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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.