Using Kontakt's

AET Filter

For

Volume Dynamics Control

Part 2
Advanced Issues

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Please Read This

      This document is incomplete. Originally David Carpenter planned to finish Part 2 of the AET Guide shortly after I released Part 1 (in May of 2012). When that didn't materialize, he was hoping he might complete it by the time WIPS was ready for release (late August). However, that hasn't happened either and most recently, I have not been able to get hold of him at all.

      All I have ever received from David for Part 2 is a rough outline and several draft paragraphs and that's about where it has stalled. His intention was to flesh out this material and to add some meaningful case studies. But, since that hasn't happened, I have decided to release Part 2 in the state it has been since May. While this document is incomplete, there is some information contained in it that others may find useful. Needless to say, if David ever surfaces again and completes this document, I will notify everyone.

Rejoice,

Bob

1.0 Introduction

When using the AET filter several different factors can contribute to the final sound quality of AET morphing. Exploring practical considerations of Authentic Expression Technology will further assist in creating high quality transitions between sample layers. Properly using midi controllers with the AET filter is also an important part of fully optimizing playability.

2.0 Morph Layer Quality

AET works in a similar way to picture morphing. For example a spectral image is created that morphs two pictures together. Morphing a tiger into a leopard has a smooth transition because the overall characteristic of the two animals is similar. The same rule applies when choosing an ideal sample set to use with the AET filter. By looking at the aspects of the envelope and transients of adjacent sample layers visually you can determine if they are similar enough to each other to morph seamlessly.

In order to visually inspect a sample set pick a note in the middle of the range of the instrument. Open up the softest layer p into the wave editor then click on the adjacent pp layer visually inspect the envelope of the sample in comparison to each other. The shape, ADSR or envelope outline is more important than the loudness of the sample. In most cases if there is a nice visual transition then a quality morph layer can be created.

There are a few ways to determine after the morph layers have been created if the AET Filter is functioning Properly. First play through each available note from soft to loud if everything sounds like it is transitioning smooth between layers then you are set. If you play through and some note transitions produce erratic or choppy transitions this may be because the sample set is not suited for morphing out of the gate.

To visually confirm if the AET filter is functioning smoothly expand the AET filter and observe the filter curve. It is a graph that represents the actual, currently active filter response, which is the difference between the analyzed frequency response of the source and target. Below the filter curve graph you will see the morph curve view the shows the position of the filter in relation to the different morph sample layers. A smoothly functioning AET filter curve graph will display a gradual increase low to flat line with the majority of the hills and valleys below the center of the graph increasing to center.
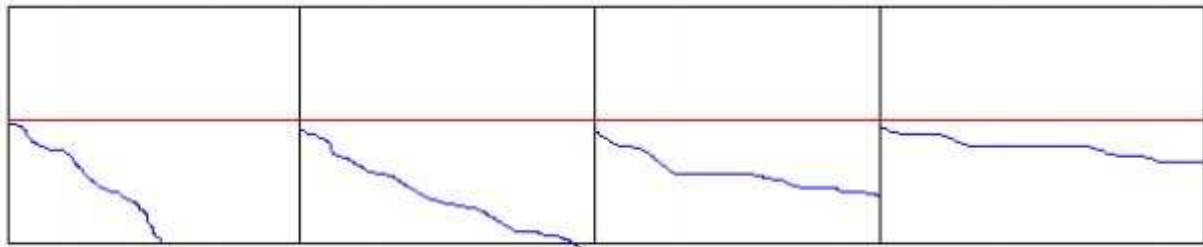
Good
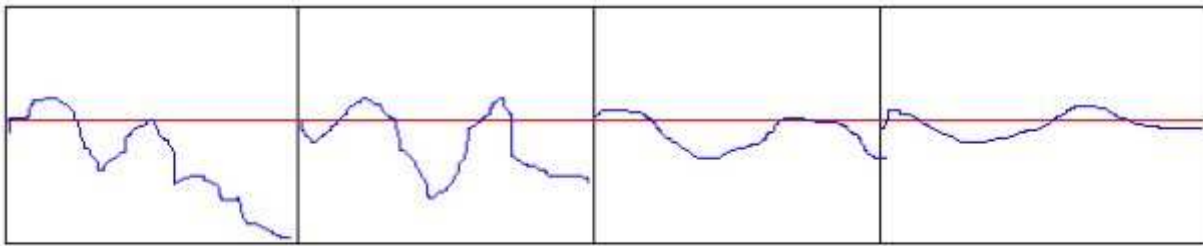
Bad

If your filter curve is bad or there are too many hills and valleys displayed in the graph above center then a change in the morph layers is necessary. Listen carefully to where the bad transition occurs then look at the morph curve view to determine which sample layers are affected. From here simply remove the affected upper or lower morph layer from the morph map. This reduces the amount of layers in the morph map but can stabilize the performance of the AET filter. Re test after altering the morph map observing the filter curve graph and by listening to determine if it a has a positive result. In most cases this has a positive impact making a seemingly unusable sample set functional.

In some cases there are only one or two notes that don't want to morph properly. Individual problem notes can be removed and replaced by copying and pasting existing adjacent notes then matching the pitch to the respective key. Similar to TKT you can alter the pitch of a note higher or lower and replace a bad one without much impact on final sound of the note.

3.0 Cohesive Sample Volume

From section 3.1 we know that the morph knob works in a linear type fashion where as our sample set can be not so linear in terms of sample layer range within the morph knob. Taking what we know about the mod table to correct or match to the original velocity ranges in theory should work controlled by a cc message in the same range. However the sample layer volume and sample layer range requirements change when using a cc message to control previously velocity controlled sample set. For instance a breath controller reacts differently than velocity and the mod wheel reacts differently than a breath controller when played. If the mod table method is not providing a smooth enough volume transition or loud enough change from layer to layer then there is another solution.

Let's take for example a four layer sample set. Look at the zone volume level in the mapping editor for each layer. Increase or decrease the volume for the entire sample layer make sure all the samples are at the same level before altering. If they are not all the same when you select them question marks will appear in the zone volume display. Determine which samples are already individually adjusted and apply the adjustments to those individually. This method can further smooth out the layer transitions. Start modest like -6,-4,-2,0 sometimes a more drastic sample volume adjustment is necessary like -36,-24,-12,0. Equal amounts in between layers is a good starting point however depending on the original sample recordings this can differ greatly.

By adjusting the sample layers volume in the mapping editor you can more closely match a natural volume progression, and obtain smoother transitions from layer to layer for any given method of control. Overall this can greatly impact how fluid the AET filter sounds thus improving its performance.

4.0 Breath Control of AET

Using a breath or wind controller to control the AET morph knob is a great way to add realistic wind instrument control over the AET filter. The characteristics of this method of cc control more closely match the original way of playing a wind instrument.

To use a breath or wind controller to control the AET morph click the mod button then add an external source from the drop down menu then select midi cc. From here change the midi CC to the standard CC2 for breath control. Now the wind or breath controller is controlling the AET morph. If you use the same CC2 to control the main amplifier instead of velocity this provides a nice way of linking and controlling Dynamic Volume with breath control.

Now that breath is controlling the amplitude and the morph there are a few methods that can optimize the feel and patch quality. Breath control has a very fast method of note on and note offs. This pushes the AET filters capabilities. If morph layer transitions happen too quickly zipper or pop noises can be produced. Since the breath or wind controller has fast note on and offs slowing down or introducing controller lag can help smooth out fast on offs. If too much lag is introduced then the patch becomes less responsive. Finding the balance between smooth transitions and responsive control is the key.

Start by introducing 10ms of lag to the AET modulator smoothing box for CC 2 then go up from there to around 80ms at max. The same amount of lag should be applied the amplifier modulator to match. Another method of smoothing out or adjusting the breath response is to edit the modulation shaper table. Here breath contour can be applied to assist rate and slope of the controller. Also when dealing with harsh note offs you can raise the first point or start point of the table up slightly by a few percent around 1 to 5 percent this can help lower the amount of lag needed for a smooth fast note off.

5.0 Mod Wheel Control of AET