorithms, and geometric operations. 			
04/2021 - 10/2022	London	Software Developer	KOPE
<ul style="list-style-type: none"> 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. Algorithm development and overall implementation during strategic pilot engagements related to building enclosure systems. Mentored younger engineers on best practices and design patterns. 			
02/2020 - 04/2021	London	Computational Design Specialist	CallisonRTKL
<ul style="list-style-type: none"> Developed custom plugins for Rhino + Grasshopper relating to the analysis and feasibility of building proposals. Developed parametric tooling for the analysis of multi-objective tradeoffs of a commercial development. Implemented a logging system for tracking usage of our internal tooling initiatives across the firm. 			
09/2018 - 05/2019	London	MSc Architectural Computation	UCL Bartlett
Computer-science-for-architects program where we: <ul style="list-style-type: none"> 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. 			
02/2014 - 11/2017	SF	Junior Designer	Woods Bagot
08/2008 - 05/2013	Tucson	Bachelor's of Architecture	University of Arizona

Skills

Frontend	Javascript, Typescript, React, HTML, CSS, MUI, Tailwind
Rendering + Browser	Canvas API, Three.js, R3F, Pixi.js, Canvas-Sketch, Chrome API
Maps + Geospatial	Mapbox, Google Maps Platform, PostGIS
API + Scripting	Node.js, Express.js, Nest.js, Python, Flask, Go, C#, GraphQL
Database + ORM + Object Storage	Postgres, Firebase, Firestore, GCS, MySQL, IndexDB, TypeORM, Drizzle, Yjs, Liveblocks
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 Libraries / Frameworks	RAG, Function-Calling, Haystack, LLama-Index, Pytorch, Numpy
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	Rumoer 76: voxel-based building + apartment generator mentioned in <i>Generative Design With Hypar</i> 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: <i>Introduction to Programming Workshop</i> (1) (2)