

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

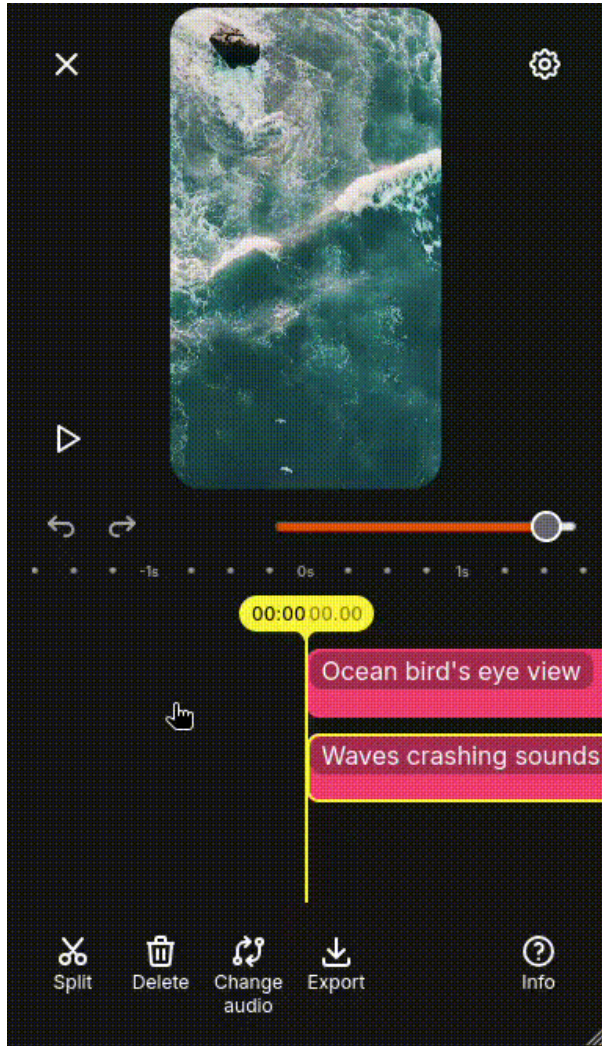
Apply color LUT filters and visual effects.

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](#).









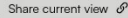
- <https://miru.media/video-editor>
- Pretty simple and easy to use
- Can add multiple video and audio clips, rearrange, trim, etc, export
- Compsiting is done with the videocontext library (for now) to a WebGL canvas
- Uses WebCodecs for exporting









































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-Apach 2.0, Apache, FSL-Apache 2.0 (Service) & Apache 2.0 (SDKs), FSL-1.1-Apache-2.0 **Platform:**  

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 →
License ▾	MIT	MIT	MIT	MIT	MIT	MIT
	 	 	 	 	 	 
	 	 	 	 	 	 
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	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, React Native, Deno, Cloudflare Workers
Languages ▾	TypeScript, JavaScript, Rust, Python	TypeScript, JavaScript, Rust, C#, Swift, Python, Cffi, 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
- **Automerge**: comparable features to yjs, ~1MB wasm build, smaller ecosystem
- **Loro**: newer, has support for move operations, ~1MB wasm build

Technologies ▾	 Yjs	 Automerge	 Loro
Yjs × Automerge × Loro ×			
App Target 🗨			
Platform ▾	Browser, Node, iOS, React Native, WASM ⓘ	Browser, Node, iOS, Android, macOS, Linux, Windows, WASM ⓘ	Browser, Node, iOS, macOS, WASM, Linux
Browser ×			
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

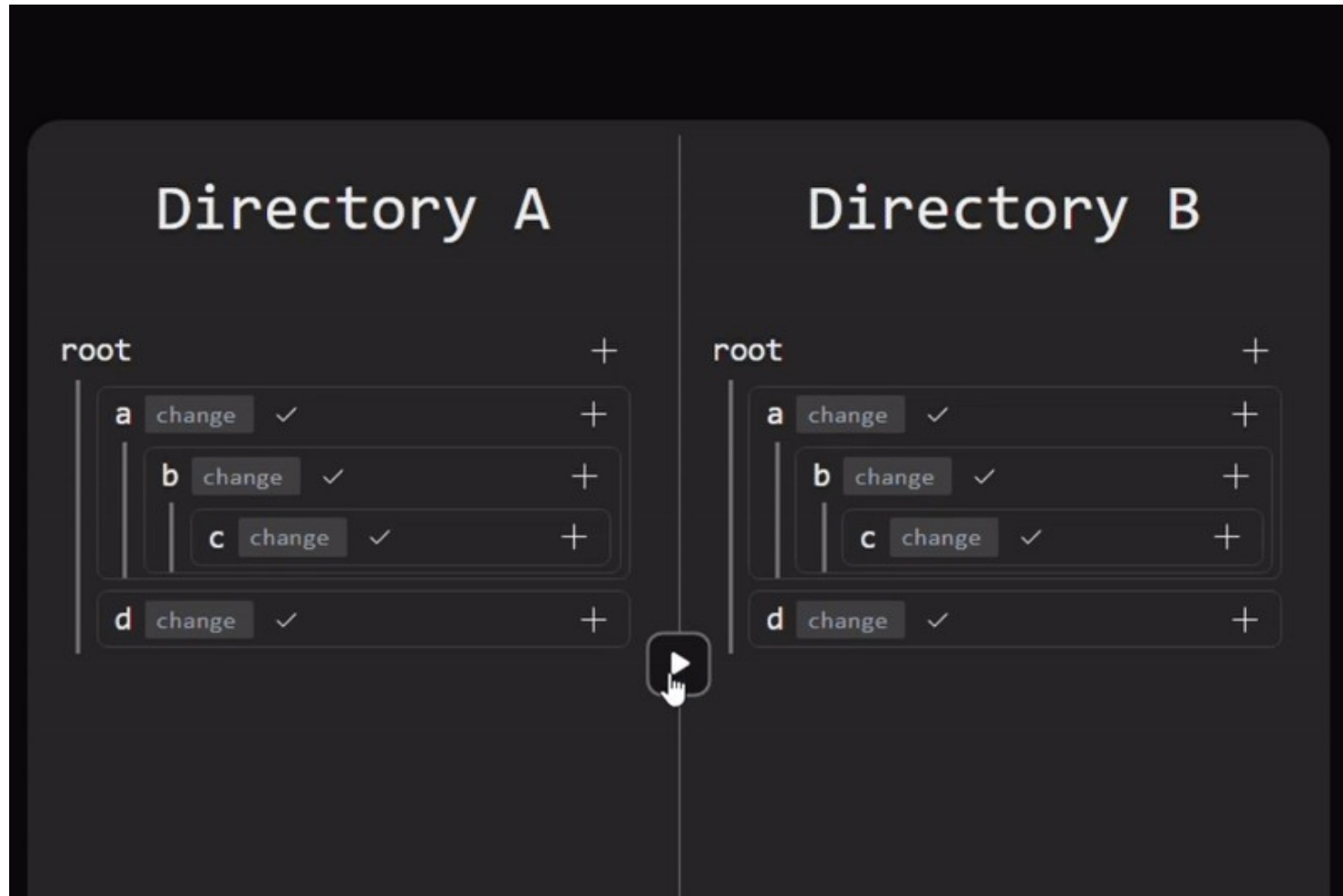
[← Back to the algorithm list](#)

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

Directory A

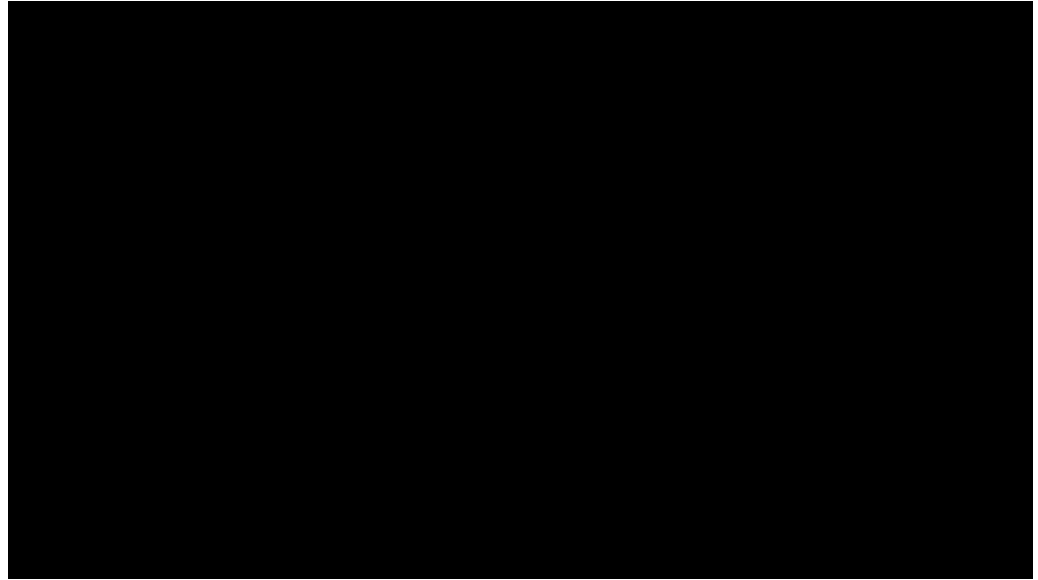
root		+
new node	change ✓	+
new node	change ✓	+
a	change ✓	+
b	change ✓	+
1	change ✓	+
c	change ✓	+
2	change ✓	+
new node	change ✓	+



Directory B

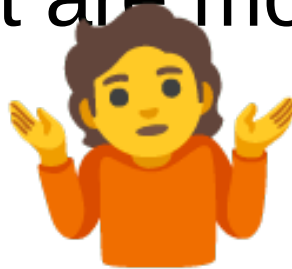
root		+
new node	change ✓	+
new node	change ✓	+
a	change ✓	+
b	change ✓	+
1	change ✓	+
c	change ✓	+
2	change ✓	+
new node	change ✓	+

- 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



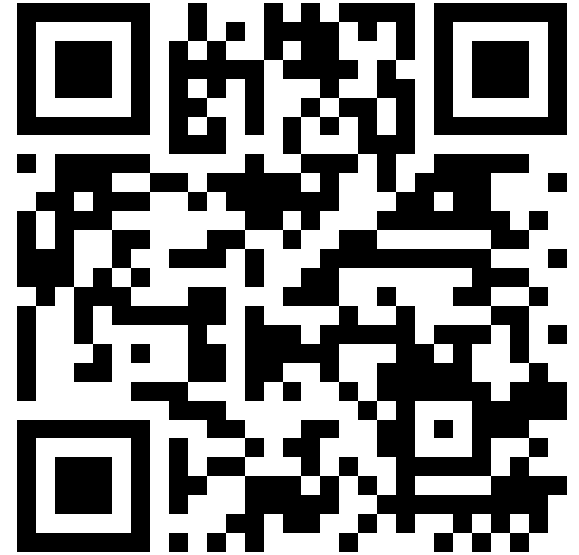
In other more advanced editors with ripple editing, changing one clip can affect other clips across multiple tracks



Thank you!



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



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