Assessment of Breast Density Using Unsupervised Variational Auto-Encoders

Description:

About 1 in 8 U.S. women (about 12%) will develop invasive breast cancer over the course of her lifetime. Breast density is a strong indicator for breast cancer. Women with extremely dense breasts have a sixfold greater risk of developing breast cancer. My project is about the assessment of breast density by using unsupervised deep learning algorithms. I trained variational auto-encoders (VAE) on patient mammograms without any manual annotations of the dense regions of the breast. With the use of the encoder model, I was able to predict the breast density as the ratio of the fibro glandular tissue to the whole breast accurately.