

Matheus Costa

Tech Lead & Senior Software Engineer

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PROFILE

Full-stack engineer and tech lead, mostly TypeScript, Node.js and React. At Xometry I lead the Thomas Supplier Experience team, which builds campaign management, ad delivery and ROI attribution for the suppliers who advertise on Thomas. Along the way I moved 2.2M+ users to Auth0 without losing any data, took a checkout API out of a serverless monolith and onto Kubernetes, and built a test platform where engineers write end-to-end tests in plain English. Before Xometry I was the lead developer on Insight Partners' portfolio platform at Blue Orange Digital, and before that a front-end engineer at Rock. I started out writing C++ for open-source game servers and competitive programming.

EXPERIENCE

Tech Lead & Senior Software Engineer · Xometry

Oct 2024 - Present · 2 yrs 2 mos

Tech lead of the Thomas Supplier Experience team. We own advertising on Thomas, Xometry's industrial sourcing marketplace: campaign management, ad delivery and ROI attribution. I've also worked on identity and test automation across the platform.

Leading advertising on Thomas

The systems suppliers pay for: campaign setup, ad delivery against each contract, and the attribution that shows them what they got back.

- Set the technical direction for campaign management, ad delivery and attribution. I write and approve the team's design docs and RFCs, and review its code.
- Lead brainstorming sessions with the team and with other tech leads.
- Plan each quarter and month with the engineering manager and product manager.
- Improved ad targeting and serving to raise contract fulfillment, so suppliers get the delivery they paid for.
- Building the infrastructure behind our ad server integration and campaign management.
- Building ROI attribution so suppliers can see what they get back from their advertising.

AI-assisted end-to-end test platform

Engineers write tests in plain English, and the tests keep passing when the UI changes. No test IDs needed.

- Built a shared Playwright + TypeScript test platform for Thomas's main apps, running in parallel across browsers.
- Tests are written in natural language with Stagehand, using models on AWS Bedrock.
- Cached the model's answers so most runs don't call it at all. When a page changes, the test asks the model again and updates the cache.
- Used page objects to keep the suites manageable as more apps were added.

`Playwright · TypeScript · Stagehand · AWS Bedrock · LLMs`

Identity migration to Auth0

Moved 2.2M+ users to Auth0 in phases, with no data loss and without making anyone log in again.

- Wrote the new auth service: login, signup, password reset and user management.
- Built a transition package that also accepted the old tokens, so we could switch over gradually without logging anyone out.
- Added monitoring, and set things up so SSO and OIDC can be added later.

`Auth0 · OAuth 2.0 · OIDC · JWT · Kubernetes · Terraform · AWS`

Campaign API: from a serverless monolith to Kubernetes

Moved the API behind self-serve campaign setup and checkout into its own service, with proper logging, tracing and alerts.

- Moved the campaign endpoints from a serverless GraphQL monolith to their own Kubernetes service, which made them more reliable and easier to scale.
- Added structured logging, distributed tracing and alerts.
- Wrote scenario and unit tests for the campaign app with Jest, React Testing Library, MSW and GraphQL mocks.

`Node.js · TypeScript · GraphQL · Kubernetes · ArgoCD · Terraform · Sentry`

Full Stack Engineer · Blue Orange Digital

Feb 2023 - Sep 2024 · 1 yr 8 mos

Lead developer on Insight Partners' portfolio platform, built with Next.js, Nest.js and Postgres on AWS.

Portfolio platform for Insight Partners

Led development of the platform Insight Partners' portfolio companies use for advisory work and Scaleup Academy. Also took 1st place in the Insight Partners hackathon.

- Owned the backend and its APIs: advisory engagements, Scaleup Academy access and integrations with outside systems.
- Ran the AWS setup (EKS, Lambda, SQS, S3, CloudFront, SES) with Terraform.
- Worked directly with designers, front-end engineers and stakeholders to figure out scope and ship features.

`Next.js · Nest.js · Prisma · PostgreSQL · AWS · Terraform · Kubernetes`

Front-end Engineer · Rock

Jul 2020 - Mar 2023 · 2 yrs 9 mos

One of the core engineers on Rock, an app for async work that combines chat, tasks, notes and video. I built the task board, the time tracker and the virtualized chat and task lists, led architecture refactors, and helped ship the Electron desktop app for Windows, macOS and Linux. It had thousands of active users.

COVID-19 Researcher · Universidade Federal Fluminense

May 2020 - Jul 2020 · 3 mos

On the GET-UFF modeling team. I scraped official data, built SIR/SEIR models and fit their parameters with a modified particle swarm optimizer in Python and R. The local government used the results when making decisions during the pandemic.

C++ & Full-Stack Developer · Freelance & open source

Dec 2016 - Jul 2020 · 3 yrs 8 mos

Contributed to The Forgotten Server, an open-source MMORPG server written in C++ and Lua, with 23 merged pull requests covering bug fixes, a memory leak, two-factor login and new scripting APIs. I debugged multithreaded servers, reverse-engineered network protocols and built the web apps around game servers with tens of thousands of players.

Teaching Assistant · Universidade Federal Fluminense

Jan 2017 - Nov 2018 · 1 yr 11 mos

Ran the problem-solving lab for first-semester CS students, working through ICPC problems in Python, and reworked the syllabus. Named the department's best teaching assistant.

SKILLS

Languages	TypeScript, JavaScript, C++, Lua, Python
Front end	React, Next.js, Vue, Electron, Tailwind CSS
Back end & data	Node.js, Nest.js, GraphQL, REST, WebSockets, Protobuf, PostgreSQL, MySQL, MongoDB, Prisma
Cloud & infrastructure	AWS (EKS, Lambda, SQS, S3, CloudFront), Kubernetes, Docker, Terraform, ArgoCD, GitHub Actions, Cloudflare Workers
Identity & observability	Auth0, OAuth 2.0 / OIDC, JWT, SSO, Sentry, Distributed tracing
AI & testing	AWS Bedrock, Stagehand, Playwright, Jest, React Testing Library, MSW, Cypress

SIDE PROJECTS

Redis clone in C++
A small Redis server written from scratch: its own RESP parser, async networking on Asio, and GET/SET with key expiry on a thread-safe store.
`C++ · Asio · CMake`

TypeScript Otserver
A port of an MMORPG server and its network protocol from C++ to TypeScript.
`TypeScript · Node.js · MongoDB`

Electron + PixiJS + TypeScript
Starter template for building the same game for web and desktop.
`TypeScript · Electron · PixiJS`

Benchmark Node Native Addons
Benchmarks to find out when a C++ native addon is actually faster than plain JavaScript in Node.js.
`C++ · Node.js · NAN`

WeeaBot
Chat bot for Discord and Twitch, with an Express API and an Angular dashboard.
`TypeScript · Node.js · Angular · MongoDB`

EDUCATION

B.Sc. in Computer Science
Universidade Federal Fluminense
Sep 2016 - Jun 2021

AWARDS

2023 1st place, Insight Partners Hackathon
2018 3rd place, UFF Programming Marathon
2018 Best Teaching Assistant, UFF Computer Science
2017 1st place, UFF Programming Marathon
2016 2nd place, Visagio Programming Marathon