Chun-Min Chang

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Summary

Highly self-driven and dynamic software engineer with **9+** years of experience developing the Firefox browser engine in **C/C++**, **Rust**, and **JavaScript**. **Lead** engineer for diverse **multimedia** projects such as WebCodecs, web conferencing audio systems, and **cross-platform** audio libraries. Recognized for enhancing audio playback performance and proficient in **multi-threaded** programming.

Work Experience

Staff Software Engineer, **Mozilla**, Vancouver, CA   Mar, 2024 - Present

• Formulated and implemented engineering strategies aligned with business goals, enhancing performance continuously

Senior Software Engineer, **Mozilla**, Portland, U.S. / Vancouver, CA   Mar, 2021 - Feb, 2024

• Maximized web capabilities for media processing with W3C WebCodecs API introduction   (Link)
   • Established a shared model and architecture for Audio and Video Decoder and Encoder
   • Implemented a video encoder leveraging FFmpeg for H.264, VP8, VP9, and AV1 formats
• Optimized multi-microphone usage in web conferencing through audio infrastructure redesign   (Link)

Software Engineer, **Mozilla**, Portland, U.S.   July, 2018 - Feb, 2021

• Enhanced stability by migrating the Firefox audio library on MacOS from C/C++ to Rust   (Link)
   • Identified and resolved 10+ data racing issues and memory leaks
   • Achieved a 35x performance boost when multiple streams start simultaneously
   • Expanded test coverage to nearly 100% for critical code paths
• Implemented media playback control in Firefox's system UI via the W3C Media Session API   (Link)
• Introduced transparency support for the AVIF image format in Firefox   (Link)
• Served as a core code reviewer for the team with multinational members   (Link)

Software Engineer, **Mozilla**, Taipei, Taiwan   Oct, 2014 - Jan, 2018

• Reduced audio looping delays by approximately 90%   (Link)
• Enhanced music listening experience by implementing surround sound (Audio 5.1/7.1) across   (Link)
  multiple platforms (Windows, macOS, Linux)
   • Designed an audio mixer capable of converting audio between various channel layouts   (Link)
• Improved daily bug-triage efficiency by developing a tool to gather audio device information for   (Link)
  bug reports, which is utilized daily
• Established a secure data transmission mechanism, J-PAKE over TLS, between Firefox OS TV   (Link)
  and Firefox Android
• Enabled casting of webpages to Firefox OS TV from Firefox desktop via W3C Presentation API   (Link)
• Facilitated input method connection for the physical keyboard on a Firefox OS phone   (Link)

Education

National Tsing Hua University   Hsinchu, Taiwan
• M.S. in **Computer Science**   Sep, 2012 - Aug, 2014
   • *Advisor: Prof. Pai H. Chou* (Embedded Platform Lab)
   • Thesis: Cooperative Tracking using Encounter Information by Particle Filtering   (Link)
• B.S. in **Computer Science**   Sep, 2008 - June, 2012
   • **Third Prize**, CS project contest for senior students: Remote Controllable Wifi Webcam Car   (Link)
   • Headed the Guitar Club and directed activity planning for 10+ school camps

Skills

• Programming: C/C++, Rust, Javascript, HTML, CSS, Python, Shell
• Tools: VCS - Git, Mercurial, Debugging - GDB, LLDB, RR
• Language: Taiwanese (Native), Mandarin (Native), English (TOIEC 905/990)