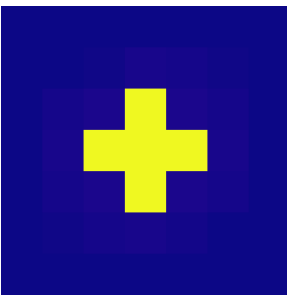
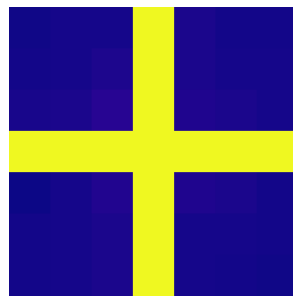


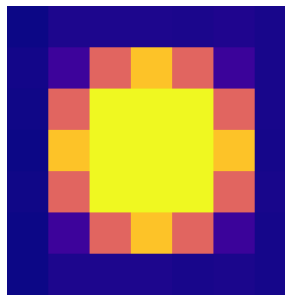
Opération : **dilatation**  
Jeu : **MNIST**



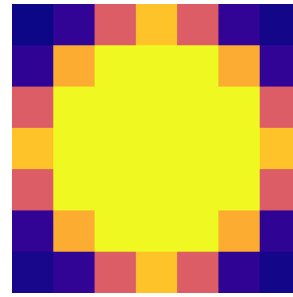
cross3



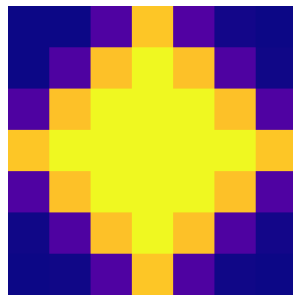
cross7



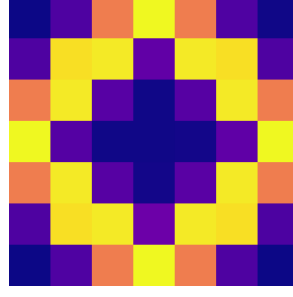
disk2



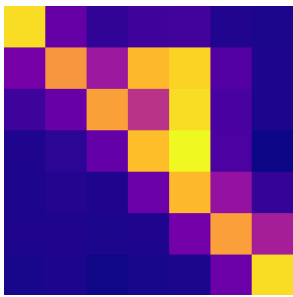
disk3



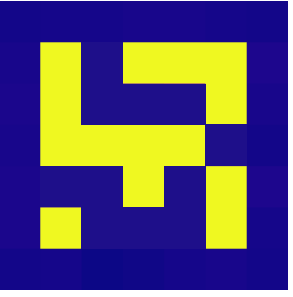
diamond3



complex

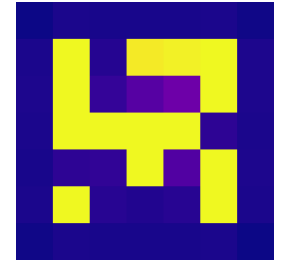
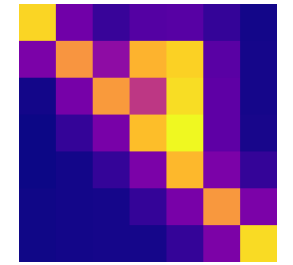
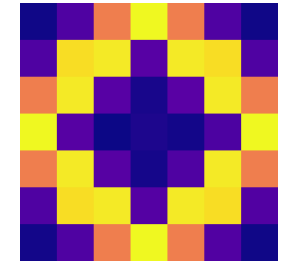
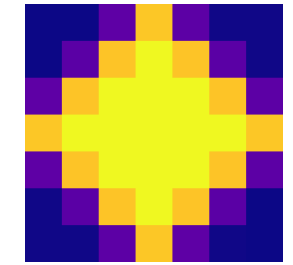
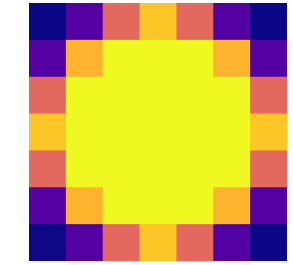
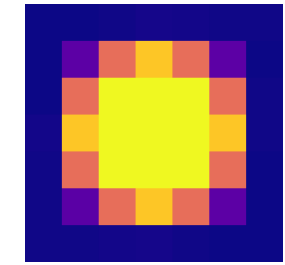
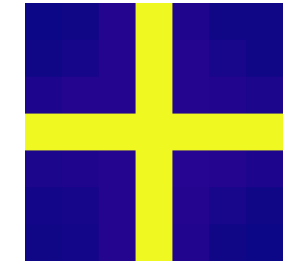
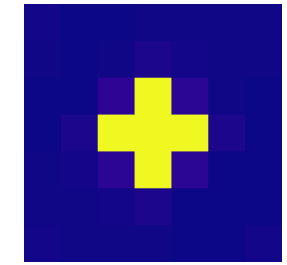


adiag



brand

$w$



*SMorph*

$\alpha$

$44.48 \pm 1.01$

$54.72 \pm 1.42$

$43.96 \pm 0.92$

$52.87 \pm 1.40$

$52.43 \pm 0.84$

$36.77 \pm 0.40$

$53.53 \pm 2.96$

$52.56 \pm 1.19$

RMSE

$0.01 \pm 5 \times 10^{-4}$

$0.02 \pm 4 \times 10^{-4}$

$0.01 \pm 4 \times 10^{-4}$

$0.01 \pm 6 \times 10^{-4}$

$0.01 \pm 3 \times 10^{-4}$

$0.01 \pm 9 \times 10^{-3}$

$0.03 \pm 2 \times 10^{-3}$

$0.04 \pm 6 \times 10^{-3}$

LOSS

$1.8 \times 10^{-5} \pm 3 \times 10^{-6}$

$2.9 \times 10^{-5} \pm 4 \times 10^{-6}$

$2.7 \times 10^{-5} \pm 5 \times 10^{-6}$

$3.5 \times 10^{-5} \pm 6 \times 10^{-6}$

$3.5 \times 10^{-5} \pm 9 \times 10^{-6}$

$3.9 \times 10^{-5} \pm 7 \times 10^{-6}$

$1.8 \times 10^{-3} \pm 2 \times 10^{-5}$

$1.9 \times 10^{-4} \pm 8 \times 10^{-6}$

EPOCHS

$30 \pm 8$

$33 \pm 7$

$28 \pm 4$

$33 \pm 7$

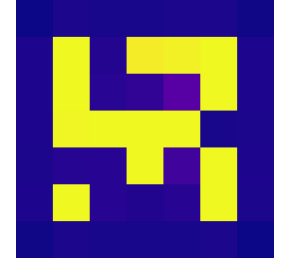
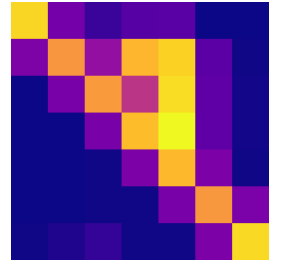
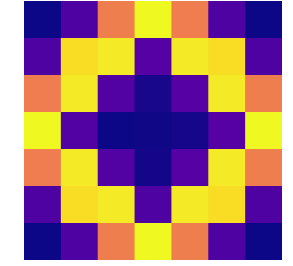
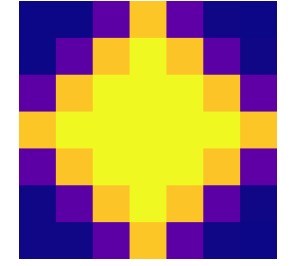
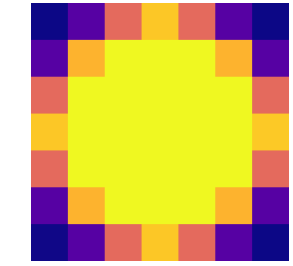
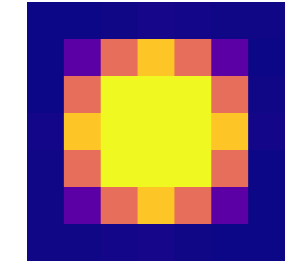
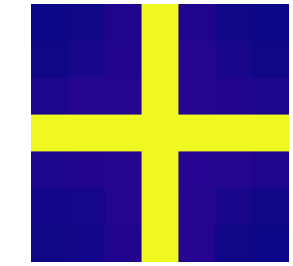
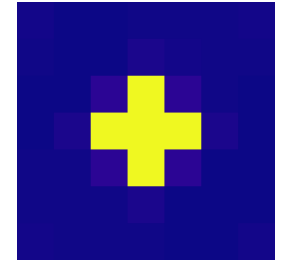
$29 \pm 3$

$29 \pm 6$

$29 \pm 3$

$31 \pm 4$

$w$



*SMorphTanh*

$\alpha$

$44.74 \pm 0.59$

$54.73 \pm 1.18$

$44.16 \pm 1.11$

$51.06 \pm 1.82$

$51.41 \pm 2.77$

$36.93 \pm 0.34$

$55.37 \pm 1.32$

$52.25 \pm 1.59$

RMSE

$0.01 \pm 2 \times 10^{-4}$

$0.02 \pm 4 \times 10^{-4}$

$0.01 \pm 6 \times 10^{-4}$

$0.01 \pm 7 \times 10^{-4}$

$0.01 \pm 1 \times 10^{-3}$

$0.01 \pm 6 \times 10^{-3}$

$0.03 \pm 2 \times 10^{-3}$

$0.04 \pm 3 \times 10^{-3}$

LOSS

$1.7 \times 10^{-5} \pm 4 \times 10^{-6}$

$2.9 \times 10^{-5} \pm 1 \times 10^{-5}$

$2.6 \times 10^{-5} \pm 2 \times 10^{-6}$

$3.6 \times 10^{-5} \pm 4 \times 10^{-6}$

$3.1 \times 10^{-5} \pm 7 \times 10^{-6}$

$3.7 \times 10^{-5} \pm 8 \times 10^{-6}$

$1.8 \times 10^{-3} \pm 2 \times 10^{-5}$

$1.9 \times 10^{-4} \pm 9 \times 10^{-6}$

EPOCHS

$28 \pm 4$

$32 \pm 6$

$34 \pm 9$

$25 \pm 3$

$30 \pm 7$

$30 \pm 5$

$30 \pm 2$

$31 \pm 4$