

Optical Flow on Evolving Sphere-Like Surfaces

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In [1], we consider optical flow on evolving surfaces which can be parametrised from the 2-sphere. Our main motivation is to estimate cell motion in time-lapse volumetric microscopy images depicting fluorescently labelled cells of a live zebrafish embryo. We exploit the fact that the recorded cells float on the surface of the embryo and allow for the extraction of an image sequence together with a sphere-like surface. We solve the resulting variational problem by means of a Galerkin method based on vector spherical harmonics and present numerical results.

References

- [1] L. F. Lang and O. Scherzer. Optical flow on evolving sphere-like surfaces. *Inverse Probl. Imaging*, in press, 2016.