Seb Insua *Software Engineer*

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Summary

Product engineer and open-source contributor with deep experience across low-latency UIs, infra tooling, and large-scale JS/TS systems. I ship major features into live, business-critical systems by designing for expressiveness, invariants, additive change and failure modes you can actually reason about.

Operating Principles: end-to-end product development and architecture; 12 factor back-ends; strongly-typed data; low-latency UIs; LLMs; vertical integration; tooling; defactoring; inlining and colocation; working in public; writing cultures; decisions that circumvent issues.

Languages: TypeScript/JavaScript, Python, Rust, SQL, Shell/Bash, HTML, CSS, RegEx.

Experience

Maven Securities

Developer *Jan 2024 –*

- Built high-throughput canvas grid for low-latency trading UI (zoom, hit-testing, SVG rasterization, high-DPI); designed to recover seamlessly from GPU driver crashes.
- Designed adaptive fuzzy matcher (two-pointer w/ contiguous-match bias + greedy fallback); matched 500k+ fields/sec (single-threaded, mean $\sim 2\mu s$/field, p99 $< 3\mu s$); supported multi-part queries, ranked matches via custom heuristic scoring and CSS-highlighted results.
- Implemented OIDC auth proxy in interpreted Go (Yaegi); supported silent refresh, cross-origin embedding, session resilience and complex flows; deployed as a Traefik plugin into Maven's live production trading UI.
- Diagnosed and resolved memory leak in network layer (`AbortSignal` + `ky`) affecting long-lived applications.

Independent Engineer

Freelance & Private Study *Apr 2023 – Jan 2024*

- Adaptively stabilized streaming LLM output using exponential smoothing over queue growth to reduce jitter.
- Built a CLI for managing LLM app configs via declarative YAML; supported interactive prompts, workspace sync, and deployment flows.
- Wrote technical articles on algorithms, linear algebra, and implementing a neural network in Rust.

Software Engineer at T. Rowe Price *Oct 2020 – Mar 2023*

- Developed Playwright-based synthetic monitoring service to continuously run E2E tests against different environments; logged structured reports, screenshots, traces, and videos.
- Rewrote legacy React application into TypeScript; removed Redux-as-cache layer, doubled Lighthouse score (50 → 98), and significantly improved grid testability.
- Improved reliability of Python, Node, and Kotlin services for data ingestion into S3/PostgreSQL; fixed major bugs in shared libraries for logging, tracing, and scheduling.

Software Architect at JPMorgan Chase & Co. *Aug 2019 – Oct 2020*

- Re-hired into newly formed Core UI Infrastructure team to build tooling for high-scale development. Developed CI caching infra and Argo workflows that cut E2E test time from hours to minutes.
- Led upgrade of 50+ component library from Material UI v3 → v4 using codemods, visual diffing, and type-checking.
- Contributed to monorepo strategy and shipped DX tools forming the org's "golden path" for frontend dev.

Technical Lead at Shell *Dec 2018 – Jun 2019*

- Brought in by a former colleague to take over a politically sensitive project; aligned global stakeholders, hired a new team, and replaced consultancy build with in-house platform.
- Delivered Spark/Kubernetes-based system (Azure, Docker, Helm, Jupyter) for data workflows; improved pipeline throughput by 4×.
- Built a collaborative culture focused on capability-building; ran weekly technical sessions to engage and upskill Shell engineers.

Application Engineer at JPMorgan Chase & Co. *Jun 2017 – Dec 2018*

- Led core UI work on the rewrite of 'Execute', JPMorgan's single-dealer platform, migrating from Flash to a modular React/TypeScript system under a hard end-of-life deadline.
- Established project governance: created RFC process, authored proposals (entitlements, module loading, CI), and aligned multiple teams across a shared monorepo (200+ packages).
- Built shell and widget tiling system; engineered internal toolchain for ESM/CommonJS/types using Rollup, Babel, and TypeScript. Created Danger plugin to deploy apps/storybooks for interactive PR review.
- Provided technical review and guidance across teams to maintain consistency and architectural integrity at scale.

Consultant at YLD *Jan 2017 – Apr 2017*

- Worked alongside the client's CTO to improve the logging, tracing and error handling functions of an in-house Kubernetes-based microservices framework.
- Implemented 4 Node.js microservices while also supporting the team by developing shared helpers to mock data during test execution and writing documentation on how to migrate an SQLite database to MySQL.

External Advisor at McKinsey & Company *Apr 2016 – Dec 2016*

- Counseled enterprise clients on software architecture, provided mentoring and conducted rigorous code reviews.
- Created a set of sophisticated data analysis tools with state-of-the-art visualisations built using D3.
- Engineered software to optimize energy and material usage within factories. This also involved implementing algorithms for calculating costs and analysing flows of energy, product, and waste through the system.

Previous Client Work *Apr 2013 – Apr 2016*

- Led the re-platforming of a legacy monolithic passport system at the Home Office into a secure, efficient, and scalable Node.js microservices-based solution on a private cloud, incorporating secure data segregation, idempotent APIs, and custom LDAP authentication. Managed a small dedicated team throughout this process. Furthermore, I effectively communicated the architectural choices of a new platform to the entire department during a show-and-tell presentation.
- Development of a real-time animated map of driver locations for Hailo, an open-source analytics middleware for the Sequoia-backed startup Keen.IO, and a React website and component library for the Economist.

We R Interactive

Lead Game Developer *Oct 2012 – Apr 2013*

- Delivered MVP of an innovative second-screen social game utilising Node.JS, WebSockets, Redis and Cassandra.

Saffron Digital

Lead Python Developer *Oct 2010 – Oct 2012*

- Founding back-end engineer on the HTC Watch project, leading development until HTC's acquisition for $48m.
- Developed expertise in DRM, parallel video encoding, and payment services using Python, MySQL and AWS.
- Developed an application for a Samsung Connected TV device with challenging hardware limitations.

Education

Coursera

Machine Learning *Feb 2016*

Course Certificate, License E3XLGER56CQ3

University of Kent

Bachelor's degree in Computer Science *2005 – 2009*