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On approximating mathematical morphology operators via deep learning techniques

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Mathematical Morphology (MM) is a well-established discipline whose aim is mainly to provide tools to characterise complex object via their shape/size features. This study addresses the problem of robust approximation of mathematical morphology (MM) operators by deep learning methods. We present two cases, (a) Asymmetric autoencoders for part-based approximations of classical MM in the sense of [1] and, (b) image-to-image translation networks [2] to produce robust MM operators in presence of noise.

References

- [1] Ponchon B., Velasco-Forero S., Blusseau S., Angulo J. and, Bloch I., Partbased approximations for morphological operators using asymmetric autoencoders, *ISMM'19*, 2019
- [2] Isola P., Zhu J-Y, Zhou T. and, Efros A., Image-to-Image Translation with Conditional Adversarial Networks, *CVPR'17*, 2017.