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A framework for an intelligent agro-climate decision support system for small-scale farmers in Swayimane

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Ultrasound imaging uses reflected echo signals from high-frequency sound waves transmitted into a body with high water content to create images of the internal soft tissue, bone, and blood flow. Different kinds of noise are introduced during the signal acquisition and processing stages. Ultrasound images are mostly affected by speckle noise. High-quality images can improve the observational accuracy of diagnostic exams. Speckle noise degrades an image's quality, making it difficult to recognize, analyze, and measure. To reduce speckle noise in ultrasound images and improve diagnostic capability, an investigation and comparison study of the different image filters currently available was done. Thereafter a hybrid filter combination of speckle, gaussian, median and average filter was used to remove speckle noise in ultrasound images. The proposed hybrid filters outperformed other filters in terms of PSNR, SNR, SSIM and MSE.