DIAMANT-FILM
RESTORATION
HS-ART Digital Service GmbH

Dietrichsteinplatz 3
A-8010 Graz; Austria
Tel: +43 316 915 998
http://www.hs-art.com

What is new in DIAMANT-FILM Restoration V17

The major innovations of V17 compared to the previous version V16 are shortly described in the following.

In addition to this printed section, we also offer a VIMEO channel with video tutorials. There are tutorials for general usage as well as for specific repair and filter parameters:

https://www.hs-art.com/index.php/tutorials/video-tutorials-overview

AI Filter availability on MAC

The new version brings a big enhancement for MAC users. For the first time it is now possible to run different AI filters not only on Windows, but also on MAC.

To achieve this a server process is initiated that accepts AI filters for rendering and executes them in the desired environment (either Mac or Windows).

The new AI filters available are:

- DeepClean
- DeepScratch
- DeepInPaint
- DeepInPaintV2
- DeepNoise

Restoration Filters

The new major version of DIAMANT-Film brings some totally new filters and some more fundamental re-work and improved filter features.

DeepClean

DeepClean is a completely new development based on latest AI technology to detect and classify single image defects. It is an efficient alternative and further elaborated filter compared to the previous DeepDust.

The filter contains not only a new detection, but also a sophisticated mask processing that is applied before the actual repair takes place.

As a last phase the repair is done on the basis of the well know Dust filter.

The concept of the filter is to increase automatism and quality and to reduce requested operator efforts.

DeepScratch

This new filter merges the capabilities of the earlier DeepScratch and DeepSratch_V2 into one new filter. The earlier DeepScratch filters are now available in the “outdated” section.

The filter works in 2 passes, the firs called “Detection” and the second “Repair”. Each pass offer different modes to allow any combination of detection method and repair algorithm.

Wie arbeiten aufgrund der Allgemeinen Bedingungen für den Verkauf und die Lieferung von Software - Support Leistungen, sowie für Dienstleistungen in der Informationsverarbeitung durch Rechenzentren und den Verkauf und die Lieferung von Organisations-, Programmierleistungen- und Werknutzungsbewilligungen von Softwareprodukten - empfohlen vom Fachverband Unternehmensberatung und Datenverarbeitung sowie vom Bundesministerium des Maschinenhandels, Berufsgruppe Büromaschinenhandel und bei uns zur Einsicht liegenden Fassung.
Handelsregister: FN 175664f; UID: ATU45810109; EORI: ATEOS1000008592
Raiffeisenbank Lieboch-Stainz BLZ: 38210, Konto: 27656, SWIFT/BIC: RZSTAT2G210, IBAN: AT253821000000027656

Dietrichsteinplatz 3
A-8010 Graz; Austria
Tel: +43 316 915 998
http://www.hs-art.com

DeadPixel

This filter has been overworked and improved. Specific focus is to be put onto the "Auto detect" mode in order to reduce manual operator intervention. In addition a new pass called "Mask Filtering" has been added to allow filtering of the detected pixel regions before their repair. Find more information in the specific section of Mask Filtering later on in this document.

IR Cleaner

The filter parameters and behaviour has been slightly reworked. The default mask type is now based on a reliable mask (=global threshold) where any value above the threshold is included into the mask. As an alternative a "RAW IR" can be selected, where the meaning is based on local thresholds, meaning that any relative value change between neighbouring pixels above the local threshold builds the mask. In both cases closed structures such as rings are filled-up before the repair is applied.

External 3rd Party Plugin Filters

V17 comes along with two external 3rd party plugins in DEMO mode. Also all our own filters are part of the full DIAMANT-Film Suite, this is for licensing purposes not possible with external 3rd party plugins. Such filters create additional licensing costs, that are forwarded to the copyright owners of the plugins.

However, the included DEMO version gives an idea of how the filter works, but introduces a burned-in watermark. Only after getting a licensed version, either from us (sales@hs-art.com) or directly from the partners, the full image without watermark will be available.

Contact sales@hs-art.com if testing is successful and a licensed version is required!

ColorMatch

This new filter is capable to match the colors of a film clip based on reference colors. The refrence colors can come from a sample image or even an Additional Source having a worse overall image quality but correct colors (e.g.: matching from color positive print to a negative and thus add verified and authenthic colors on the best available images).

The filter has been developed by our cooperation partner Menno Dreischor and his company TIPb (Netherlands). It is based on an innovative matching of the reference image to the give source and calculation of a specific 3D-LUT. This LUT can further on be applied on the level of a full scene or even a clip.

Usually the best results are achieved, if one reference image per scene is used.

DyeFading

This filter is result of our cooperation with Scan2Screen (https://scan2screen.com/) and has in its first version already been introduced in V16.5. However, now it is fully working and practically verified to correct faded film material and restore the authentic colors, depending on the original film stock.

The filter has been developed by the color scientists Giorgio Trumpy and Barbara Flueckinger. The filter is grounded in the materiality of the image. Rather than simply adjusting RGB values in a digital scan, the tool analyses the remaining dye concentrations to estimate and reconstruct the original dye levels. The result of this material-based method is a restoration with greater subtlety, fidelity, and visual coherence, often surpassing traditional color grading methods.

Wie arbeiten aufgrund der Allgemeinen Bedingungen für den Verkauf und die Lieferung von Software - Support Leistungen, sowie für Dienstleistungen in der Informationsverarbeitung durch Rechenzentren und den Verkauf und die Lieferung von Organisations-, Programmierleistungen- und Werknutzungsbewilligungen von Softwareprodukten - empfohlen vom Fachverband Unternehmensberatung und Datenverarbeitung sowie vom Bundesministerium des Maschinenhandels, Berufsgruppe Büromaschinenhandel und bei uns zur Einsicht liegenden Fassung.

Dietrichsteinplatz 3
A-8010 Graz; Austria
Tel: +43 316 915 998
http://www.hs-art.com

The filter requires the definition of a reference black-point and then calculates the color shifts of the old film in order to reverse the fading process. This procedure automatically sets a so called "Reference".

In addition to the black-point a ROI can be defined that acts as an analysis ROI for modelling the fading process. In the parameter finding process, the first tests should usually be done without an explicitly marked analysis ROI. Only if the results should be fine-tuned, an analysis ROI focusing on the image content itself can be used. Please note, that the analysis ROI is used only on the Reference image!

Masks

Since their introduction in the previous version, the filters for the mask track have been streamlined and generally improved according to customer feedback. A new filter is also introduced in this version:

MaskRefine Filter

The filter provides explicit access to prepare a noisy mask for further use in the restoration process. Such a mask could be loaded from an external source (e.g.: AdditionalSource) or be created by one of the differend mask filters in a lower track of the timeline.

Various parameters control how the different regions resp. spots of the mask can be manipulated (increased in size, limited to specific shapes, etc.).

Improved mask handling in diverse filters

It is a common requirement for some filters to adapt the detected defects before their actual repair. For this a new generalized parameter group has been developed, that is available with filters such as DeepClean, DeadPixel, but also in slight variations with Dust, DeepDust and DeepScratch.

Render Manager

As some of the new AI filters are extremely demanding in terms of graphic card requirements, RenderManager has been revised in order to support specific AI render capabilities on Render Clients.

Wie arbeiten aufgrund der Allgemeinen Bedingungen für den Verkauf und die Lieferung von Software - Support Leistungen, sowie für Dienstleistungen in der Informationsverarbeitung durch Rechenzentren und den Verkauf und die Lieferung von Organisations-, Programmierleistungen- und Werknutzungsbewilligungen von Softwareprodukten - empfohlen vom Fachverband Unternehmensberatung und Datenverarbeitung sowie vom Bundesministerium des Maschinenhandels, Berufsgruppe Büromaschinenhandel und bei uns zur Einsicht liegenden Fassung.

DIAMANT-FILM RESTORATION
HS-ART Digital Service GmbH

Dietrichsteinplatz 3
A-8010 Graz; Austria
Tel: +43 316 915 998
http://www.hs-art.com

What is new in DIAMANT-FILM COLORIZER V17

It is only one step from V16 to V17, but there are many new features and functions available to ease the work with our COLORIZER.

New Filters

This version introduces some significant innovations in the domain of recolorisation that revolutionary increases work efficiency and quality. These filters have been developed in a joint research project called ReCoDi, where the Technical University of Graz adopted latest AI technology to do the core-algorithms that have then further been integrated into the COLORIZER workflow by our team.

ReColorImage

This filter can automatically give color to a single reference image. The filter can use free-word textual descriptions such as “colorize like in the 1950’s” to get some guidelines and optimize the output. The filter is specifically capable to colorize complex structures such as trees, natural flowers, etc. in a very natural look. ReColorImage creates different proposals that gives a choice to the operator. In addition, some color scribbles can be marked on the source image do drive the look&feel of the recolored images in the desired direction.

Foreground objects requiring a specific color tone, cannot be forced by this filter. To achieve that, it is typically necessary to add a ColorizeMask filter on top. By this, some predefined colors can be applied onto specifically marked objects by kepping the complex natural pre-colored structures from the background.

If some more reference images need to be created in the same style, the first reference image can be used as a parameter for the others. To do so, the first reference images needs to be copied into a buffer (“Grab Still Image”) and then further on loaded into the parameters of the ReColorImage instance on the second reference image.

ReColorSequence

This filter is very similar to ReColorImage, but is usually placed on the timeline over a full shot. It requires predefined Reference Images, that are marked as usual by “R”. These references are then kept constant but all other images in between the references, are automatically colored in the same way and style.

The creation of references can be done by any other tool or filter in advance to the use of ReColorSequence. Good to know, that ReColorImage plus some ColorizeMask filters below, lead in most cases to some quick and good references.

Parameters

- *Reference Source:* Selects the low-res color reference that is typically loaded before as an Additional Source.

Wie arbeiten aufgrund der Allgemeinen Bedingungen für den Verkauf und die Lieferung von Software - Support Leistungen, sowie für Dienstleistungen in der Informationsverarbeitung durch Rechenzentren und den Verkauf und die Lieferung von Organisations-, Programmierleistungen- und Werknutzungsbewilligungen von Softwareprodukten - empfohlen vom Fachverband Unternehmensberatung und Datenverarbeitung sowie vom Bundesministerium des Maschinenhandels, Berufsgruppe Büromaschinenhandel und bei uns zur Einsicht liegenden Fassung.
Handelsregister: FN 175664f; UID: ATU45810109; EORI: ATEOS1000008592
Raiffeisenbank Lieboch-Stainz BLZ: 38210, Konto: 27656, SWIFT/BIC: RZSTAT2G210, IBAN: AT253821000000027656