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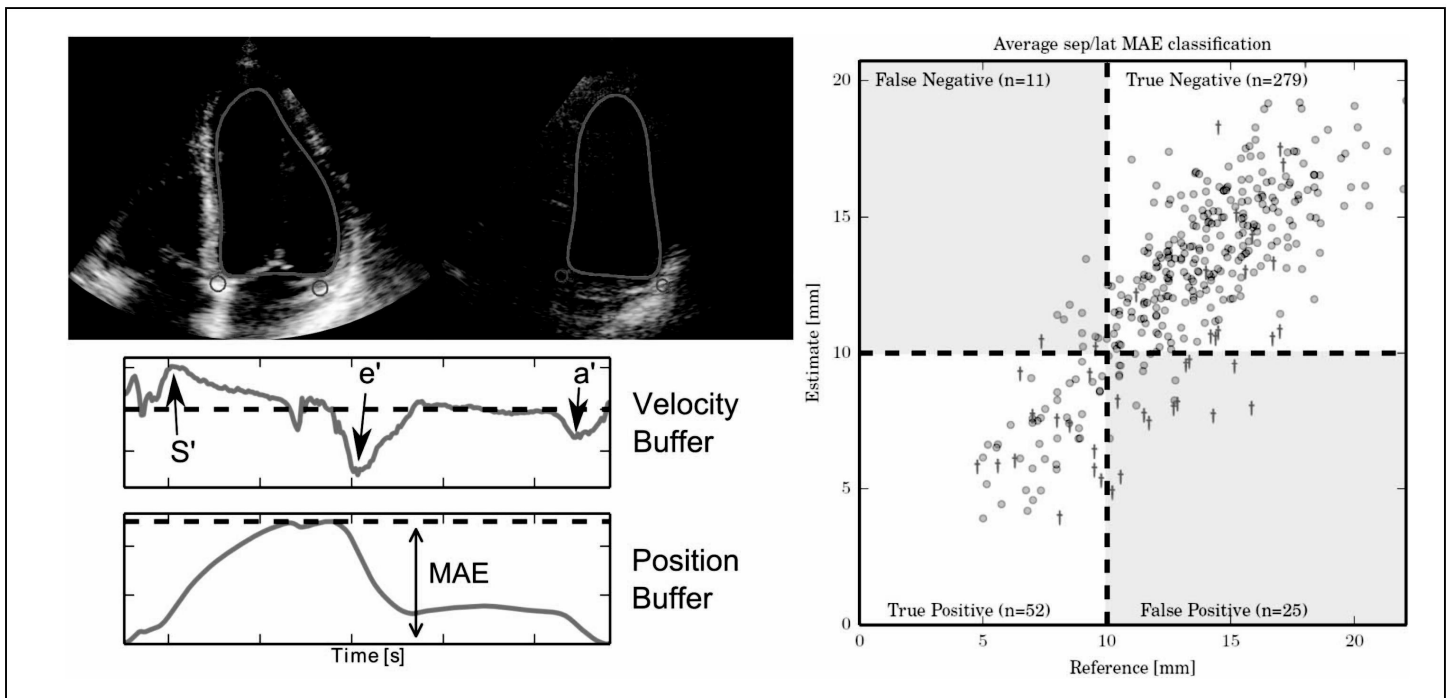
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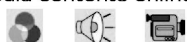
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Realtime Automatic Assessment of Cardiac Function in Echocardiography

The atrioventricular (AV) plane separates the left ventricle (LV) and the left atrium. Automatic measurement of its displacement and peak velocities provides clinically useful information. (Top left) After segmenting the left ventricle with a Kalman filter based algorithm, the resulting contour is used to locate the septal and lateral AV-points, which together define the AV plane. The points are tracked throughout the cardiac cycle by numerical integration of tissue Doppler velocities. The resulting displacement- and velocity curves (bottom left) are analyzed at the end of the cycle. The excursion of the AV plane (MAE) provides valuable information about the systolic function. Right: Scatter plot of the automatic detection of reduced MAE, here defined as less than 10 mm, versus reference values supplied by experienced cardiologists. Cases where the automatic segmentation failed are shown with red cross-shaped symbols.

Images are courtesy of Sigurd Storve, Jahn Frederik Grue, Stein Samstad, Håvard Dalen, Bjørn Olav Haugen, and Hans Torp. S. Storve, J. F. Grue, and H. Torp are with the Department of Circulation and Medical Imaging, Norwegian University of Science and Technology, Trondheim, Norway. S. Samstad and B. O. Haugen are with the Department of Circulation and Medical Imaging, Norwegian University of Science and Technology, Trondheim, Norway, and also with the Clinic of Cardiology, St. Olavs Hospital, Trondheim University Hospital, Trondheim, Norway. H. Dalen is with the Department of Circulation and Medical Imaging, Norwegian University of Science and Technology, Trondheim, Norway, and also with Levanger Hospital, Nord-Trøndelag Health Trust, Levanger, Norway.

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