

Nolan Cassidy

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SUMMARY

Lead product engineer and founding Proto Hologram engineer specializing in cloud platforms, embedded/device systems, real-time media, and low-latency AI avatars. I like owning ambiguous product and technical decisions from zero to one: figuring out what should exist, choosing the architecture, building the first version, and making it fast, reliable, and usable for real customers. Helped evolve Proto from early CMS and kiosk-managed devices into a cloud-connected hologram platform with fleet management, live streaming, customer apps, Ubuntu Core embedded systems, OTA updates, and enterprise AI deployments. Broad, hands-on engineer who can learn and ship across the stack: React/Next.js, Node.js, Flutter, MQTT/IoT, WebRTC/LiveKit, LLMs, voice pipelines, hardware workflows, and on-prem/local model integrations.

EXPERIENCE

PROTO Hologram Los Angeles, California

Lead Software Engineer R&D and AI February 2024 – Present

- Own Proto's AI/R&D product direction from investigation to deployment, including vendor evaluation, architecture recommendations, technical feasibility, prototype execution, and customer-facing delivery strategy.
- Designed the real-time conversational stack behind Proto's current AI experiences, combining LiveKit/WebRTC, speech-to-text, LLM/persona logic, voice synthesis, provider failover, and device output with a focus on low-latency turn-taking.
- Created cloud-platform workflows for configuring AI behavior, provider selection, deployment targets, and internal RAG experiments using Firestore vector search and OpenAI embeddings.
- Partner with enterprise engineering teams at HPE, Cisco, PwC, Deloitte, AWS, and others to deploy conversational systems on customer or partner infrastructure, including local/on-prem LLM setups using Ollama, Llama-family models, Arcee, and guardrail tooling.
- Developed generative media pipelines that turn source images or text prompts into image, video, upscaled, and hologram-ready assets, reducing friction for customer content creation and event activations.
- Shipped production and event systems across hospitality, airports, retail, sports, museums, and conferences, connecting Proto experiences to real workflows such as concierge support, wayfinding, ordering, product search, interactive maps, and live Q&A.
- Translate experimental AI, media, and device concepts into customer-ready demos and deployments that support enterprise sales, partner showcases, and long-term product direction.
- Current systems run across hundreds of devices and thousands of usage hours per month in public and enterprise environments.

PROTO Hologram Los Angeles, California

Senior Software Engineer September 2019 – February 2024

- Founding engineering member who helped build Proto's core platform from CMS/kiosk-managed devices into a cloud-connected product spanning fleet management, content delivery, streaming, mobile workflows, and customer applications.
- Owned major parts of Proto's React/Next.js and Node.js cloud platform, including admin/customer workflows, device fleet controls, content/media tooling, 3D management, diagnostics, and secure MQTT-based device communication.
- Modernized Proto's embedded device stack across the Flutter local app, embedded Chromium, video playback, touchscreen/microphone/speaker workflows, kiosk/runtime behavior, Ubuntu Core direction, OTA update workflows, diagnostics, and remote management.
- Operationalized live-streaming workflows from Zixi and hosted broadcast infrastructure toward WebRTC/Millicast/iOS/web systems for live beaming, remote appearances, and customer events.
- Shipped customer-specific web apps for shopping, wayfinding, selfie/photo activations, interactive maps, conference experiences, and product demos.

- Supported hardware, manufacturing, and deployment work from early stages, including factory involvement, device setup, BIOS flashing, antenna installation, troubleshooting, investor demos, and enterprise sales opportunities.

Atlas Los Angeles, California

Lead Software Engineer February 2021 – August 2021

- Built the initial core product from scratch for a real-estate operations platform using React, Node.js, TypeScript, and GCP, then hired and managed a four-person developer team.
- Automated core real-estate agent workflows, improving operational productivity by more than 3x..

Good Green Technology Marin County, California

Lead Software Engineer June 2020 – March 2021

- Delivered web, customer mobile, and worker mobile applications using React, Node.js, Python, Swift, and mobile tooling, improving operational productivity by more than 100%.
- Prototyped a YOLO/video-analysis estimation tool to estimate moving costs from customer-uploaded room videos.

Fullcourt Los Angeles, California

Software Engineer June 2019 – January 2020

- Shipped admin, mobile, and real-time messaging features for a sports platform, supporting team/user communication across web and iOS/Android apps.

Earlier Experience

Software Engineer Intern, Oakwood Worldwide | Coding Instructor, MVCodeClub | Software Engineer Intern, TRX

EDUCATION

University of Oregon, September 2016 – December 2019

Major: Bachelor of Science, Computer & Information Science Minor: Economics

Programming Competition Club: Solved coding problems during weekly meetings with classmates and professors.

Computer Security Club: Organized group of classmates to perform CTFs, hacking games, and guest lectures.

CORE TECHNICAL SKILLS

- AI / LLM: Claude, Llama, Gemini, Arcee, Ollama, RAG, OpenAI embeddings, Firestore vector search, Llama Guard, AI agents, low-latency conversational systems
- Media / Voice / Avatar: LiveKit, WebRTC, Deepgram, ElevenLabs, OpenAI TTS, Google speech services, Amazon Polly, HeyGen, Tavus, WebGL, Unreal, video generation, hologram-ready media
- Cloud / Backend: Node.js, TypeScript, Python, REST APIs, WebSockets, MQTT, AWS, GCP, Firebase/Firestore, Redis, Docker, CI/CD, Vercel, Supabase
- Frontend / Device: React, Next.js, Flutter, Swift, embedded Chromium, React Native, Ubuntu Core, Tauri, OTA updates, kiosk systems, IoT fleet management, touchscreen/microphone/speaker integration