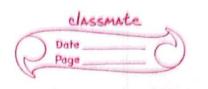
26) The equations given for optical flow are (u, v)= u(x,y)=a,x+b,y+c, N(x, y) = as x + b2y + Co These equations describe how each pixel in the image moves from one frame to the next. a, b, c, and as, bs, co are the affine parameters we need to estimate. Lucas karde algorithm works effectively for motion tracking when the motion is affine. For each pixel, we assume that optical flow (u, v) and motion field is constant within a small neighbourhood 'n! For every point (k, e) en, we get Iz (k,l) u+ Iy (k, l) V+IL(k,l) =0 Let size of neighbour u be nxn. I+ (K') Ix (K, L), Ty (K, L) Ix (n, n) , Iy (n, n) IE (n, n) kuown From above we can solve for x & Y, we get xxexty

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Let pixel 
$$(x,y)$$
 is displaced by  $(x+v,y+u)$ 

$$E(u,v) = E\left(x+u,y+v\right) - T(x,y)^{2}$$

$$= \sum \left[ I(x,y) + u I_{x}(x,y) + v I_{y}(x,y) - T(x,y) \right]$$

$$= \mathbb{E}\left[u \mathbb{I}_{x}(x,y) + V \mathbb{I}_{y}(x,y) + D(x,y)\right]^{2}$$

Finding partial derivative & equality to zero we get

$$\frac{dG}{dV} = \Xi \left[ u I_{x}(x,y) + v I_{y}(x,y) + D(x,y) \right]_{x}$$

$$I_{y}(x,y) = 0$$

This can be written as

$$\leq \begin{bmatrix} I_{x}^{2} & I_{x}I_{y} \\ I_{x}I_{y} & I_{y}^{2} \end{bmatrix} \begin{bmatrix} I_{y} \\ I_{y} \end{bmatrix} = -2 \begin{bmatrix} I_{x}D \\ I_{y}D \end{bmatrix}$$

Can be Summarized as

computing Ix, Iy, It for images of if determinant of x is zero or not and if det |A| = 0 then pixel was least squares

The general form can be written as

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