
Local turn-boundedness: a curvature control for a good digitization

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Abstract

This paper focuses on the classical problem of the control of information loss during the digitization step. The properties proposed in the literature rely on smoothness hypotheses that are not verified by the curves including angular points. The notion of turn introduced by Milnor in the article On the Total Curvature of Knots generalizes the notion of integral curvature to continuous curves. Thanks to the turn, we are able to define the local turn-boundedness. This promising property of curves do not require smoothness hypotheses and shares several properties with the $\text{par}(r)$ -regularity, in particular well-composed digitizations. Besides, the local turn-boundedness enables to constraint spatially the continuous curve in function of its digitization.

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