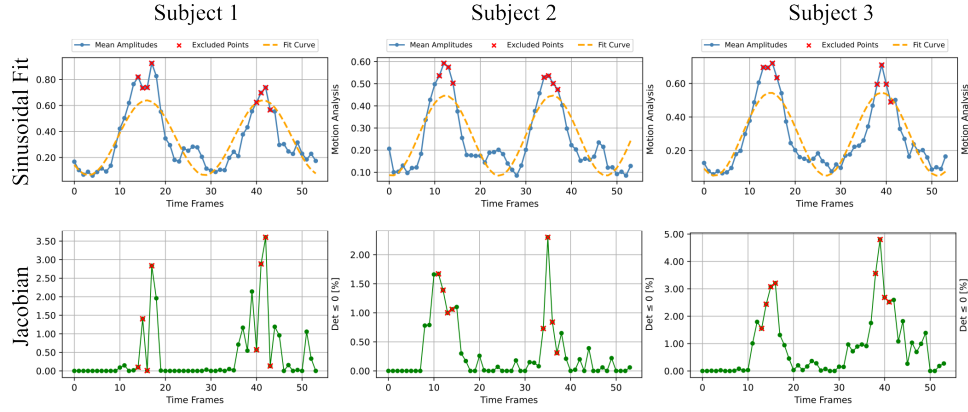


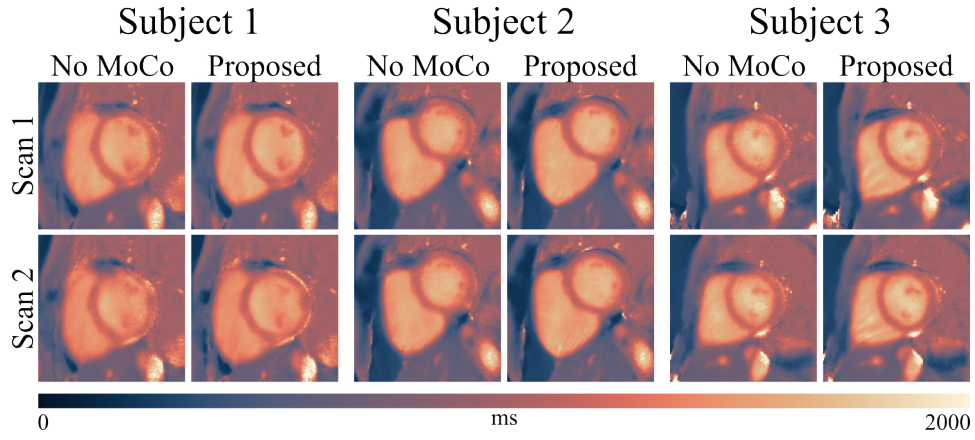
Supplementary Material for:

Zero-Shot Unsupervised Motion Estimation for Motion-Corrected Cardiac T1 Mapping

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Suppl. Figure 1: Analysis of motion fields for three subjects. Top row: mean motion field amplitudes over time, with orange curve indicating the sinusoidal fit. Bottom row: percentage of negative Jacobian determinants within a heart-specific ROI, excluding artifacts from outside structures such as the chest wall. Red marks indicate the 15% of frames excluded due to high motion (systolic dynamics). The correlation between excluded frames and increased negative Jacobian values reflects through-plane physiological motion during systole.



Suppl. Figure 2: Reproducibility analysis. T1 maps from three subjects scanned in two separate scans are shown, comparing uncorrected and motion-corrected results. Motion correction yielded consistent sharpness improvements across sessions: 13.92% and 12.93% for Subject 1, 24.30% and 18.38% for Subject 2, and 18.25% and 20.66% for Subject 3, supporting the robustness of the method across multiple acquisitions.