

**Paul Peavyhouse** • Kirkland, WA • pv@swoo.by • 619-796-6299 • Full Resume: <http://swoo.by/r>  
GitHub: <http://swoo.by/gh> • LinkedIn: <http://swoo.by/li> • StackOverflow: <http://swoo.by/so>

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 Prometheus 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 I'm a strong fit for OpenAI Real Time

- **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), Motorola Solutions (WAVE RoIP/PTT), and **WebRTC** projects.
- **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 >4K 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 total downloads, >10K DAU**). 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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## REAL TIME ENGINEER

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 OPENAI REALTIME

- **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, crash reporting, 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 Firebase crash & MixPanel telemetry ingestion for 30+ applications, enabling proactive product performance monitoring.
- Leveraged **Local AI/LLM** to organize >4K Confluence pages; automated audits across **2M+** lines of custom code migrated from AOSP Android 9→11.
- Migrated 100+ repos and CI/CD jobs to GitLab, reducing build times and improving release stability.
- Designed/built/automated "PromLab" (20+ test panels with checkout)
- 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

**Senior SDET / SDET** • 2009 - 2010

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

**Google** - Seattle, WA

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

- Built **SIPp/pjsip** automation and load/perf harnesses (Empirix Hammer G5) for voice backend and **PSTN gateway**; Adobe AIR test harness for Flash client on App Engine + Wowza.  
**SDET - Google Pack & Chrome Auto-Update (Omaha)** (2005/07-2008/05)
- Company-wide Python XML-RPC automation, Windows logon service for UAC automation; CI/build, i18n/l10n, service watchdog monitoring.
- **>100 interviews per year** to build/grow the Kirkland office from <50 to >500 employees.

**Microsoft** - Redmond, WA

**SDET - Microsoft Office RTC Distributed Meetings (RoundTable)** (2003/09-2005/07)

- Tested Windows CE **PSTN/VoIP/SIP** audio-gain, video-panorama USB device; TIA/ITU-T standards.  
**SDET - Microsoft RTC (Live Communications Server)** (2003/02-2003/09)  
**SDET - Exchange/NetDocs/Office RTC** (1999/06-2003/02)  
**STE - Exchange RTC (IRC)** (1998/05-1999/06)

**Night55** - Bozeman, MT

**Co-Founder, Developer, Tester** • 1997-1999

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

## RELEVANT OPEN SOURCE & AI/RTC/STREAMING PROJECTS

- **DistroAV (OBS-NDI)**: Admin/Maintainer, Lead Developer (est 2016, Admin since 2023)  
>6M downloads, >10K DAU, >4K stars, >400 forks • <https://distroav.org>
- **AlfredAI (Kotlin, Android) - OpenAI Realtime WebRTC**  
Push-To-Talk assistant; Phone + Wear + Bluetooth audio routing • <https://github.com/swooby/AlfredAI>
- **langchain\_dart - openai\_realtime\_dart (WebRTC)**  
Dart fork adding **WebRTC** to OpenAI Realtime (used by AlfredAI-Flutter).  
[https://github.com/swooby/langchain\\_dart/tree/main/packages/openai\\_realtime\\_dart](https://github.com/swooby/langchain_dart/tree/main/packages/openai_realtime_dart)
- **AlfredAI-Flutter (Dart/Flutter)** - Experimental client using the Dart WebRTC additions.  
[https://github.com/swooby/alfredai\\_flutter](https://github.com/swooby/alfredai_flutter)
- **OpenAI Realtime forks (WebRTC)** - Added **WebRTC** to OpenAI's WebSocket-only Realtime examples; enabled A/B testing for behavior differences.  
<https://github.com/swooby/openai-realtime-api-beta>  
<https://github.com/swooby/openai-realtime-push-to-talk>

- **openai-openapi-kotlin** - Kotlin generation (+ tweaks) of OpenAI's OpenAPI spec (used by AlfredAI). <https://github.com/swooby/openai-openapi-kotlin>
- **ChatGPT Read Aloud (Browser Extension)** - JS injection to auto-speak ChatGPT responses. <https://github.com/swooby/chatgpt-extension>
- **NightVsKnight** - Multi-Box Picture-in-Picture game streaming system; custom .NET + OBS software, Audio/USB/HDMI orchestration • <https://youtube.com/@NightVsKnight>
- Additional A/V/RTC utilities listed under NightVsKnight and swooby.com.

## RELEVANT SKILLS

**Android:** Android/AOSP/SDK/NDK, Android Studio, Jetpack/AppCompat, Wear/Glass, MDM/EMM, JADX, **Languages:** Kotlin, Java, Dart/Flutter, C/C++, C#, Python, JavaScript/Node.js, Qt, **Media/RTC/Streaming:** WebRTC/RTC, VoIP/SIP/PSTN, Audio (AEC/AGC/NS), Video (HDMI/DP/DRM/EDID/CEC/ARC/HDCP), Codecs (AAC/FLAC/G711/H.264/MP3/MP4/PCM/Opus/Speex/AMR/GSM), **AI:** AI/LLM/RAG/GPT (Cloud/Local), OpenAI Realtime integrations (WebRTC + WS), LangChain, **Quality/Perf:** Perfetto, Crashlytics, MixPanel, JUnit/Mockito/Robolectric/Robotium, coverage (Sonar/Jacoco/Emma), automation frameworks, **Cloud/CI/CD:** AWS, Firebase, GitLab/GitHub, Jenkins/Maven/Gradle/Ant, **Networking:** Cellular/Wi-Fi/Bluetooth (LE/A2DP/RFCOMM), TCP/UDP, Wireshark (custom dissector), **Security:** SSL/HTTPS, HMAC/SHA, X.509, Diffie-Hellman, Elliptic Curve

## PATENTS

- **WO2013116741** - TIP-RING-RING-SLEEVE PUSH-TO-TALK SYSTEM AND METHODS
- **WO2013154722** - PULSED INPUT PUSH-TO-TALK SYSTEMS, METHODS AND APPARATUS

## PUBLICATIONS

- *Using AJAX to Enable Client RPC Requests*, Google App Engine (2008): <http://swoo.by/pub/ajax>
- *CarPC Hacks Hack 65*, O'Reilly (2005): <http://swoo.by/pub/carpc>

## EDUCATION

- Montana State University - Computer Science • Virginia Tech - General Studies

## OTHER

- References - <http://swoo.by/pv/refs> (more available upon request)
- U.S. Citizen - no visa sponsorship required