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**August 9, 2025**

Hiring Team - OpenAI, Applied AI Engineering (Seattle)

**Re: Software Engineer, Real Time**

I build production-scale real-time communication systems and ship them to millions of users. I've been doing RTC since **1998 at Microsoft** (Exchange/Office RTC, Live Communications Server), then Google (GOOG-411 & Google Voice VoIP backends), Motorola Solutions (WAVE RoIP/PTT), and most recently into large-scale A/V devices at Promethean and AI-powered **WebRTC** assistants. I am excited to bring that end-to-end RTC, streaming, and AI experience to OpenAI's Real Time team.

### **Why me for this role**

- **RTC since 1998.** At Microsoft I worked on Exchange/Office RTC and Live Communications Server, building and testing large-scale conferencing and SIP/VoIP systems (server APIs, MCU, PSTN/VoIP/SIP, ITU-T audio quality). I later expanded that foundation at Google (GOOG-411 & Google Voice VoIP backends) and Motorola Solutions (WAVE RoIP/PTT).
- **Scaled RTC in production.** At Motorola Solutions (Twisted Pair) I led mobile clients for WAVE - secure PTT/VoIP used in high-stakes environments - implementing resilient audio streaming, signaling, and codec strategy (Opus/AMR/Speex/G.711) over constrained networks. At Mynd.ai/Promethean I was Staff Android Developer and AP9 tech lead for an AOSP device line that shipped **500K+ panels** worldwide, integrating real-time A/V pipelines, AEC/AGC/NS DSP, HDMI/CEC/EDID/HDCP, and standardized telemetry across 30+ apps.
- **AI + Realtime.** I created **AlfredAI**, a push-to-talk assistant that uses the **OpenAI Realtime API over WebRTC** (Android phone + Wear OS, Bluetooth audio routing). I built Kotlin and Dart client SDKs, added WebRTC support to the upstream realtime examples, and A/B tested WebRTC vs. WebSocket for latency and barge-in behavior. I then rewrote it all over again with zero knowledge in Dart/Flutter in half the time. This work maps directly to OpenAI's next-gen real-time products.
- **Developer productivity & platforms.** I've repeatedly accelerated engineering teams: designed a Firebase/Crashlytics+Mixpanel/telemetry wrapper used by 30+ apps, migrated 100+ repos and CI jobs (Bitbucket/Bamboo→GitLab), stood up a 20+ automated device lab with check-in/out kiosk, and built local LLM tools to organize 4,000+ pages of internal docs. I love building tools that save time.
- **Operate what I build.** I've supported globally deployed systems on-site (districts running thousands of devices) and am comfortable with on-call for critical incidents. I instrument, measure, and improve - SLOs for call setup time, end-to-end latency, underruns, and freeze rates.
- **Founder mindset.** Early in my career I was the **creator of Vibe** and **co-creator of Sonique** MP3 players (acquired by Lycos for **\$38.8M**). More recently I maintain **DistroAV (OBS-NDI)** (~6M downloads, ~10K daily launches). I own problems end-to-end and care deeply about user experience.

OpenAI's mission, building artificial general intelligence that benefits all of humanity, resonates with how I've built communication systems for mission-critical use cases. I'd welcome the chance to help scale the Realtime platform and ship the next wave of multimodal, low-latency experiences.

Thank you for your time and consideration.

**Paul Peavyhouse**

Attachment: Résumé

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## SUMMARY

Staff-level software engineer with 27+ years of experience designing and delivering production-scale real-time communication (RTC) systems, audio/video streaming pipelines, and AI-powered applications. Proven track record building low-latency, high-availability products - from VoIP/PTT platforms and WebRTC assistants to interactive displays deployed at global scale. Adept at end-to-end ownership: architecture, development, deployment, and operational support. Deep expertise in AOSP, Android, C/C++, Kotlin, Python, .NET, AWS, WebRTC, codecs, and GPU-accelerated media processing.

## CORE SKILLS ALIGNED TO ROLE

- **Real-Time Communication (RTC)** - WebRTC, VoIP/SIP/PSTN, low-latency audio/video streaming, encoding/decoding (AAC, Opus, H.264, FLAC, PCM), signaling, lip-sync optimization.
- **Audio/Video Systems** - DSP (AEC/AGC/NS), HDMI/CEC/EDID/HDCEP, OBS Studio integration, NDI protocol development, GPU-accelerated effects.
- **AI Integration** - AI/LLM/RAG application design, OpenAI Realtime API (WebRTC & WebSocket), GPT-powered assistants (push-to-talk), multimodal AI workflows.
- **Scalable Systems** - AOSP device fleets (500K+ shipped), CI/CD migrations, AWS cloud services, Firebase telemetry, global data regionalization.
- **Languages/Tools** - Kotlin, Java, C/C++, C#, Python, Go, Qt, Swift, Node.js, React/Vue, GitHub/GitLab, CI/CD, Terraform, Kubernetes, Docker, Wireshark Dissector.

## PROFESSIONAL EXPERIENCE

**Mynd.ai / Promethean** - Seattle, WA

**Staff Android Software Developer | ActivPanel 9 Tech Lead** • 2020 - 2024

- Led architecture, development, and deployment for the **AP9 AOSP interactive flat-panel display line** (65"/75"/86") - shipped **500K+ panels** worldwide into enterprise & education environments.
- Integrated advanced **audio DSP (AEC/AGC/NS)**, HDMI/CEC, EDID/HDCEP, multi-touch, and **real-time video pipelines** for ultra-low-latency collaboration.
- Designed and maintained large-scale telemetry ingestion (MixPanel/Firebase) for 30+ applications, enabling proactive product performance monitoring.
- Built **local AI/LLM tooling** to organize 4,000+ Confluence pages and accelerate productivity.
- Migrated 100+ repos and CI/CD jobs to GitLab, reducing build times and improving release stability.
- Provided on-site operational support for large-scale deployments (1,000s of panels per district).

**Pebblebee** - Issaquah, WA

**Senior Mobile/Android Developer | Tech Lead** • 2015 - 2020

- Architected BLE IoT mobile apps (Android/iOS) with **real-time device telemetry** and location tracking.
- Designed scalable AWS/DynamoDB backend integrations and **low-energy, low-latency BLE communication** layers for 24/7 device scanning.

## **Twisted Pair Solutions (Motorola Solutions) - Seattle, WA**

**Staff Principal / Lead Mobile SDE • 2010 - 2014**

- Led cross-platform development (Android, iOS, BlackBerry, Windows CE) for **WAVE Mobile Communicator** - a **secure PTT/VoIP RTC platform** used by military, public safety, and enterprise.
- Implemented **real-time audio streaming** over constrained networks with robust failover and codec fallback strategies (AMR, Opus, Speex, G.711, GSM).
- Provided direct operational support at high-stakes sites (US Army Nett Warrior, MGM Resorts, Trimble).

**Senior SDET / SDET • 2009 - 2010**

- Built automated SIP/VoIP test frameworks and custom Wireshark dissectors for protocol validation.

## **Google - Seattle, WA**

**SDET - GOOG-411 & Google Voice • 2008 - 2009**

- Created automated testing frameworks for **VoIP backends**, speech recognition, and media servers, simulating **real-time telephony traffic** at scale.

**SDET - Google Pack / Chrome Auto-Update • 2005 - 2008**

- Developed distributed automation systems for global software update delivery.

## **Microsoft - Redmond, WA**

**SDET - RTC Distributed Meetings & Live Communications Server • 2003 - 2005**

- Tested and validated **USB VoIP/SIP conferencing devices** (RoundTable), including audio/video DSP, panoramic cameras, and compliance with ITU-T standards.
- QA for large-scale conferencing servers (Office/Exchange Conferencing Server).

## **Night55 - Bozeman, MT**

**Co-Founder, Developer • 1997-1999**

- **Vibe** (creator) and **Sonique** (co-creator) media players; acquired by Lycos for **\$38.8M**.

## **SELECT PROJECTS**

**DistroAV (OBS-NDI) - Lead Developer • 2023 - Present**

- Maintainer of **OBS Studio NDI Plugin** (~6M downloads, ~10K daily launches).
- Designed **NDI audio/video transport** features for ultra-low-latency streaming between OBS instances.

**AlfredAI & AlfredAI-Flutter - Creator • 2025**

- **Push-to-talk AI assistant** integrating **OpenAI WebRTC Realtime API** for Android phone and WearOS support with Bluetooth audio routing.
- Built Kotlin & Dart client SDKs for OpenAI Realtime API, enabling **bi-di low-latency voice interaction**.

**NightVsKnight - Founder • 2019 - Present**

- Custom streaming system combining **NDI, WebRTC, HDMI matrix switching**, and .NET audio routing for picture-in-picture multi-PC broadcasting.

## PATENTS

- WO2013116741 - Tip-Ring-Ring-Sleeve Push-To-Talk System and Methods
- WO2013154722 - Pulsed Input Push-To-Talk Systems, Methods, and Apparatus

## PUBLICATIONS

Google Code: Google App Engine, May 2008 <http://swoo.by/pub/ajax>  
"Using AJAX to Enable Client RPC Requests"

O'Reilly & Associates, July 2005 <http://swoo.by/pub/carpc>  
ISBN: 0-596-00871-6 CarPC Hacks, Hack 65: "View Real-Time Traffic Data on the Road"

## EDUCATION

Montana State University - Computer Science • Virginia Polytechnic Institute - General Studies

## CITIZENSHIP

U.S. Citizen - no visa sponsorship required.