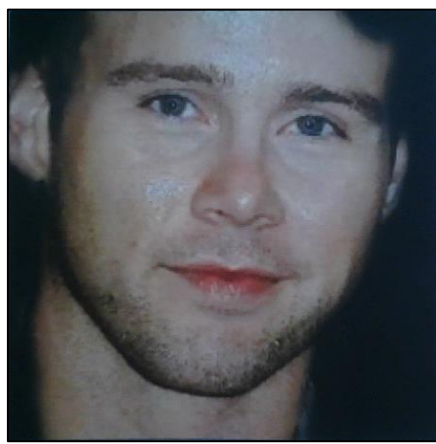
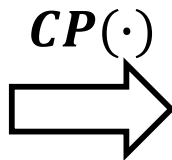


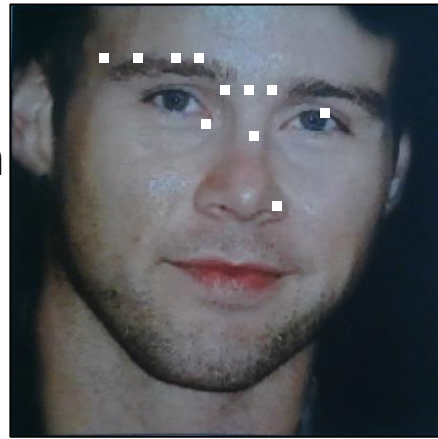
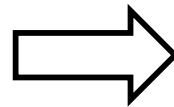


Original Image ( $X$ )

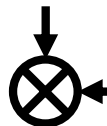


Printed Photo ( $Z$ )

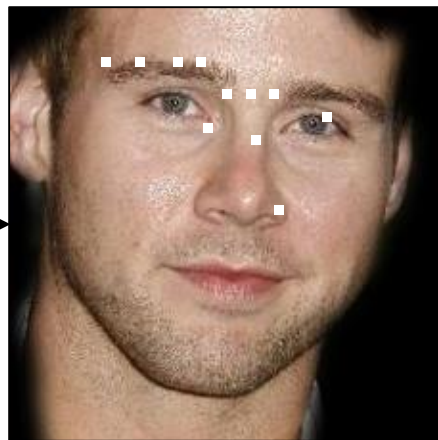
AE  
Generation



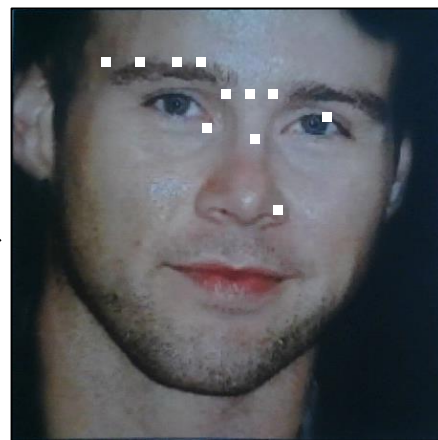
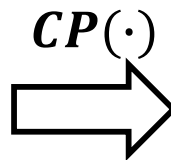
Digital AE ( $\hat{Z}$ )



Mapping



Digital AE ( $X + \theta$ )



Physical AE ( $\hat{Z}_p$ )