

Computational Anatomy and Diffeomorphometry:  
100 Years Since D'Arcy Thompson

I discuss the Computational Anatomy project, focusing on the metric construction of anatomical shape and form via diffeomorphic flow. The Euler-Lagrange equations for geodesics are discussed for shooting submanifolds: landmarks, surfaces and subvolumes.

Several applications are focused on in which shape is reduced to parametric basis representations of momentum encoding of the geodesic flows allowing for construction of Gaussian field statistical models of the variation of neuroanatomy. Neurodegenerative diseases will be discussed in this context.