

Miru: Building a collaborative video editor with offline support

Miru

Web-based media
editing

Framework-agnostic Web platform libraries and
components for photo and video editing with
WebGL and WebCodecs

What is Miru?

Demos

Source code



Browser-based

Fully browser-based and client-side.

Filters

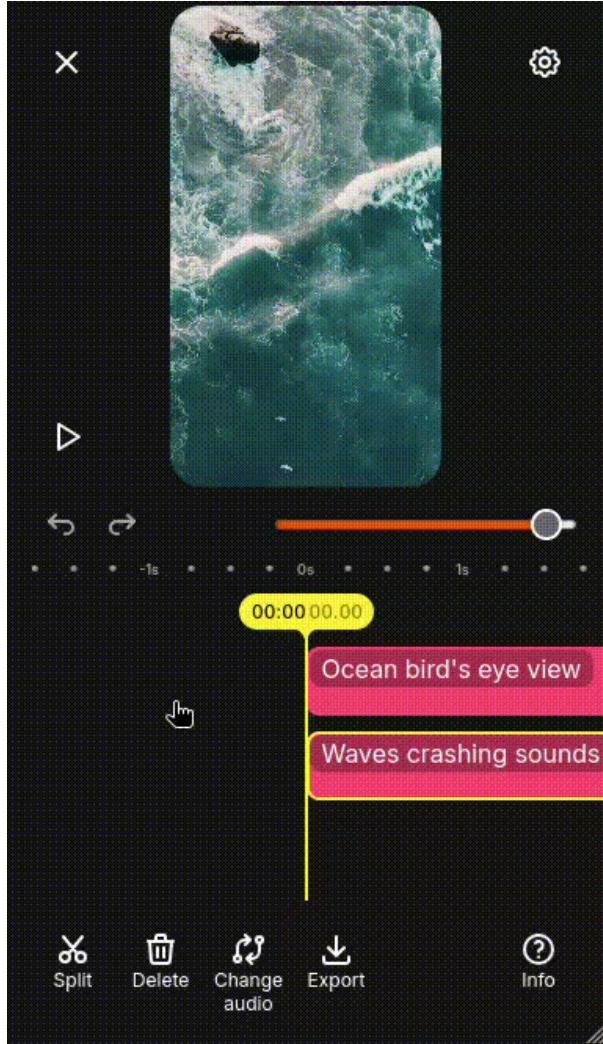
Apply color LUT filters and visual effects.

Create videos

Split, trim and join videos and audio and export
to an MP4.

This project is funded through [NGI Zero Core](#), a fund established by [NLnet](#) with financial support from the European Commission's [Next Generation Internet](#) program. Learn more at the [NLnet project page](#).





- <https://miru.media/video-editor>
- Pretty simple and easy to use
- Can add multiple video and audio clips, rearrange, trim, etc, export
- Compositing is done with the `videocontext` library (for now) to a WebGL canvas
- Uses `WebCodecs` for exporting

https://www.localfirst.fm/landscape

Local-First Landscape						
by localfirst.fm - What is this?	Podcast	Landscape	Community	Conference		
Filters: Conflict Handling: Automatic via CRDT	License: MIT, Apache 2.0, Apache-2.0, GPL3, FSL-Apache 2.0, Apache, FSL-Apache 2.0 (Service) & Apache 2.0 (SDKs), FSL-1.1-Apache-2.0	Platform:	Reset view	Share current view		
Sorting: Name →						
Technologies	NextGraph	Yjs	Automerge	Jazz	DXOS	TinyBase
Decentralized and local-first web 3.0 ecosystem (everything apps and framework/SDK)	Shared types to make anything collaborative	Automerge enables local first applications by providing generic version control for JSON documents	Toolkit for backendless apps.	DXOS is an open source framework for building real-time, collaborative web applications.	A reactive data store & sync engine.	
Learn more →	Learn more →	Learn more →	Learn more →	Learn more →	Learn more →	Learn more →
License	MIT	MIT	MIT	MIT	MIT	MIT
MIT Apache 2.0 Apache-2.0 GPL3						
Deployment	Self-hosted, Hosted	Self-hosted, Hosted, Third-party integrations	Self-hosted	Self-hosted, Hosted	Self-hosted	Self-hosted
Maturity Level	Alpha	Mature	Production-Ready	Production-Ready		Mature
Initial Release Date	Sep 2, 2024	Jan 27, 2015	Jan 1, 2017	Sep 11, 2023		Jan 17, 2022
App Target						
Platform	Browser, Node, iOS, Android, macOS, WASM, Linux	Browser, Node, iOS, React Native, WASM	Browser, Node, iOS, Android, macOS, Linux, Windows, WASM	Browser, Node, iOS, Android	Browser, Node	Browser, Node, React Native, Deno, Cloudflare Workers
Browser						
Languages	TypeScript, JavaScript, Rust, Python	TypeScript, JavaScript, Rust, C#, Swift, Python, C++, Kotlin	JavaScript, TypeScript, Swift, Rust, Go, Java, Kotlin	TypeScript	TypeScript	TypeScript, JavaScript
Frameworks	React, Svelte	React, React Native, Vue, Svelte, Zustand	React, Svelte	React, React Native, Vue (experimental), Svelte (experimental)		React, React Native
Client Bundle Size	4 kB compressed	~20kb	~800Kb gzipped	112kb gzipped (jazz-react)		5.3kB - 11.5kB

- **Yjs**: most popular, great ecosystem, small bundle size
- **Automerger**: comparable features to yjs, ~1MB wasm build, smaller ecosystem
- **Loro**: newer, has support for move operations, ~1MB wasm build

Technologies	Yjs	Automerger	Loro
Yjs ✕ Automerger ✕ Loro ✕	 Yjs	 Automerger	 Loro
App Target			
Platform	Browser, Node, iOS, React Native, WASM ⓘ	Browser, Node, iOS, Android, macOS, Linux, Windows, WASM ⓘ	Browser, Node, iOS, macOS, WASM, Linux
Languages	TypeScript, JavaScript, Rust, C#, Swift, Python, Cffi, Kotlin	JavaScript, TypeScript, Swift, Rust, Go, Java, Kotlin ⓘ	typescript, javascript, Rust, Swift, Python
Frameworks	React, React Native, Vue, Svelte, Zustand ⓘ	React, Svelte	
Client Bundle Size	~20kb ⓘ	~800Kb gzipped	~900 kB

<https://www.figma.com/blog/how-figmas-multiplayer-technology-works/>

OCTOBER 16, 2019

How Figma's multiplayer technology works

 Evan Wallace Co-founder, Figma

INSIDE FIGMA ENGINEERING BEHIND THE SCENES ...

A peek into the homegrown solution we built as the first design tool with live collaborative editing.

Evan Wallace

Mastodon • GitHub

CRDT: Tree-Based Indexing

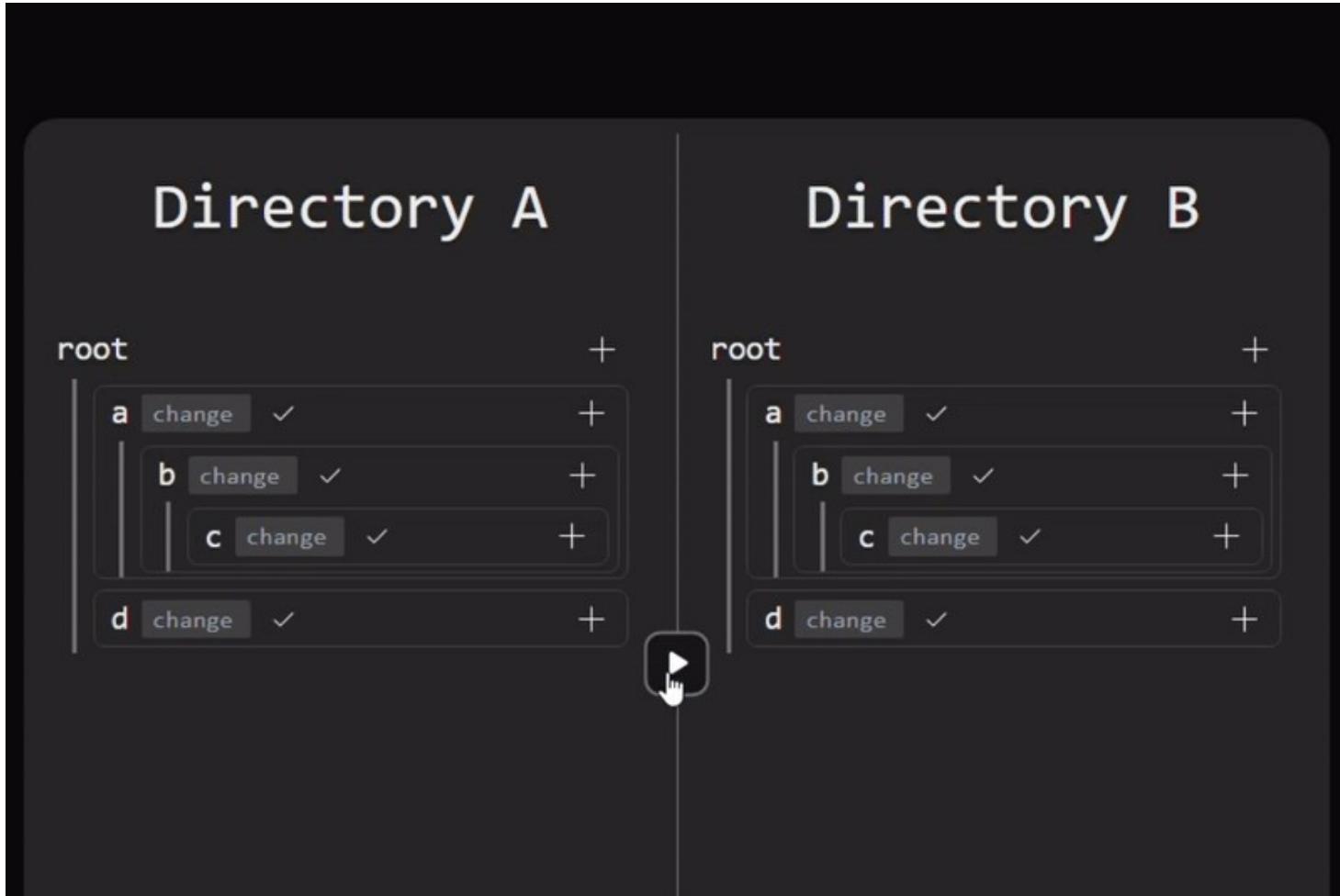
[← Back to the algorithm list](#)

Published on November 14th, 2022

Collaborative peer-to-peer applications sometimes need to operate on sequences of objects with a consistent order across all peers. For example, a peer-to-peer rich text editing application might need to sync the order in which blocks of text appear in a document.

<https://www.madebyevan.com/algos/crdt-tree-based-indexing/>

<https://github.com/ProjectWR/yjs-orderedtree>



Interleaving issues



- What is expected when one user splits a clip, and the other changes the duration of the original clip?
- What if the clip's media asset is swapped out?
- Undoing the split or deleting the original while another user edits the two new clips?



And what about

- Transitions
- Subtitles
- Keyframe animations
- Linked (not grouped) clips that are moved together



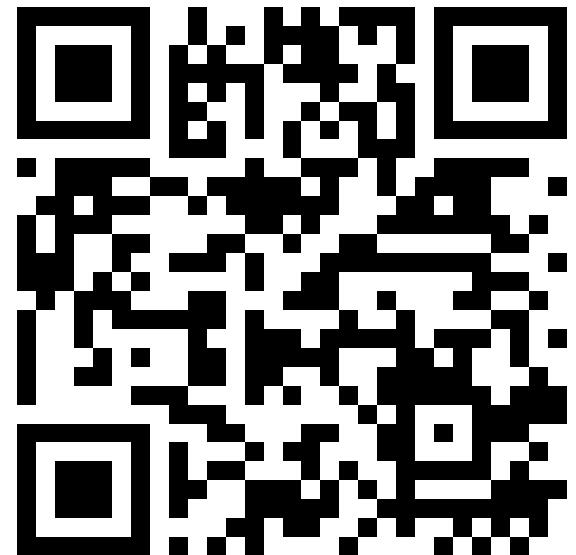
In other more advanced editors with ripple editing, changing one clip can affect other clips across multiple tracks



Thank you!



<https://github.com/miru-media/miru>



<https://codeberg.org/miru-media/miru>