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## Application of complex network analysis to segmentation of coloured images

Tuesday, September 2, 2025 10:00 AM (30 minutes)

In this talk, we propose an approach to perform multi-label segmentation. Starting from an image, we construct the associated weighted graph and assign a label to a small number of pixels (seeds). The aim is to assign each unlabeled pixel to a label to identify different regions. Our algorithm uses the notion of communicability from complex networks theory to compute the ease for an unlabeled pixel to reach a labeled one. We can perform a good image segmentation by assigning each pixel to the label for which the largest communicability is calculated. Moreover, an extension to coloured images is proposed.

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