InputImage = {image path + image filename}, t = {time point}

InputMask = {image path + lung mask filename}, t = {time point}

ArtifactMask = {image path + artifact mask filename}, t = {time point}

similarityCostType: “SSTVD” for GDR regression, “SSD” for GIR regression.

outputDispStartTime: the starting time point from which to compute the flow of diffeomorphisms from the output time-varying velocity field. For example, if outputDispStartTime=0, then the diffeomorphisms start from the first input image which is associated with the identity map, if outputDispStartTime=1, then the diffeomorphisms start from the second input image which is associated with the identity map.

outputDispTimes: a list of time points at which to output the resulting displacement fields, for example, if outputDispStartTime=1 and outputDispTimes = 5, then the GDR code will output the displacement field from the second input image to the sixth input image.

fixedTemplate: “False” if estimate a new template image at each iteration,“True” if use the 100IN CT as the template image (recommended).

numberOfResolutions: number of resolutions used in multi-resolution image regression.

imageWeights: gamma used in each resolution, the weight put on the similarity cost equals 1/(gamma2).

imageSmoothingFactors: size of the kernel used to smooth the CT images before regression at each resolution.

downsampleFactors: image downsample factor at each resolution.

deformationKernelSizes: size of the deformation smoothing kernel at each res-olution in mm.

stepSizes: step size used in gradient descent at each resolution.

numberOfIterations: maximum number of iterations at each resolution.

epsilons: stop criterion used in each resolution. If the rate of loss reduction is small than the specified epsilon, the GDR code will stop.

outputDispType: the type of output displacement field, “Eulerian” for pull-back transformations, and “Lagrangian” for push-forward transformations.

outputDirectory: path for the outputting regression results.