PIXEL PROCESSING

Ref-Nr: TA-10092/TUB

HINTERGRUND

Coding artifacts in video codecs can be reduced using several spatial in-loop filters that are part of the emerging video coding standard High Efficiency Video Coding (HEVC). Such In-loop filters are known to the state of the art and normally provide adaptive de-blocking properties to improve both the subjective and the objective quality of a decoded video sequence. Moreover the concept of motion compensated temporal filtering is known as well.

PROBLEMSTELLUNG

Even though most of the mentioned prior art filters provide quite good results, better performance is still desirable for many of today's video applications.

Thus it was an objective of the invention to provide a method as well as a device for efficiently processing image pixels in order to increase the quality of a video sequence.

LÖSUNG

According to the invention a method for processing the pixel value of at least one image pixel contained in a current frame of a video sequence is provided that constructs an individual motion trajectory comprising motion-shifted versions of the at least one image pixel over a plurality of preceding and/or subsequent frames, and afterwards processing the pixel value based on the individual motion trajectory. The method chooses at least one image pixel of the current frame as a start pixel of the individual motion trajectory, and adds the motion-shifted versions of the at least one image pixel of preceding and/or subsequent frames to the individual motion trajectory.

Using this method two or more motion-shifted versions of the image pixel are determined for each preceding and/or subsequent frame of the trajectory allowing to pick the "best" motion-shifted version out of a plurality of versions for each frame.

Thus, the estimation of the pixel motion can be optimized for each frame in view of predefined criteria such as the most accurate motion estimation (i.e. best

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ENTWICKLUNGSSTAND

Leitstruktur

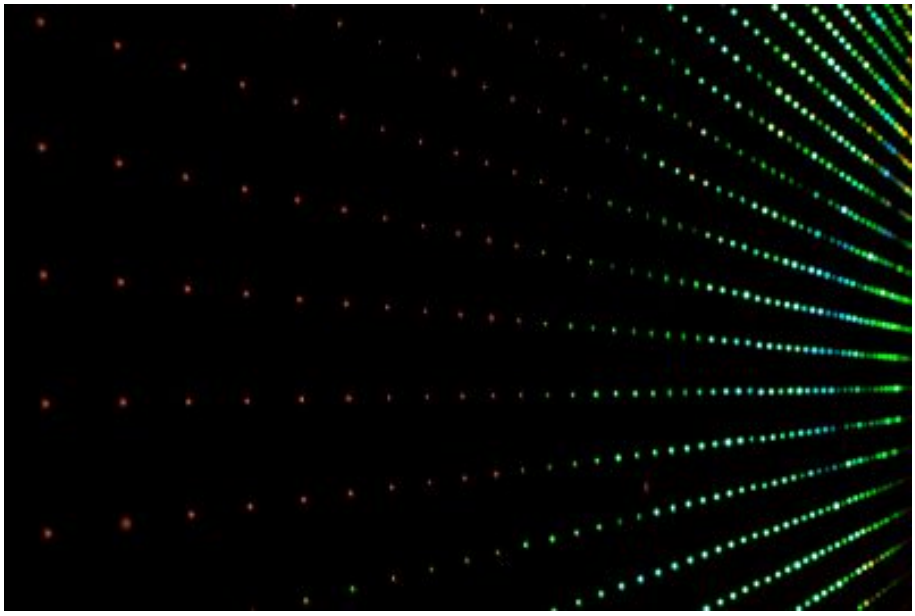
PATENTSITUATION

US erteilt

CATEGORIES

//Computergrafik //Informations- und Kommunikationstechnik

video quality) and/or a minimum number of additional bits for describing the pixel motion (i.e. maximum data compression).



VORTEILE

- Considers higher motion orders
- Longer motion trajectories possible
- Improved noise reduction

ANWENDUNGSBEREICHE

This method of video coding is of most interest for the use in video-sharing websites, online video-on-demand platforms or streaming media providers.

SERVICE

Possible cooperation:

- R&D Cooperation
- Patent Sale

- Licensing