Chun-Min Chang

Email: chun.m.chang@gmail.com
Website: http://chunminchang.github.io/
Linkedin: https://www.linkedin.com/in/chunminchang/
GitHub: https://github.com/ChunMinChang/

Summary

- **7** years experience of developing Firefox browser engine, which is a large-scale open project, in different domains, focusing on media
- **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
- Comfortable working on multiple projects at the same time

Work Experience

Senior Software Engineer, **Mozilla**, Portland, U.S.   Mar, 2021 - Present

- Enhance performance of media web Apps by implementing W3C WebCodecs API   (Link)
- Enable using multiple mics in Web conferencing by designing a device-based audio system   (Link)

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

- 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, macOS, Linux)
  - 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: Linux, MacOS, Windows
- Language: Taiwanese (Native), Mandarin (Native), English (TOIEC 905/990)