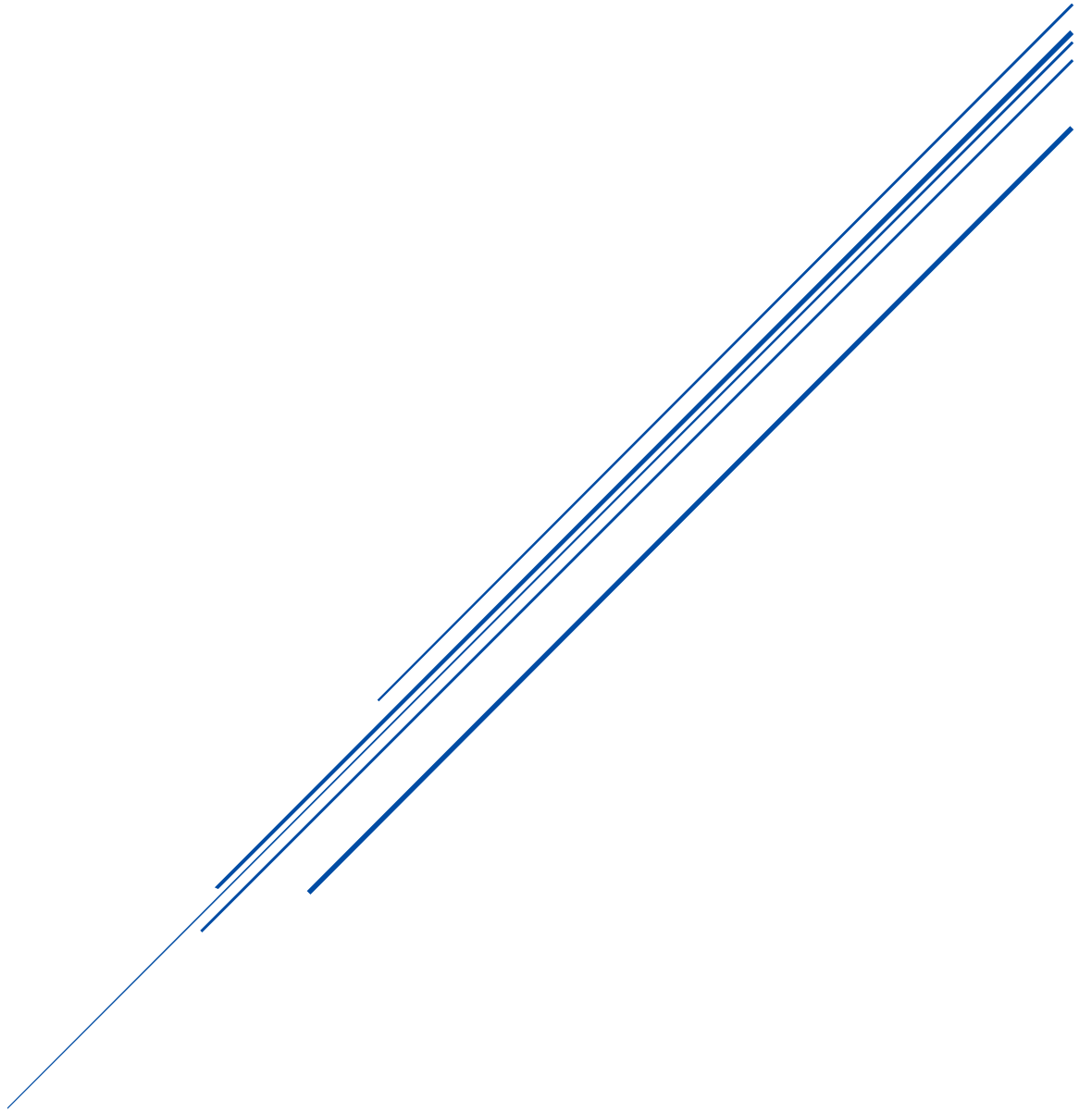# Pencil2D

White Paper

Introduction

The Problem

Many different kinds of software can create 2D animation and range significantly from the professional level to the beginner level. However, no matter what the user's experience is with 2D animation, they all seem challenging to use and involve a steep learning curve. There are many moving parts and tools that users need to create animations. Without an intuitive user interface, it can become complicated for any user and possibly dissuade them from using that software further, especially if it costs money.

A Solution

Pencil2D is an alternative to all the available animation software such that it is straightforward to use, completely free, and even open-source. Anyone can create 2D animations, including absolute beginners, and can just focus on being creative and honing their animation skills instead of using the additional time and effort to learn complicated software. And since it's free, it's accessible to more users who may want to try and use animation software, and they don't need to worry about any risk involved in determining if purchasing it is worth it. Plus, with more users, the more the Pencil2D community can grow and help each other with the available social media and further enhance the software as it is open-source.

Currently Available Animation Software

Before going into the specifics of Pencil2D, getting an understanding of the currently available 2D animation software will help put into perspective why Pencil2D is an excellent choice.

Name	Description	Cost
Pencil2D	Provides all basic needed animation functionality and is easy to learn and use.	Free
Synfig	Simple to use but lacks help and tutorials.	Free
Opentoonz	The UI is outdated compared to other software.	Free
Toon Boom Harmony	Difficult for beginners to use and requires a paid subscription.	$17+/month
CelAction	It has all the essential animation tools but requires an expensive subscription.	$71+/month
Moho (Anime Studio) Pro	Not user-friendly as functionality is very advanced.	$399.99
FlipBook	Must draw everything manually.	$19.99-99.99

Why Pencil2D?

Making an Animation

With an intuitive interface, a variety of features, and an active community, the ability to create a new animation with Pencil2D as a beginner is simple. Below are the minimum steps to create a fully functioning animation.

Step 1 | Create

Use the various available tools to create a new image or quickly import an already created image.

Step 2 | Animate

Add more frames to the project and use the onion skins feature to easily see the previous and subsequent frames.

Step 3 | Download

Click the play button to watch the animation and download it to share with the world!

Step 4 | Help

Stuck? Go to the forums or other social media platform and ask for the solution!

User Interface

The software consists of a simple-to-understand user interface which Figures 1 and 2 below show. Various panes include drawing tools, options for a selected tool, display options, onion skin options, different methods to pick colors, and of course, the animation pane at the bottom to bring everything to life. Additionally, all the panes can be moved around or removed from the software's window to accommodate a user's preference.
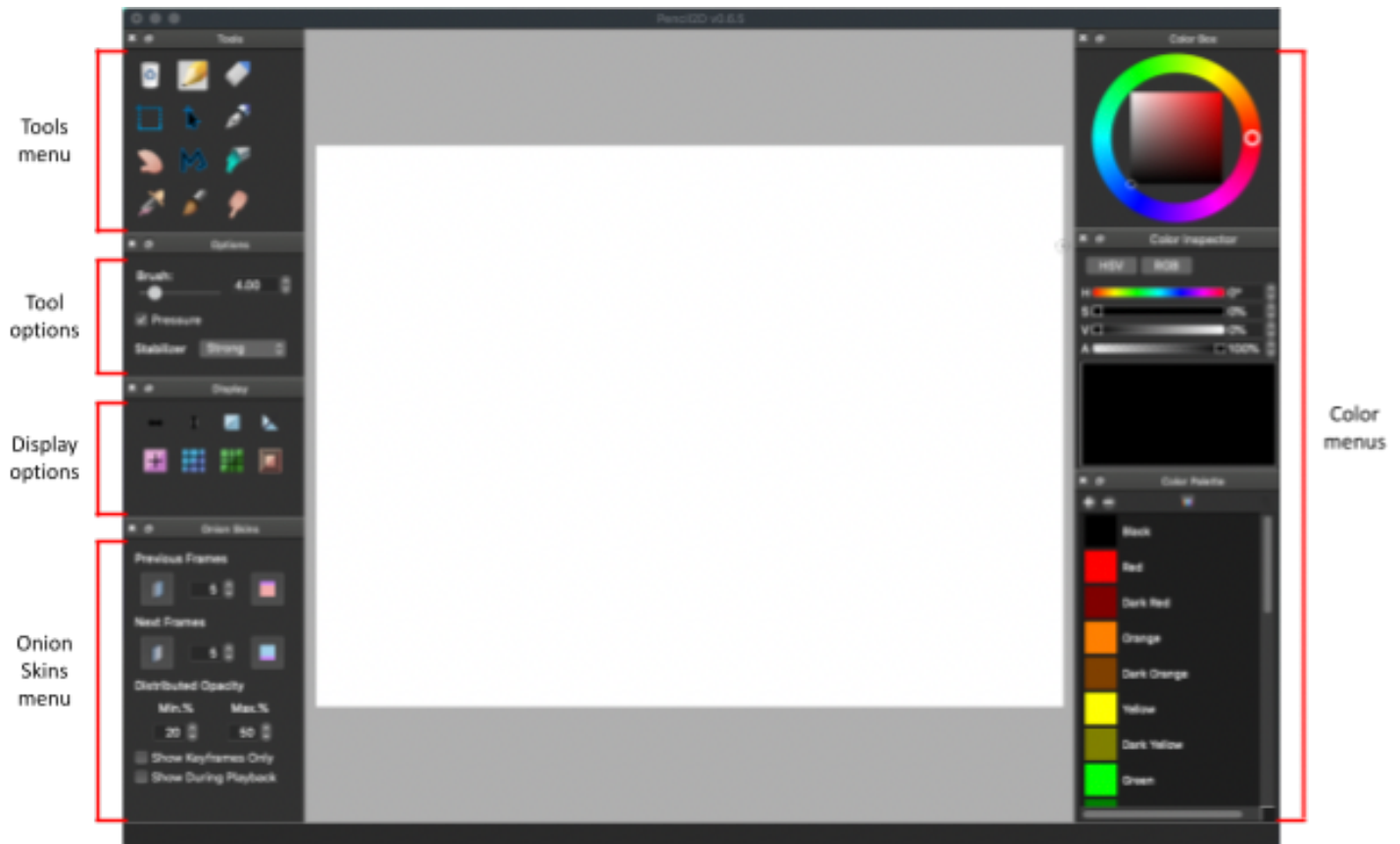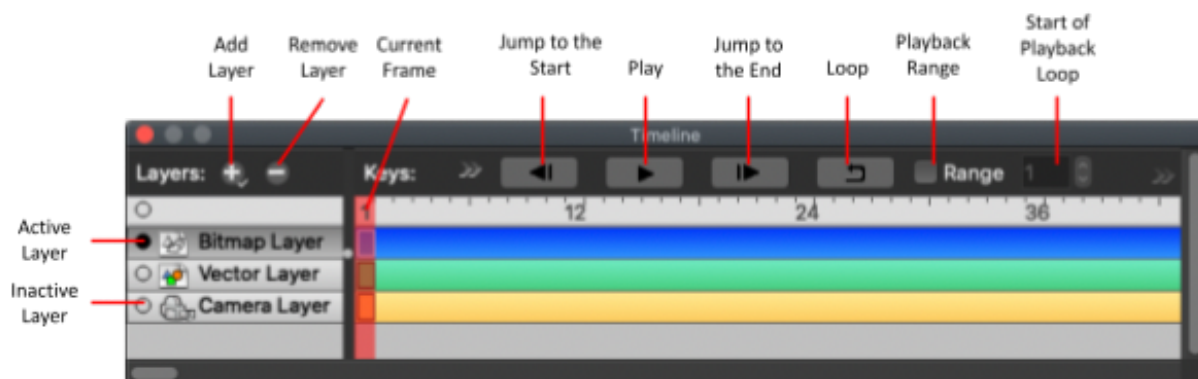

Figure 1. The user interface of Pencil2D.

Figure 2. The animation windowpane and its various functions.

Key Features

Pencil2D includes a variety of tools and functionality to make a complete animation from scratch. Users can create and design their 2D animations with these available features just the way they imagined it.

- **Vector imaging.** Create clean-looking drawings that are controlled by vectors that can be resized without loss of quality.
- **Raster imaging.** Create realistic-looking drawings stored in a bitmap format.
- **Animation.** Easily animate 2D drawings with the ability to edit frame by frame.
- **Onion skins.** Users can see several frames simultaneously to quickly determine how to change the image to animate it relative to the other frames.
- **Standard drawing tools.** Pencil2D includes all the typically used tools provided by other drawing software such as the paintbrush, pen, eraser, fill bucket, and many others.
- **Importing.** Import any images, drawings, videos, and music into projects.
- **Shortcuts.** There are shortcuts already included in the software to help users produce their projects fast.

Active Community

If any user needs some guidance, there is a community among Pencil2D who can help them with whatever issues they face or for some tips. Users also can help contribute and improve the functionality of the software amongst the developer community of Pencil2D.

- **Forums.** There are active forums on the Pencil2D website that discuss various areas, including tips on using the software, ideas, and showing off user's projects.
- **Social Media.** Pencil2D users are very active in various social media platforms, including Facebook, YouTube, Discord, and Tumblr.
- **Tutorials.** Users have posted tutorials on the various available social platforms about the different tools and tips using Pencil2D to benefit other users.
- **Open-source.** The software's code is available to anyone who wants to enhance features, fix bugs, and even add new functionality.

Conclusion

Overall, Pencil2D is an easy-to-use software that allows anyone to create traditional 2D hand-drawn animations using both bitmap and vector graphics. Its flexible technology includes all essential tools to produce completely developed animation projects that capture a user's creativity to its full capacity and bring them to life.

More Information

For more information about Pencil2D, along with how to install it, visit pencil2d.org.