

Lydia Kwag

Senior Front-End Engineer

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Senior front-end engineer with 10+ years shipping production-grade web applications at scale. Owned front-end architecture for federal platforms serving 200K+ monthly users at SAIC — designing component libraries, leading cross-team delivery, and driving 30–40% performance gains. Now bringing that foundation to AI-powered product engineering: building and shipping tools under Lydia Studio using React, Next.js, and React Native, with Claude and OpenAI API integrations. Strong in React, TypeScript, design systems, and accessibility (WCAG/508). Looking for a senior or staff front-end role where engineering quality and product thinking both matter.

EXPERIENCE

Founder & Product Engineer · [Lydia Studio](#)

May 2025 – Present

- Designed, built, and shipped **FlowMate, JustToday, and Flow Club Companion** — a suite of AI-enhanced productivity tools running on web, iOS, and Android with **1,000+ active users**; own the full design-to-deployment pipeline.
- Integrated **Claude and OpenAI APIs** for intelligent task suggestions and adaptive planning; built shared component and audio systems reused across web, mobile, and browser extension via **monorepo architecture**.

Academic Coach — Computer Systems · [University of Pennsylvania](#)

Dec 2025 – Present

- Coach graduate students weekly through a rigorous systems course on technical mastery, exam preparation, time management, and how to navigate a high-pressure graduate program sustainably.

Senior Front-End Engineer · [SAIC](#)

May 2016 – Apr 2025

Built and owned front-end architecture for federal platforms serving 200K+ monthly users across HHS, DoD, and intelligence agencies, designing mission-critical, high-availability systems under strict compliance requirements.

- Designed and developed the **USPSTF Prevention TaskForce** clinical decision support application, enabling **200K+ monthly users** including clinicians, public health staff, and researchers to access evidence-based screening, counseling, and preventive medication guidelines filtered by patient demographics and risk factors, supporting an estimated **2.7M visits annually**.
- Redeveloped the **PSO Tracking** legacy application from the ground up, replacing a Struts-based system with a modern stack; built entity management dashboards, multi-step approval workflows, compliance tracking, and automated regulatory communications for AHRQ's Patient Safety Organization program.
- Improved PSO Tracking accessibility compliance from **20% to 98%** as measured by third-party axe DevTools audit; introduced a central UI core library adopted across multiple AHRQ applications, standardizing accessibility and UI patterns platform-wide.
- Proposed and led adoption of a **shared React component library** across multiple product teams, standardizing UI patterns, accelerating cross-team delivery, and improving WCAG/Section 508 compliance across all platforms.
- Reduced API and rendering latency by **30%** and page load times by **40%** through bundle optimization, lazy loading, and API request batching; delivered 15+ features to a high-traffic Angular platform improving user satisfaction by 25%.
- Built and maintained user-facing applications for **Military OneSource** programs including StatePolicy, PlanMyMove, PlanMyDeployment, Military Installations, and Regional Liaison Portal, serving military families navigating relocation and deployment workflows using Angular, Node.js, Liferay, and MySQL; led Section 508 remediation across the full platform.
- Partnered with UX and stakeholder teams to translate product requirements into high-fidelity Figma prototypes, validating interaction patterns before build and reducing design-to-engineering rework across all platforms.
- Led monthly code reviews and engineering training that drove a **35% reduction in critical bugs**; mentored junior engineers and cut onboarding ramp time by 50%.

UI/UX Developer · [Novetta](#)

Feb 2014 – May 2016

- Built **real-time analytics dashboards** and data visualizations with D3.js and Chart.js supporting identity analysis workflows for a federal intelligence client, enabling analysts to explore high-velocity data streams under operational time constraints.

- Developed cybersecurity analytics applications **Web Tracker and Social Media Tracker**, supporting open-source identity intelligence research and analysis; delivered performant, reliable interfaces in a mission-critical environment.

SELECTED PROJECTS

FlowMate — Cross-Platform Focus Timer

- Built with React, Next.js, and React Native; **monorepo architecture** with a shared TypeScript package serving web and Android (**1,000+ active users**).
- Designed unified session-state architecture synchronizing audio cues, visuals, and floating Picture-in-Picture timer across all outputs with zero sync drift — reducing user context-switching during focus sessions.

JustToday — Energy-Aware Daily Planner

- Energy-aware task planner in React/Next.js with queue-based flow designed to **reduce decision fatigue** for neurodivergent users; behavioral constraints enforced at the architecture level to prevent overwhelm.
- Architected a **pure-function state engine** (runEngine.ts) with no React dependency — all state transitions independently testable and replayable.

Flow Club Companion — Browser Extension

- Browser extension publicly recognized by Flow Club's co-founder for meaningfully extending the platform's core value proposition; supports Chrome and Firefox from a single codebase via a browser API abstraction layer.

TECHNICAL SKILLS

Frontend: React, Next.js, Angular, React Native (iOS & Android), TypeScript, JavaScript, Expo, Tailwind CSS, Material UI

Design & Prototyping: Figma, High-Fidelity Prototyping, Design Systems, Component Libraries, Design Tokens, Interaction Design, Motion & Audio UX

Architecture: Frontend Performance Optimization, Monorepo Architecture, State Management, Composable Component Design

AI & Tooling: OpenAI API, Claude API, Claude Code, Cursor, GitHub Copilot

APIs & Backend: REST APIs, GraphQL, Node.js, Python, SQL

Databases: MySQL, MongoDB, PostgreSQL

Testing & A11y: Jest, Playwright, Cypress, Lighthouse, axe DevTools, WCAG / Section 508

EDUCATION & CREDENTIALS

M.S. Computer Science · University of Pennsylvania

Expected May 2026

Relevant coursework: Statistics, Machine Learning, Artificial Intelligence, AI Ethics

B.S. · Penn State University, University Park

CompTIA Security+ (Active)

COMMUNITY

Founder, Drawing Northern Virginia (2021–Present) · Built and led a 1,100+ member creative community; organized 75+ free events.