

# Automated Cardiovascular MR myocardial scar quantification with unsupervised domain adaptation

## ELECTRONIC SUPPLEMENTARY MATERIAL

### Dark-blood LGE acquisition

Dark-blood LGE imaging used an ECG-triggered segmented spoiled gradient-echo PSIR sequence acquired during a breath-hold on a clinical 3 Tesla system (Achieva TX, Philips Healthcare, Best, the Netherlands) equipped with a 32-channel cardiac phased-array coil. Images were acquired >10 minutes after an intravenous injection of 0.2 mmol/kg gadobutrol (Gadovist, Bayer, Berlin, Germany). Typical sequence parameters were: TR 3.5 ms, TE 2.0 ms, flip angle 25°, PSIR reference readout flip angle 5°, acquired resolution 1.61 × 1.61 mm<sup>2</sup>, reconstructed resolution 0.65 × 0.65 mm<sup>2</sup>, slice thickness 8 mm. Images are acquired with an inversion time (TI) that nulls blood signal (instead of nulling normal myocardium), as described in (1).

### Patient baseline and demographic characteristics

|                                              |         |
|----------------------------------------------|---------|
| Age (years)                                  | 63 ± 12 |
| Male                                         | 29 (66) |
| LV end-diastolic volume (ml/m <sup>2</sup> ) | 83 ± 23 |
| LV ejection fraction (%)                     | 54 ± 13 |
| LV ejection fraction < 50%                   | 11 (25) |
| Maximum wall thickness (mm)                  | 10 ± 2  |
| Ischemic LGE presence                        | 17 (39) |
| LGE > 15%                                    | 9 (21)  |

**Table 1:** Patient demographics (N = 44), values are n (%) or mean ± SD. Left ventricular end-diastolic volume is indexed to body surface area calculation.

### Data augmentation

| Type of Augmentation | Value                      |
|----------------------|----------------------------|
| Translation          | $\mathcal{U}(-0.15, 0.15)$ |
| Scaling              | $\mathcal{U}(0.85, 1.15)$  |
| Rotation (degrees)   | $\mathcal{U}(-90, 90)$     |

**Table 2:** The parameters used for the data augmentation in the bounding box training.  $\mathcal{U}(a, b)$  denotes that the parameter value was randomly sampled from a uniform distribution on the interval  $[a, b]$ . Translation and scaling were applied independently in x and y. Parameters for translation and scaling are given as a proportion of the image size.

### References

1. Holtackers RJ, Chiribiri A, Schneider T, Higgins DM, Botnar RM. Dark-blood late gadolinium enhancement without additional magnetization preparation. Journal of Cardiovascular Magnetic Resonance. 2017;19(1):64. doi: 10.1186/s12968-017-0372-4.