



madVR Envy

# MotionAI™ User Guide

Rev 1.11

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## 1.0 Introduction to MotionAI™

Welcome to the world of MotionAI, an advanced AI-based motion interpolation technology from madVR Labs developed to revolutionize your viewing experience of movies and TV shows. Motion interpolation is the process of creating new frames to fill in the gaps between existing frames in a video, resulting in smoother, more fluid motion without blurring or juddering (jerky or stuttering motion in the video).

MotionAI is the first and only AI-based motion interpolation ever offered in a standalone video processor. It provides unparalleled improvements in image clarity, stability, detail, and smooth motion handling, providing an immersive, game-changing video experience like no other. Additionally, MotionAI enables you to keep your display always locked in at 60 fps, which can mean no more HDMI signal changes, helping to provide a seamless viewing experience across sources and playback options, depending on your overall system.

MotionAI takes motion interpolation to the next level by utilizing state-of-the-art machine learning and AI training that operates at the per-pixel level. Unlike traditional motion interpolation algorithms that work only with large blocks of pixels at a time, MotionAI delivers a crystal-clear, cinematic image with extreme detail and stable motion, without many of the distracting artifacts and shortcomings commonly found in today's displays.

MotionAI outperforms non-AI based motion interpolation commonly found in TVs and projectors. And unlike traditional motion interpolation that can cause blurry images or stuttering during fast-moving scenes or with many moving particles and objects on the screen, MotionAI maintains its efficacy effortlessly.

With MotionAI, home theater enthusiasts and professionals can finally experience movies and TV shows in all their glory, without the drawbacks of 24 fps, including motion judder and choppiness that is fatiguing on the eyes. Whether you're a casual viewer or a serious videophile, with MotionAI we are sure you will enjoy image quality like never before.

## 2.0 How To Install MotionAI

MotionAI is **only available on the Envy Extreme** and offered to a limited group of alpha testers at this time. Automatic installation will be available in future updates, but for now, installation of MotionAI is a manual process that must be performed by a madVR Labs support agent via remote login session. To request installation of MotionAI, please follow these steps:

- Contact [support@madvr.com](mailto:support@madvr.com) and request that MotionAI be set up for you, providing your Envy's serial number (found in the System Information menu). If there are any specific days and times that you do not want the Envy updated, be sure to specify this.
- Our support team will perform the installation for you as soon as possible and notify you via email once completed. In the meantime, please ensure that your Envy and display/projector is always connected to the internet until the update is installed.
- The Envy support agent will add a new Profile Group called "MotionAI" that sets the Envy output to 60p and reassigns the remote-control colored buttons to make it easy for you to experiment with the MotionAI options. To turn MotionAI off, simply deactivate the profile. You can get to the Profile menu by pressing the button that has a square with an arrow on it. Support will also add a Profile Group called "MotionAI Levels" with presets

for you to experiment with different strength levels – to achieve the perfect balance for your tastes and for the type of content being watched. For instance you may wish to use MotionAI on Low for very cinematic films and on Insane or High for documentaries or shows like Planet Earth II.

## 3.0 Understanding, Controlling and Customizing MotionAI

In this section, we'll walk you through the necessary settings and steps to use MotionAI, including how to control its strength and motion blur (to help preserve the full cinematic look), as well as tips and tricks for testing and optimizing its performance.

### 3.0.1 Required - Configure the Incoming and Outgoing Frame Rates

**Outgoing Frame Rate:** To use MotionAI, you must first force the Envy to output 60p regardless of the input signal. This is done simply by setting the MotionAI Profile to On. Or to do so manually, in the Envy Settings menu, change the “Output Frame Rate” to “60p” and save the setting to your Base configuration. This setting is required for MotionAI to turn on. If you want to go back to 24p for testing, or permanently, simply deactivate this profile, or if you changed the Output Frame Rate to 60p manually, simply change this setting back to Auto and save it to Base.

**Incoming Frame Rate:** Currently, MotionAI only works with an incoming signal of 23.976p or 24.0p. Therefore, check the Envy Incoming Signal Information menu to ensure the Envy is receiving this signal type. If using a media player like Apple TV or Kaleidescape, be sure to configure it to output 23.976p to the Envy, as these devices are often set to output 60p by default. If you try to activate MotionAI with any other signal type, it will not turn on.

### 3.0.2 Required – Configuring the Remote Control for MotionAI

When you select the MotionAI “On” profile, your remote control colored buttons will be mapped as shown below.

**Green:** Toggle MotionAI on and off.

**Green + hold** (1 second): Toggle split screen: Mode 1 (full image, half on/off), Mode 2 (50% identical image left on / right off), and Mode 3 (same as Mode 2 except mirrored).

**Blue:** MotionAI on “Low” strength. Great to retain full cinematic feel while still removing the fatiguing judder of 24p.

**Blue + hold:** MotionAI on “Balanced” strength. For most people’s taste, the perfect balance between removing almost all judder and increasing clarity and detail in the image, all while largely retaining the cinematic look.

**Yellow:** MotionAI on “High” strength. Removes nearly all judder for a very smooth image, while increasing clarity and detail even further. Great for those wanting a very realistic, sharp, and detailed image.

**Yellow + hold:** MotionAI on “Insane” strength. Removes all judder for a silky-smooth image, with unparalleled clarity, detail and sharpness. Ideal for those who prefer a highly realistic image over a cinematic look, and or for watching documentaries (such as Planet Earth II), concerts, or other such content.

**Red:** Cycle among Low, Balanced, High, and Insane MotionAI strengths.

### 3.0.3 Activating and Deactivating MotionAI

To activate MotionAI, simply select the MotionAI Profile “On” within the MotionAI Profile Group. To turn MotionAI off, select the Deactivate Profile option within this same Profile Group. The selected setting will automatically be used each time the Envy is powered on.

### 3.0.4 MotionAI Level Presets

MotionAI offers users the ability to control the strength level of the motion smoothing effect. You can select from four presets in the “MotionAI Levels Profile Group”, as covered in section 3.0.2, or by customizing the MotionAI options yourself for finer granular control.

For those who prefer a more cinematic look, the “Low” preset purposely keeps some judder, while “Insane” fully smooths the motion like it was filmed at 60p, with Balanced and High options in between. It is important to note that these strength presets are experimental, and we are gathering feedback to improve the MotionAI feature. In the end, most of these options will likely be consolidated to offer a few different looks, based on feedback from beta testers. You can use the MotionAI settings to customize the look to exactly what you prefer, as described in section 3.0.4.

### 3.0.5 Customizing The MotionAI “Look”

Although MotionAI can provide silky-smooth motion at higher strength levels, the removal of all judder can make the image appear more lifelike than cinematic for some viewers taste. If you prefer a more traditional cinematic look, adding motion blur can help you maintain that look while still enjoying the benefits of very smooth motion provided by MotionAI.

To give you more control over the appearance of motion, we therefore offer several controls for you to set to your liking. We recommend experimenting with different combinations of MotionAI Engines, strengths, and motion blur to find the optimal settings for your preferences, should you wish to tweak beyond the provided presets. We value your feedback and look forward to hearing about your experience.

**To access these controls, press the Envy remote control button with the slider icon, then arrow once to the right.**

#### 3.0.5.1 Customizing The MotionAI “Engine”

You can choose the MotionAI Engine as Alpha6, Alpha7, Hybrid and Dragon Mouth. In the future, Envy will auto select the ideal engine for you, based on your Envy model and other settings on the unit. Dragon Mouth is the most advanced and sophisticated engine and is highly recommended. However, there may be rare scenes that perform a bit better with a different engine. During this experimental time, we are therefore making the engine choice selectable.

#### 3.0.5.2 Customizing The MotionAI Engine Strength

For each engine, you can also select the Strength. The higher the strength, the smoother the image. The lower the strength, the more judder is retained. Therefore, lower strengths will provide a more cinematic experience while higher strengths provide a more lifelike image with sure fine detail and clarity.

### 3.0.5.3 Customizing The MotionAI Blur

Adding motion blur helps to preserve the cinematic look by dynamically adding blur to faster moving parts of the image, while still removing the fatiguing judder of 24p. You can also choose from Blur Mode 1, 3 and 4 or choose to use no blur. With Blur Mode 3 and 4, you can also specify the strength of the blur and the “width” of the blur. The higher the strength, the more cinematic the image. And the lower the strength, the more crisp, clean, detailed, and lifelike the image. Lastly, the wider the blur (controlled by the Width setting), the more impact the blur setting has.

As you can see, combining the MotionAI Engine, with its overall Strength setting, and optional Blur Mode, and varying the Strength and Width of the blur, allows for virtually unlimited experimentation and customization. There are multiple ways to achieve a similar look. For instance, using a lower engine strength, without blur, may produce a similar look to using a higher engine strength with blur, but with differences that may lead you to your favorite settings.

In general, some find that a lower overall strength may be best dialed in by using a higher strength with blur, as opposed to low strength without blur. In the production release, we anticipate removing some of these options to simplify the controls, while still retaining the ability to have similar granular control over the “look” of MotionAI.

### 3.0.5.4 Tip: Save Your MotionAI Settings To Profiles!

A very powerful way to experiment and perform A/B testing to find your favorite MotionAI settings, especially if customizing settings, is to save your settings to Profiles in the Envy. Then you can use the new “Activate Profile” or “Cycle Profile” actions in the Remote Control Configuration menu to recall your favorite settings or cycle through multiple settings with the press of a single button on the Envy remote. To do so, you might require learning about Envy Profiles, which is beyond the scope of this document. See the Introduction To Profiles Guide in the Downloads section at [www.madvrenvy.com](http://www.madvrenvy.com) for more information.

### 3.0.6 MotionAI Split-Screen Modes

MotionAI also supports multiple split-screen modes that are great for A/B testing. In the first mode, the left side of the image is shown with MotionAI, and the right side is shown as 24p. In the second mode, the middle 50% of the image is shown on both sides of the screen, with MotionAI only active on the left. There is also a third mode, that is the same as the second, but mirrored. The mirror option may have limited value so it is not discussed further in the guide and will likely be removed in a future release, unless we receive feedback that it is valuable. See section 3.0.2 for information on how to toggle between the split-screen modes.

## 4.0 Techniques for Evaluating MotionAI

To get the most out of MotionAI, it is important to understand the MotionAI options, which types of scenes are best to test with, and what to look for when evaluating the scenes. For example, scenes with a lot of motion, whether fast or slow, are ideal for evaluating MotionAI. But even scenes with little movement can benefit from the clarity and stability it brings.

When evaluating MotionAI, please experiment with different MotionAI presets as covered in section 3.0.4, or multiple customized settings as covered in section 3.0.5, to find what works best for you. Also, the use of both full-screen and split-screen modes are highly recommended during your evaluation. In full-screen mode, toggling MotionAI on and off

for the entire image allows for a quick comparison of the difference in image clarity and stability. For fast-motion scenes, try toggling MotionAI on and off every few seconds to see the impact it makes.

The split-screen comparison modes are also highly effective. In the first mode, where only the left side has MotionAI activated - as the panning image passes through the split-screen dividing line, watch as MotionAI magically removes the image flaws and “purifies” the image. Lastly, using the second split-screen mode allows you to compare the exact same portion of the image concurrently with and without MotionAI.

Try toggling MotionAI on and off even in scenes with little motion. Observe how fine details, such as pores on a person's face, remain clear with MotionAI activated, and how they may weaken with even slight movement when MotionAI is off.

As a reminder, information on how to toggle MotionAI on and off, and how to change its strength and motion blur options, are covered in section 3.0. In the next section, we list specific examples of scenes that are well-suited for evaluating MotionAI and explain how to best use the comparison modes in your evaluation.

Important: When evaluating MotionAI please make sure that you have turned off any motion interpolation features in your display.

#### 4.0.1 Recommended Starting Settings

Although we encourage you to experiment with the MotionAI settings to find what works best for your personal taste, we understand that you are likely busy and may want some quick pointers where to start. If you might prefer a more lifelike look, we recommend starting with the “MotionAI Level” Profile Group set to “High”. If the image appears too lifelike and you would like a more cinematic look while keeping the silky-smooth motion, try switching to “Balanced”. If you still prefer the image to be a little less smooth, try “Low”. For the strongest setting, which you may prefer especially on documentaries or shows like Planet Earth II, try “Insane”. Continue testing scenes and repeat the process, trying different settings, until you find your preferred MotionAI settings.

You might even find that you prefer different MotionAI settings when watching different types of content, such as animation, sci-fi, drama and action movies.

Review section 3.0 for more information about the different preset and customized Looks you can use with MotionAI. See section 7.0 for more information about acclimating to MotionAI and how your preferences for its settings may change over time.

## 5.0 Popular Scenes for Evaluating MotionAI

This section provides a list of popular scenes that are ideal for evaluating MotionAI's performance and for making A/B comparisons. By using these examples, you can easily see how MotionAI enhances image clarity, stability, and detail, providing an immersive video experience. Refer to section 3.0 for instructions on how to turn MotionAI on and off for both full-screen and split-screen comparisons, how to control the MotionAI strength and motion blur options, and how to ensure that your media player and your Envoy are setup as required for use with MotionAI.

Note that the 24p experience in the A/B instant full-screen and split-screen comparisons is provided using Envy's Frame Blending feature (see section 8.0). This feature can enhance the quality of 24p on certain displays, possibly making it look better than it is and maybe better than how you have been watching 24p in your theater.

We recommend using Frame Blending for most of your comparisons, or at least starting this way, because it makes comparisons instant and easy. However, if you want exact 24p vs. MotionAI comparisons, you will need to deactivate the MotionAI Profile, or manually change the Envy Output Frame Rate from 60p to 24p. Then reverse this to go back once again to using MotionAI. Keep in mind that if you do comparisons this way, you won't be able to use the split-screen and instant full-screen comparisons, because switching between MotionAI on and off will take several seconds as the HDMI signal needs to resync. Nonetheless, viewing your favorite sequences with this type of comparison may give you an even greater appreciation for MotionAI's benefits.

After evaluating these scenes, you may find yourself re-watching these entire movies like never before with MotionAI!

### 5.0.1 “Ready Player One”: 00:11:55 – 00:16:56 (Car Race)

To evaluate MotionAI in this scene, we recommend using the full-screen comparison mode. Start at 00:11:55 with MotionAI on and watch how smoothly the car animates as it is built after Wade throws his keys on the ground. Then jump back and watch the same section with MotionAI off, before trying again while toggling MotionAI on and off every second or two.

Next, compare how things look with and without MotionAI as Wade enters the car and the camera pans from the side to the front, from 00:12:10 to 00:12:16. Then, watch the entire car race scene through 00:16:56 while toggling MotionAI on and off quickly.

Finally, sit back, relax, and watch the entire scene with MotionAI on. Despite how many times you may have watched this scene before, we guarantee you'll enjoy it like never before with MotionAI!

### 5.0.2 “Ready Player One”: 00:44:20 – 00:49:15 (Dance and Battle)

Toggle MotionAI back and forth while watching this scene. Then watch the scene again with MotionAI on. Like with the Car Race scene above, we believe you may be in awe of the highly immersive picture quality that MotionAI delivers.

### 5.0.3 “1917”: 01:02:17 – 01:02:27 (Tree Panning)

This scene is great to evaluate using both full-screen and split-screen comparison modes and hardly needs any explanation. Try it one way and then the other. Watch how the trees and landscaping along the upper half of the image judders like crazy with MotionAI off and the improvement with MotionAI on.

### 5.0.4 “Coco”: 00:04:11 – 00:04:47 (Marketplace)

Watch with MotionAI on at the start of this scene in full-screen comparison mode. Notice how smoothly the camera pan is, as it moves backward, away from the table, and how smoothly the column comes into view. Repeat with MotionAI off.

Next, with MotionAI off, observe as Miguel exits the shop and runs down the street towards the market, continuing until the dog falls out of the trash can at 00:04:39. Notice the significant amount of judder along the walls and with the mariachi band, as well as the distortion this causes to the guitar and to the marketplace table as it pans by. Then, go

back to where Miguel exited the shop and watch this part again but with MotionAI on. Observe the massive improvement in image stability and clarity.

Try repeating the same scene but this time while toggling MotionAI on and off every few seconds throughout the clip. Afterward, switch to split-screen mode and watch how the dividing line magically erases the 24p artifacts and purifies the image as the content pans across the dividing line.

Please be aware that this scene is currently affected by the pixelation issue covered in section 6.0.2. We are actively working on a resolution and hope to have it fixed soon.

### 5.0.5 “Aquaman”: 01:21:38 – 01:33:38 (Marketplace and Roof Top Chase)

This scene is a goldmine for MotionAI demo material. Start with the beginning of this scene, with the “fly in” over the water until you see Mera get out of the pickup truck. Go back and forth, comparing these pans with MotionAI on and off. Skip ahead to 01:25:21 and compare the panning in the cliffs and into the “battle circle”.

Then at 01:56:25, watch as Black Manta arrives - this entire sequence is ideal for testing MotionAI using the same techniques covered earlier. From 01:28:18 to 01:28:51, there is a lot of panning and spinning where the benefits of MotionAI really shine. Another exceptional sequence to evaluate is the roof top chase from 01:30:12 to 01:30:46. Try watching in full-screen mode and toggling MotionAI on and off quickly as the villain runs through the walls. Don't miss testing the “spin” at 01:30:40 with MotionAI on and off!

### 5.0.6 “Deadpool”: 00:00:40 – 00:09:10 (Opening Scene)

Start by watching the opening credits from 00:00:40 to 00:02:26. This sequence features several slow pans which exhibit significant judder at 24p. Toggle MotionAI on and off in full-screen mode, then watch it again in the first split-screen mode to see the judder removed by MotionAI as the content passes over the dividing line. We also recommend watching with the second split-screen mode as well.

Next, skip ahead to 00:07:06 and watch the action sequence in full-screen mode, toggling MotionAI on and off until it ends at 00:09:10. You'll notice a significant improvement in clarity and stability with MotionAI turned on. You may find the second split-screen mode also effective.

### 5.0.7 “Lucy”: 01:15:32 – 01:15:47 (Chair Spin)

Among many great scenes in Lucy, this clip stands out for MotionAI testing. Watch as Lucy sits on the spinning chair as it passes by cliffs and over the water, first with MotionAI off and then with MotionAI on. Then watch again in split-screen mode.

### 5.0.8 “Sonic 2”: 00:54:10 – 00:56:25 (Snowboard Chase)

While Sonic 2 may not have the most captivating plot, it boasts impressive HDR video and Atmos audio quality with exciting action sequences, making it a prime candidate for showcasing MotionAI. In full-screen mode at 00:54:10, watch as Sonic is chased. Quickly toggle MotionAI on and off to observe the unstable and jittery image when off, and the transformative effect of MotionAI when on.



To fully appreciate the benefits of MotionAI, we recommend testing this scene with your display's motion interpolation and comparing it with MotionAI. With its advanced AI-based technology, MotionAI can provide superior handling of fast-moving particles and objects in this action-packed scene, resulting in clearer and smoother motion.

#### 5.0.9 “The Greatest Showman”: 00:00:00 – 00:02:55 (Opening Scene)

Toggle MotionAI on and off as P.T. Barnum walks past the two sets of bleachers at the 00:01:09 mark. Also try this with split-screen mode 2. Continue watching as he performs for the audience. Then pay particular attention starting at the 00:02:03 mark, as the camera pans while the characters are dancing and twirling. Continue watching until the scene ends with a slow plan of P.T. Barnum as a child, seeing himself in the window. Use both full-screen and the split-screen modes for these parts as well.

This is an excellent scene to look for your preference for a lifelike vs traditional cinematic look, particularly during the dancing and twirling referenced above. If you feel the action here is too lifelike for your taste, try the motion blur modes and to see if the movie then looks cinematic to you again, while retaining the smooth motion. If after adding the motion blur you feel the image is too lifelike, try a lower MotionAI strength.

#### 5.0.10 “Baby Driver”: 00:06:30 – 00:09:15 (“B-A-B-Y Baby”)

We invite you to take a closer look at one of the most judder-filled scenes presented in this section. In this scene, Baby strolls down the street, offering a treasure trove of opportunities to test judder. By toggling MotionAI on and off while watching in full screen, and rewatching using split-screen mode 2, you can easily evaluate the full range of motion handling options available to you using MotionAI. Even the biggest proponents of 24p may be surprised by the results and reconsider their preferences.

While judder occurs in throughout this scene, we have selected a few specific moments to pay particular attention to:

- Judder in the vertical pan of the building at the scene opening.
- Detail in the small bushes at the side of the street, just before the rollerblader.
- Camera pan and spinning, along with Baby pan and spinning around the light pole, right after the rollerblader.
- Judder in the wall mural as Baby salutes.
- Judder and blur level of the woman who’s back is to the camera, at the bank machine.
- Judder with the construction worker with the orange and yellow vest.
- Judder with the two businessmen walking out of the building. [Fun fact: While it looks like the actors missed their cue to exit the doors, the delay in their movement was reportedly intentional.]
- The coffee shop segment features two excellent slow pans – one in each direction.
- Watch the zoomed-in coffee cups at the 09:10 mark. With MotionAI off, notice the far-excessive blur of the cups as they bob up and down as Baby walks. Watch the cups again with MotionAI on to see more realistic movement, and check with and without motion blur added, to help evaluate your preferences for motion blur.

Note: The flutter in the opening credits in this scene is a great example of the known issue with “text flutter” discussed in section 6.0.2.

## Section Summary

In this section we covered specific scenes that are perfect for evaluating MotionAI's performance, including how to adjust MotionAI based on your preference for a lifelike vs cinematic look. The section also showed how to make effective A/B comparisons, both in full-screen and split-screen modes. By evaluating these examples, you can easily see how MotionAI improves image clarity, stability, and detail, providing a truly immersive video experience. Further, this section should help you understand how to best evaluate other content.

As you discover any great demo scenes of your own, please feel free to email us at [motionai@madvr.com](mailto:motionai@madvr.com) with the movie title and timestamp to share your recommendations with us!

## 6.0 Acclimating To MotionAI

It is important to keep an open mind and reserve judgment on how much you like MotionAI overall and what your preferred settings are until you have spent a fair amount of time experimenting with it. Everyone has their personal taste when it comes to the look they prefer, whether it's a more cinematic or more lifelike appearance. For some people, the experience of MotionAI can be an acquired taste, much like developing a taste for a new food or drink.

You may find that initially the higher strength settings make the motion appear too smooth and lifelike and prefer lower strength MotionAI settings. You might also find that you prefer different MotionAI settings when watching different types of content, such as animation, sci-fi, drama, and action movies. Or enjoy it more with content that has more film grain. Therefore, it's important to spend some time acclimating to the various looks of MotionAI and experimenting for the first few months to decide on your preferences.

## 7.0 Known Issues and Limitations

At this point, all known issues with MotionAI have been resolved, except for as detailed in this section. Please keep in mind that the software is still in a late alpha/early beta testing phase.

**7.0.1 Rare artifacts:** On rare occasions you might find some "tearing" or part of an image that moves position unexpected in a particular scene. Please report this to us.

**7.0.2 MotionAI does not activate:** On rare occasions you might find that the video freezes after performing a chapter skip or FF/REW function. We now have a way to reproduce this, and a fix should be available very soon. To handle this, assign the "Reload" to the Power+hold function on the Envy remote control. Should you encounter the freeze, press and hold the Power button on the remote for one second, and the image will be restored within a few seconds. Alternatively, you can turn the unit off and back on.

### MotionAI Limitations

Currently, MotionAI only works when the incoming signal is 23.976p or 24.0p. Further, MotionAI only outputs at 60p (for instance you cannot output 50p). We plan to soon offer other modes including 4K48, 4K120 and 8K48 for displays that support it. Lastly, MotionAI is not yet available for the original madVR Envy Extreme units produced in 2020.

## How to Report Issues

If you encounter any of the above issues, there is no need to report this, as we are well-aware of these issues and have plenty of examples to go by. However, if you have an issue that is not covered by any of the above, please email [support@madvr.com](mailto:support@madvr.com) with the subject “MotionAI issue [title here]” and explain the problem in detail. It is also very important that you provide the name of the movie and a precise timestamp so that we can reproduce the issue and work on a timely resolution.

## 8.0 Feedback Please

We value your opinion on MotionAI and would love to hear your impressions. Your feedback can help us continue to improve and provide the best possible video experience. We are particularly interested in hearing what your preferred MotionAI strength and motion blur settings are, and understanding the extent to which you feel MotionAI enhances the picture quality and improves your viewing experience.

Whether you have any suggestions, feedback, or simply want to share your experience with us, please email us at [motionai@madvr.com](mailto:motionai@madvr.com). Similarly, if you encounter any issues, please refer to section 6.0. We appreciate your feedback and look forward to hearing from you.

## 9.0 Frame Blending and Its Role in Evaluating MotionAI

If you are wondering how the Envy can show the difference between MotionAI running at 60p Vs 24p, without changing the framerate from 60p, this section explains it. The Envy uses a technique called Frame Blending, which simulates the look of 24p content while running at 60p. This allows for instant toggling between MotionAI on and off, as well as split-screen views with MotionAI activated on one half, and off on the other, without the need for HDMI handshakes that cause delays and make comparisons more difficult and time consuming.

Frame Blending was originally developed to improve the rendering of 24p content on displays with inadequate 24p support, but in this use case it is highly valuable for evaluating MotionAI. It enables seamless comparisons between 24p and MotionAI, without having to change the Envy Output Framerate between 24p and 60p. This is because framerate changes cause HDMI handshakes that can last several seconds, making comparisons more difficult.

However, it's important to note that using Frame Blending to show 24p content at 60p may be more flattering to 24p than how 24p looks, since Frame Blending was originally designed as a poor-man's-native-24fps-mode for displays which didn't support 24p at all, or did so rather poorly. To observe the true look of 24p on a display, it is necessary to switch the Envy Output Frame Rate setting back to 24p. After evaluating 24p, switch back to 60p to use MotionAI again.

In summary, Envy's Frame Blending feature enables easy A/B comparisons between MotionAI on and off, without the need for HDMI handshakes. However, to observe 100% of the true look of 24p on a display, it is necessary to switch the Envy Output Frame Rate setting back to 24p.

## 10.0 Conclusion

In this guide, we introduced MotionAI, a groundbreaking AI-based motion processing technology from madVR Labs that enhances the viewing experience of video content. MotionAI offers unparalleled improvements in image clarity, stability, and detail, providing a truly immersive video experience.

We discussed how MotionAI works, its key features and options such as strength and motion blur, and how to use it effectively. Additionally, we provided a list of popular scenes that are well-suited for evaluating MotionAI's performance, along with specific instructions on how to make effective A/B comparisons. We also covered known issues and how to report any issues you find, as well as the role of Frame Blending in evaluating MotionAI.

Please be sure to send feedback on MotionAI or this guide to [motionai@madvr.com](mailto:motionai@madvr.com). Although MotionAI is currently in alpha testing and some issues remain, we believe it has the potential to revolutionize the way we watch video content and provide the most immersive and truly cinematic experience. We thank you for coming along on this journey with us!