Alistair MacDonald - *Senior Software Architect (Full-stack)*

Boston, MA · resume@f1lt3r.me · linkedin.com/in/f1lt3r · github.com/f1lt3r · npmjs.com/search?&q=f1lt3r - 781-498-8181

SUMMARY

Software Architect and Full-Stack Developer with 30+ years of web development experience and 10+ years delivering secure, scalable web applications across healthcare, education, and emerging tech. Specializing in React, Node.js, and cloud-native architecture with a proven record of shipping fast, leading teams, and solving complex compliance challenges. Former Mozilla tech lead and Audio Working Group Chair at W3C.

TECHNICAL SKILLS

Frontend – Svelte, Web Components, Data-Vis, React, Angular, Vue, Material UI, Storybook, Bootstrap, Tailwind.
Backend – Node.js, Express, Flask, GraphQL, Django, PostgreSQL
DevOps & Cloud – Docker, Azure DevOps, AWS (S3, CloudFront, Cognito), CI/CD
Compliance & Accessibility – HIPAA, SOC2, WCAG, Web Audio API
Leadership & Architecture – Software Architecture, Team Lead, Mentorship, OSS Governance

EXPERIENCE

Consultant Software Engineer, Multiple Clients

BioSensics – Newton, MA · August - September 2025

N/A Stealth – Newton, MA · May - July 2025

Family health situation requiring overseas travel. – Feb 2025 – April 2025

Tech Lead → Applications Leader, Sales & Marketing

Savings Bank of Massachusetts Life Insurance – Boston, MA · Nov 2023 – Jan 2025

- Promoted from Tech Lead to manage a team of five direct reports, developing software for sales and marketing applications, with a focus on modular fullstack delivery and secure data workflows.
- Managed the handover of 12 years of public facing software written by an external company in WordPress, containerizing it with Docker. Developed CI/CD pipelines for multi environment release and testing. My architecture enabled an accelerated release cadence - from once a month, to multiple times weekly.
- Prevented millions of dollars of fines by identifying and immediately remediating critical company wide security and compliance gaps, mitigating regulatory exposure.
- Led distributed team workflows across time zones, including offshore coordination and late-night production releases. Full ownership of on-call incident response, rapidly resolving production issues with minimal downtime, keeping new user insurance applications running through high volume holidays.
- Developed micro-apps architecture using Express.js, Storybooks, Tailwind & Svelte, embedded in a headless WordPress environment.
- Architected and deployed a Node.js + Express API on Azure Cloud to handle HIPAA / SOC2-compliant transfer of sensitive customer data.

Lead Web Development Instructor (Part-time)

Amara Foundation Nigeria – Remote · Feb 2021 – Sep 2023

- Taught youth web and hybrid mobile development, cryptocurrency, and secure communication as part of a series of technical bootcamps.

Senior UI Engineer

ISEE.AI – Cambridge, MA · Jan 2020 – Aug 2020

- Developed real-time 3D user interfaces for monitoring autonomous trucking fleets using Web Components, Deck.gl, AWS, and Python (Flask), enabling our first commercial contract with logistics partners.
- Saved thousands of hours in compute time by optimizing AI training pipelines to more efficiently recognize and refine vehicle shapes.

Senior Software Engineer → Senior Software Architect

Houghton Mifflin Harcourt – Boston, MA · Onsite & Int'l Travel · Mar 2018 – Nov 2019

- Promoted into architectural leadership to design and implement a new front-end platform from the ground up for student English & Math assessment tools and JavaScript learning games. Provided internal training in JavaScript, React, and Node.js, raising engineering quality across product lines.
- Architected and led development of a React + Material UI monorepo, enabling shared infrastructure across 12+ applications and accelerating deployments from quarterly to multiple times daily, winning millions of dollars in extended contracts by delivering easy to maintain code – on time.
- Created a centralized Storybook system to document and distribute reusable WCAG-compliant components across five engineering teams in three countries, saving hundreds of thousands of dollars in engineering costs through code reuse and discoverability.
- Invited to present at board-level and cross-departmental strategy meetings to align product and engineering goals. Co-led launch of the HMH Engineering Blog, collaborating with legal and executive stakeholders to showcase internal innovation and team culture.

Technology Lead

Reclaim Health – Boston, MA · Jan 2017 – Feb 2018

- Led mobile development for a patient-facing health and finance app using Ionic (Angular) and AWS, overseeing testing and deployment to both the iOS and Android app stores.
- Integrated third-party healthcare and banking APIs — including Plaid — to merge medical reports, provider claims, and user's payment data into a unified view.
- Implemented secure authentication and storage using AWS Cognito and S3, leveraging TLS with Perfect Forward Secrecy for HIPAA-compliant access control. Responded in real time to a potential offshore data breach, escalating directly to executive leadership and coordinating an immediate security resolution.

Lead Developer

Radial Analytics – Cambridge, MA · Dec 2014 – Dec 2016

- Designed and delivered a mobile-optimized, secure web application that helped hospitals save millions of dollars by aligning clinical workflows with evolving compliance and outcome-based care models. Deployed on Massachusetts hospital floors to support real-time clinical decision-making with machine learning, under HIPAA constraints, leading to long term contracts with hospitals.
- Collaborated closely with clinicians and product team, including on-site shadowing during hospital rounds, to model patient flows and refine features based on real-world feedback. Providing technical materials for NSF and NIH grant reports.

JavaScript Architect

Ai Squared (now Freedom Scientific) – Cambridge, MA · May 2013 – Dec 2014

- Led JavaScript development of Sitecues, a web-embedded screen magnifier and reader for low-vision users. Enhanced accessibility through custom UI overlays and seamless integration into public-facing websites as a third-party JavaScript tool, deployed to clients such as banks and education portals.

Co-Founder, Software Architect

Bocoup – Cambridge, MA · Dec 2010 – May 2013

- Co-founded Bocoup – an open web technology consultancy championing free software and web standards, and spearheaded development of industry-leading open-source tools. Pioneering early HTML5 technology, driving adoption of modern JavaScript practices and open web standards. Clients included: Mozilla, Microsoft, Google, Newsweek, UPS and The Concord Consortium (EdTech).

Open Web Technical Lead → W3C Audio Chair

Mozilla / W3C – Hybrid & Int'l Travel · Sep 2008 – Dec 2012

- Appointed Tech Lead for Processing.js, the HTML5 port of the Processing data visualization library, originally created by John Resig (creator of jQuery).
- Laid the groundwork for the rebuild and extension of the library to full feature parity, managing GitHub contributions as the key project maintainer. Collaborated daily with students and faculty at Seneca College (David Humphrey, Cathy Leung), reviewing code, mentoring contributors, and helping plan cross-browser feature work
- Designed and launched the first Processing.js website; created dozens of demos, games, and data visualizations — including a full 2D version of the library running on the Nintendo Wii's Opera browser
- Represented Mozilla internationally — Advocated at conferences and meetups across North America and the United Kingdom, for using open standards and creative coding as powerful tools for education, innovation, and platform evolution. Published a feature in .NET Magazine (UK) on creative coding with Processing.js, including a full animated game tutorial.
- Built the first in-browser JavaScript music engine, synthesizing real-time audio using Firefox's experimental Audio Data API, which provided direct PCM buffer access prior to the creation of the Web Audio API.
- Promoted to Chair of the W3C Audio Working Group, where I coordinated and led technical discussions between Mozilla, Google, Microsoft, Opera, and EA Games, using Zaikim and other W3C tools to drive consensus.
- Contributed to the foundations of the Web Audio API and helped formalize JavaScript audio as a first-class web feature.

CERTIFICATIONS

- **HIPAA Security & Privacy Training — Completed 2015**
  Third-party certified; focused on digital PHI handling, risk mitigation, and technical safeguards under the Security Rule.
- **Certified Scrum Master (CSM) — 2013**
  Scrum Alliance (completed while at Ai Squared / Sitecues)

EDUCATION

- **National Diploma in Music Technology, Production & Performance**
  Langley College, UK
- **GCSEs — English Literature (B), English Language (B+), Science (B), Advanced Science (B)**
  Chalfonts Community College, UK