videorecprocquant

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1 Program videoprocquant

Program to capture a video from a camera, compute the Y component, quantize and de-quantize itm and display it live on the screen - Gerald Schuller, October 2014 * Import relevant modules:

```
In [1]: import numpy as np
        import cv2
```

- Number of bits per Y pixel:

```
In [2]: bits = 2
```

- Resulting quantization step size for 2^bits steps, with min=0 and max=1:

```
In [3]: quantstufe=1.0/(2**bits-1)
        cap = cv2.VideoCapture(0)
```

- Start capturing and process each frame:

```
In [4]: while(True):
            # Capture frame-by-frame
            [ret, frame] = cap.read()

            # Our operations on the frames come here
            #Berechnung der Luminanz-Komponente Y:
            # Y= 0.114*B+0.587*G+0.299*R :
            # /256 because the result is float values which imshow expects in range 0...1:
            Y=(0.114*frame[:,:,0]+0.587*frame[:,:,1]+0.299*frame[:,:,2])/255;

            #Quantization indices for transmission:
            indices=np.round(Y/quantstufe)
            #de-quantization in the decoder:
            Yrek=indices*quantstufe

            # Display the resulting frame
            cv2.imshow('Original Y, 8 bits/Pixel',Y)
            cv2.imshow('De-Quantisierte Luminanz Y, 2 bits/Pixel',Yrek)
```

```
        #Ende durch Taste "q":
        if cv2.waitKey(1) & 0xFF == ord('q'):
            break
```

- When everything done, release the capture:

```
In [5]: cap.release()
        cv2.destroyAllWindows()
```