



# Local spatio-temporal encoding of raw perfusion MRI for the prediction of final lesion in stroke

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Auteur	Giacalone, Mathilde [1], Rasti, Pejman [2], Debs, Noelie [3], Frindel, Carole [4], Cho, Tae-Hee [5], Grenier, Emmanuel [6], Rousseau, David [7]
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Résumé en anglais	<p>We address the medical image analysis issue of predicting the final lesion in stroke from early perfusion magnetic resonance imaging. The classical processing approach for the dynamical perfusion images consists in a temporal deconvolution to improve the temporal signals associated with each voxel before performing prediction. We demonstrate here the value of exploiting directly the raw perfusion data by encoding the local environment of each voxel as a spatio-temporal texture, with an observation scale larger than the voxel. As a first illustration for this approach, the textures are characterized with local binary patterns and the classification is performed using a standard support vector machine (SVM). This simple machine learning classification scheme demonstrates results with 95% accuracy on average while working only raw perfusion data. We discuss the influence of the observation scale and evaluate the interest of using post-processed perfusion data with this approach.</p>
URL de la notice	<a href="http://okina.univ-angers.fr/publications/ua17606">http://okina.univ-angers.fr/publications/ua17606</a> [12]
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## Liens

[1] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=29270>

[2] <http://okina.univ-angers.fr/httperso-laris.univ-angers.fr/rasti/publications>

[3] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=29271>

- [4] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=28821>
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- [6] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=29273>
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- [11] <http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=25237>
- [12] <http://okina.univ-angers.fr/publications/ua17606>
- [13] <http://dx.doi.org/10.1016/j.media.2018.08.008>
- [14] <https://www.sciencedirect.com/science/article/pii/S1361841518306807>

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