Chun-Min Chang

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Summary

- **6** years experience of developing **Firefox** browser engine, which is a large-scale open project, in different domains focused on audio
- **Lead author** of Firefox's **cross-platform** audio library on **macOS** platform (CoreAudio) in Rust, which serves millions of user every day
- Improve the audio playback performances: speed up start time and reduce 90% delay
- Experience in **multi-threaded** programming in **C/C++/Rust**, **async** programming in Rust/Javascript
- Self-directed learner looking to improve myself and see challenges as opportunities to learn

Work Experience

Software Engineer, **Mozilla**, Portland, OR, U.S.   July, 2018 - Present

- Strengthen stability by migrating Firefox audio library on MacOS from C/C++ to Rust   (Link)
  - Hunt and solve 10+ data racing issues and memory leaks discovered
  - Boost performance 35 times faster when multiple streams start simultaneously
  - Enlarge test coverage to nearly 100% for the critical code paths
- Enable controlling media playback in Firefox from system UI (W3C Media Session API)   (Link)
- Implement transparency support for AVIF image format in Firefox   (Link)
- Core code reviewer of the team with multinational members   (Link)

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

- Eliminate ~90% delays between looping audios   (Link)
- Enhance music listening experience by implementing surround sound (Audio 5.1/7.1) on   (Link) various platforms (Windows: WASAPI, macOS: CoreAudio, Linux: PulseAudio)
  - Design an audio mixer converting audio between any channel layouts   (Link)
- Improve daily bug-triage efficiency of system diagnosis by building a tool gathering audio   (Link) devices information for the bug reports
- Establish a secure mechanism of data transmission (J-PAKE over TLS) between Firefox OS   (Link) TV and Firefox Android
- Enable casting webpages to Firefox OS TV from Firefox desktop (W3C Presentation API)   (Link)
- Enable connecting input-methods on Firefox OS phone with the paired physical keyboard   (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)
  - Head of guitar club and co-musical clubs and the brain for activity planning for 10+ camps

Skills

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