Algorithm 1: Self-Registration(E,T)

Input: E: the subject's epi sequence.
T: the subject's anatomical scan.
Result: E_T: the subject's epi sequence in anatomical space.

```
// FLIRT using local optimisation
```
$T_b = bet(T, -f0.3 - R - B - S)$
$xfm1 = flirt(E, T_b, sch = simple3d.sch)$
$E_{local} = applyxfm(E, T_b, xfm1)$
$E_{bbr} = epireg(E_{local}, T, T_b)$
if $regscore(A_{bbr}, T_b) > 0.8$ **then**
```
    // Our nonlinear method has not completely failed
```
    return $resample(E_{bbr}, T_b)$
else
```
    // Use the more robust method, which was the input to the previous
```
    return $resample(E_{local}, T_b)$
end

Algorithm 2: Template-Registration(E,T,M)

Input: E: the subject's epi sequence in anatomical space.
T: the subject's anatomical scan.
M: the template; contains a *brain* and *mask* attribute, and M itself refers to the skull-on image.
Result: E_T: the subject's epi sequence in anatomical space.

```
// FLIRT using local optimisation
```
$T_b = bet(T, -f0.3 - R - B - S)$
$xfm1 = flirt(E, T_b)$
$warp1 = fnirt(T, M, guess = xfm1, mask = M.mask)$
$E_{nonlin} = applywarp(E, M, guess = warp1)$
if $regscore(E_{nonlin}, M_b) > 0.8$ **then**
```
    // Our nonlinear method has not completely failed
```
    $T = resample(T, M_b)$
    return $resample(E_{nonlin}, M_b)$
else
```
    // Use the more robust method, so compute here
```
    $E_{lin} = applyxfm(T, M, guess = xfm1)$
    $T = applyxfm(T, M, guess = xfm1)$
    $resample(T, M_b)$
    return $resample(E_{lin}, M_b)$
end

Algorithm 3: Reg-Score(A, B_M)

Input: A: the aligned sequence. note that this image can be skullstripped or not since we skullstrip internally.
B_M: the brain that was aligned to. note that we assume this input has already been skull stripped and ias a mask.
Result: r: the registration score between A and B.

```
// Generate an approximate mask for our data
```
$A_M = bet(A, -f0.3 - m)$
return $\frac{A_M \cap B_M}{A_M \cup B_M}$