**Supplementary Materials**

The proposed method can be used to calculate the left ventricular mass (LVM) shown in A to F of Fig. A1(Kristensen et al. 2022). In particular, the formula for F, which measures LVM by calculating three lines from four points in PLAX view, can be computed. In the formula, the terms represent as ventricular septal thickness at end-diastole, as LV internal diameter at end-diastole, and as inferolateral (posterior) LV wall thickness at end-diastole(Lang et al. 2015). Additionally, using other views besides PLAX, such as C and E, the proposed method can be used to calculate the major values in the formula, and an additional process is needed to calculate LVM.

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Fig. A1 Methods for measuring left ventricular mass in multiple views of echocardiogram(Kristensen et al. 2022).Reproduced under the terms of the Creative Commons Attribution 4.0 International License (CC BY 4.0; https://creativecommons.org/licenses/by/4.0/).

|  |  |  |
| --- | --- | --- |
| **Dataset**  (view) | **Image** | **Image size**  (pixels) |
| CAMUS(Leclerc et al. 2019b)  (A2C) | 모노크롬이(가) 표시된 사진  낮은 신뢰도로 자동 생성된 설명 | 748x1,232 |
| CAMUS(Leclerc et al. 2019b)  (A4C) | 산부인과 초음파, 의료 영상, 흑백, 천문학이(가) 표시된 사진  자동 생성된 설명 | 748x1,232 |
| EchoNet LVH(Duffy et al. 2022)  (PLAX) | 의료 영상, 산부인과 초음파, 방사선과, 의료 방사선이(가) 표시된 사진  자동 생성된 설명 | Variable |
| TMED-2(Huang et al. 2022)  (PSAX) | 의료 영상, 산부인과 초음파, 방사선과, 의료 방사선이(가) 표시된 사진  자동 생성된 설명 | 112x112 |

Fig. A2 Composition of the training set: A2C and A4C views from CAMUS(Leclerc et al. 2019a), PLAX view from EchoNet LVH(Duffy et al. 2022), and PSAX view from TMED-2(Huang et al. 2022) were used for the echocardiogram dataset. The proposed model was trained using k-shots sampling (e.g. k=5, 10, 20, and 30) from the total number of images during model-agnostic meta learning.

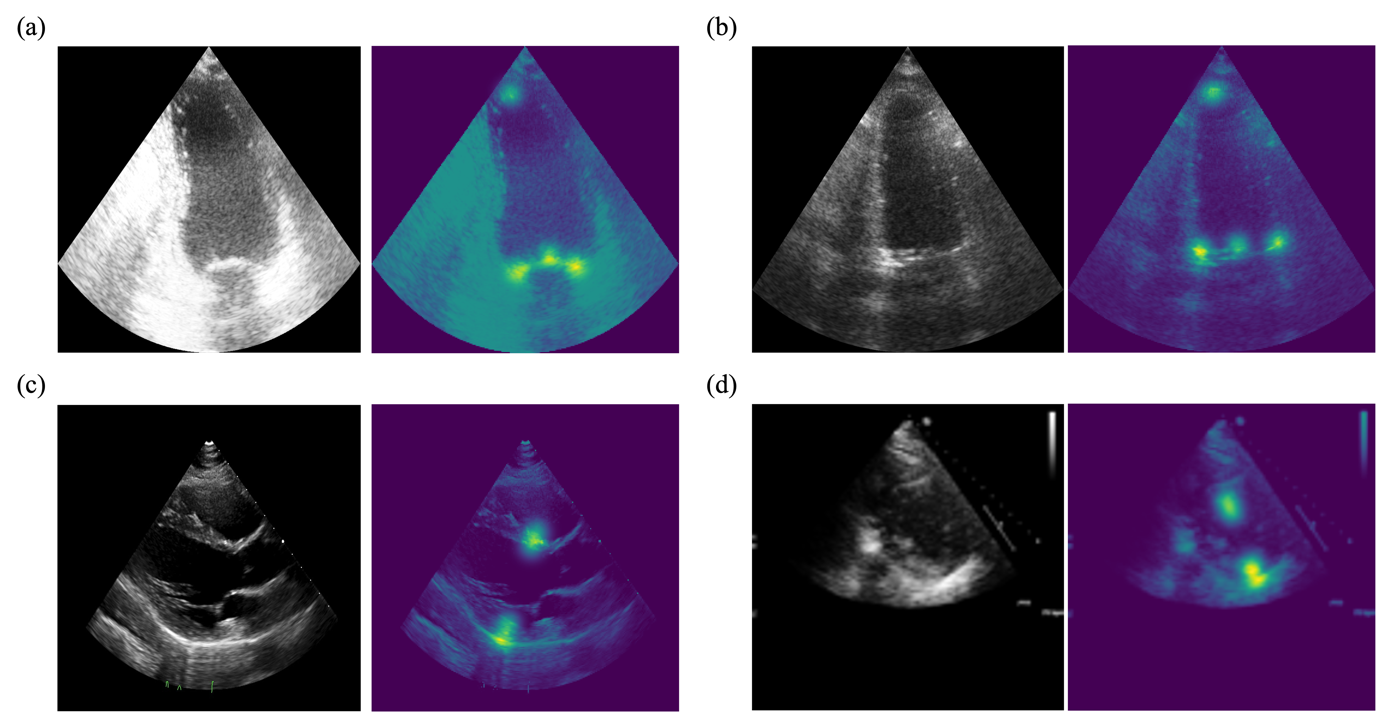


Fig. A3 Examples of the training set used for the proposed segmentation model in echocardiography: The proposed model utilized a heatmap-based point estimation method, generating labels (masks) with a standard deviation of 7 for gaussian distribution. On the left is the original image, and on the right is the image where the gaussian distribution is represented as a heatmap. (a) A2C view (b) A4C view (c) PLAX view (d) PSAX view

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Fig. A4 An illustration of the differences between the MAML and ANIL methods(Tammisetti et al. 2024)*.*Reproduced under the terms of the Creative Commons Attribution 4.0 International License (CC BY 4.0; https://creativecommons.org/licenses/by/4.0/).

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