SUJIT DWIVEDI

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SUMMARY

Software engineer focused on agents and video tools. I work across a video editor's stack, from native screen capture and hardware encoding on macOS and Windows to rendering and export in the browser with WebCodecs and WebGPU. I care about performance, test what I ship, and use coding agents every day.

SKILLS

Media & Graphics	WebCodecs, MediaBunny, WebGPU, TypeGPU, PixiJS, WebGL, FFmpeg
Native	ScreenCaptureKit, AVFoundation, N-API
Languages	TypeScript, JavaScript, Python, PostgreSQL
Frontend & Desktop	React, Next.js, Electron, MobX, Yjs
Backend & Cloud	Node.js, REST APIs, PostgreSQL, AWS (S3, EC2)
Testing & Perf	Vitest, Playwright, Chrome DevTools Protocol, performance profiling
AI & Agents	Claude Code, Codex CLI, OpenCode, MCP servers, Agent Skills

EXPERIENCE

Software Developer Intern *Jan 2026 – Present*
Videoo.ai (formerly VA Labs), a collaborative, agentic video editing platform., a collaborative, agentic video editing platform *Bengaluru, India*

- Made MP4 export **3**× faster in the browser render-and-encode pipeline (MediaBunny + WebCodecs) and added a regression benchmark so export speed can't silently regress.
- Built the in-app screen recorder as native N-API addons: Objective-C++ on macOS (ScreenCaptureKit, AVFoundation) and C++ on Windows (DXGI, Windows Graphics Capture, WASAPI, FFmpeg), with hardware encoder fallback from NVENC to AMF to x264.
- Built Auto Demo on top of the recorder: users record their screen in the desktop app and get a polished demo or tutorial video, with a smoothed cursor, motion blur and transitions added automatically.
- Built agent-driven visual tests over the Chrome DevTools Protocol to check rendered editor output, and used CDP to profile editor performance.
- Wrote about **60%** of the unit, integration and E2E tests (Vitest, Playwright).
- Reduced installer size by **47%** on macOS (567 → 302 MB) and **44%** on Windows (600 → 334 MB).

Junior Web Designer Intern *Aug 2024 – Dec 2024*
Ivixia Tech Labs LLP *Kolkata, India (Remote)*

- Built responsive React pages and reusable Tailwind CSS components; improved mobile usability scores by 30%.

PROJECTS

OpenScreen | github.com/sujiiiiit/openscreen *May 2026 – Jun 2026*
A macOS app that turns a raw screen recording into a polished product demo: you record your screen, camera and mic, and it automatically zooms in where you click, smooths the cursor and adds a styled background, then exports an MP4 with no manual editing.
Electron, React, Next.js, Objective-C++, ScreenCaptureKit, VideoToolbox, PixiJS, WebGPU, WebCodecs, MediaBunny

- Wrote the recorder as a native macOS addon in Objective-C++ (ScreenCaptureKit, VideoToolbox, HEVC/H.264) that records screen, system audio, mic and camera in sync, with colours matching macOS's own screen recorder even on wide-gamut displays.

- Recorded every mouse move, click and cursor shape alongside the video (about 120 events/s from a background event tap, aligned to the first video frame), so the editor can redraw a smooth cursor and knows exactly where the user clicked.
- Built automatic zoom: clicks become editable zoom clips on the timeline, and a spring-based camera follows the cursor while zoomed in, so recordings look hand-edited.
- Rendered the editor with PixiJS on WebGPU (WebGL fallback), using the same render code for live preview and export, so the exported MP4 matches the preview frame for frame, including cursor and zoom motion blur.
- Exported MP4 with WebCodecs and MediaBunny, streaming the file to disk instead of holding it in memory, so multi-GB, hour-long exports finish without running out of memory.

OpenCode in Chrome | github.com/sujiiiiit/opencode-in-chrome *Oct 2026 – Nov 2026*

AI coding agents can write code but can't use websites. I built a Chrome extension that gives them a browser: you ask in a chat panel inside Chrome (e.g. "open my GitHub PRs and list the failing checks"), and the agent does it in your own logged-in Chrome while you watch every step.

TypeScript, React, Chrome Extensions (MV3), Chrome DevTools Protocol, MCP, Node.js

- Built a side-panel chat for the open-source OpenCode agent that shows each step live (opened tab, clicked button, typed text), so users see what the agent is doing instead of waiting on a black box.
- Gave the agent 37 browser actions (click, type, fill forms, switch tabs, extract tables, record a GIF of the run) by sending real mouse and keyboard input through the Chrome DevTools Protocol, so it works on sites that ignore scripted clicks and inside embedded iframes.
- Turned each web page into a short numbered list of the buttons, links and fields the agent can use; after every action it gets only the lines that changed, not the whole page again, so long tasks stay fast and on track.
- Built safety rules into the extension itself so no agent can skip them: passwords, card numbers, one-time codes and CAPTCHAs are always handed back to the user, and sending, paying, deleting or carrying data off a sensitive site needs the user's approval.
- Exposed the same browser as an MCP server, so Claude Code, Cursor and Codex can also use it under the same safety rules, connected through a token-checked local channel that Chrome starts automatically.

RESEARCH INTERNSHIP

AI-Driven Coal Quality Prediction System *May 2025 – Jun 2025*

Shri Ramdeobaba College of Engineering and Management, Nagpur

- Helped build a Python pipeline using **CNNs** on **hyperspectral imaging** data, reaching **96.4% accuracy** for coal quality prediction.
- Helped build a **3D CNN** ($R^2 = 0.94$, RMSE = 0.18) predicting moisture, ash, sulphur and GCV from spectral data.

EDUCATION

Bachelor of Technology in Computer Science and Engineering 2023 – 2026

Shri Ramdeobaba College of Engineering and Management

Diploma in Computer Engineering 2020 – 2023

Government Polytechnic, Nagpur