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Deep Convolutional Neural Networks for Breast Cancer Screening

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Highlights

- A Computer-aided Diagnosis system for mammography mass lesion classification is proposed.
- The system is an end-to end learning process based on deep Convolutional Neural Networks.
- The depth of a network and its architecture affects its performance. The quality and quantity of the training data also plays a substantial role in the final performance of the system.
- Transfer learning through the use of pre-trained weights instead of random initialization gives better results.
- Too much fine-tuning may lead to overfitting especially when using deep Convolutional Neural Networks and small datasets. Using data augmentation, fine-tuning of only the last two convolutional blocks, L2 regularization and dropout prevented our models from overfitting.

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