Surface Area Estimation with Non-Cubic Voxels

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Estimating the true surface area of a 3-D object, that has been imaged and is given in digital form as a set of voxels, is a classical problem. Several approaches have been suggested, but all seem to be directly applicable only to cubic voxels.

It turns out that in microscopy and in medical imaging, it is often the case that voxels are not cubic, i.e., their length, width and depth are not identical.

The challenge is to provide a simple and effective surface area estimation algorithm, for non-cubic voxels, that biologists and radiologists will be able to use for their research.